# QUEENSLAND MINING INDUSTRY

HEALTH & SAFETY CONFERENCE 2014



*'Improving health and safety in challenging times'* 

# **Conference Handbook**

17-20 August 2014 Townsville Entertainment and Convention Centre and Jupiters Townsville





# **Sponsors**

The Queensland Mining Industry Health and Safety Conference Committee wishes to thank the following organisations for their generosity and continuing support of this event.









The above Sponsors were confirmed at the time of printing.

Displays

**Ansell Healthcare** ATOM Blackwoods **Brethalyser Sales and Service Carve Business Solutions Cooleez Sun Protection Headwear Corporate Bodies International** CROOMO Falck Pty Ltd Ford Health Group GCG Health, Safety and Hygiene **Gryphon Psychology Health Security Education Pty Ltd International SOS IPAR Rehabilitation Jobfit Systems International KINNECT** LifeAid Pty Ltd McCullough Robertson Pertrain Pty Limited **Protective Industrial Products** 

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## SAFESTART SAFESTART SERSON SERSON SERSON SERSON SMIMISHC

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### **VEHICLE DISPLAYS**

Falck Pty Ltd Health Security Education Pty Ltd MeasureUp Queensland Mines Rescue Service Simtars SICK Pty Ltd St John Ambulance (Qld)

#### **GUEST DISPLAYS**

A Miners Legacy RACQ CQ Rescue St John Ambulance (Qld)

#### HEALTH HUB

Bowel Cancer Australia Heart Foundation (Queensland) Stroke Research Unit RBWH Workplace Health and Safety Queensland

# Welcome

Welcome to the Queensland Mining Industry Health and Safety Conference 2014.

Over the course of the Conference we will be dealing with a wide range of health and safety issues in our industry. When we selected the conference theme 'Improving Health and Safety in Challenging Times' to try and bind these issues, the Committee was aware that many parts of the industry have been facing difficult times with the pressures on site resources, in some cases mine closures, redundancies and contracts that have not been renewed, all with widespread impact. However the need to ensure that our working community remains safe and healthy has not been diminished by these challenges.



It is our hope that the Conference exposes you to a broad range of ideas that includes practical information leading to achievable actions, that it helps you to improve safety and health outcomes within your current levels of resourcing, that it provides some innovation and inspires you to make a positive contribution to improve your level of preparedness to address health and safety issues at your own site.

Over the course of the Conference you will have the opportunity to:

- Hear ten keynote presentations on a wide range of subjects;
- Select from twenty-four concurrent sessions to attend;
- Participate in up to four workshops;
- Visit the Simtars virtual mine training facility (booking required);
- See over 50 trade displays and discover the services that they can provide;
- Visit the professional staff at the 'Health Hub' and be in the draw for a new iPad;
- Attend the Wednesday morning extended discussion session on learning from past mistakes;
- Help us choose a winner from ten innovation award finalists; and
- Join us at a number of social events, including the informal and Conference dinners.

The Conference Committee believes that all of these opportunities have the potential to give you information and ideas that could help you to improve health and safety at your mine site, regardless of the difficulties that are posed by the current economic downturn.

We invite you to participate in as many of these sessions and events as you can, and to share your opinions and personal experiences with your fellow delegates; that way you will come away from your Conference knowing your time was well spent.

We also ask that you make a conscious effort when you return to your workplace to share what you have learned with your colleagues and contribute towards a safer, healthier mining community.

My committee and I look forward to meeting you over the course of the Conference – don't be shy, come up and talk to us. We are the ones in the red shirts. Have a safe, healthy and productive conference for 2014.



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Liz Sanderson Occupational Health Specialist, Anglo American Metallurgical Coal Chairman Queensland Mining Industry Health and Safety Conference 2014

### **Conference Committee**

Chairman Liz Sanderson Occupational Health Specialist, Anglo American Metallurgical Coal

Secretary Shane Hansford Safety and Health Policy Adviser, Queensland Resources Council Shane Apps Group Safety Manager, Peabody Energy Australia

Judy Bertram Director Safety & Health, Queensland Resources Council

**Greg Dalliston** Industry Safety & Health Representative, CFMEU Mining and Energy Division, Queensland District

André De Kock Principal Engineer, Simtars

Jack Farry Executive Director, Simtars

Ryan Glen Manager QRC Online, Queensland Resources Council Phil Goode Chief Inspector of Mines, Department of Natural Resources and Mines

Hag Harrison Organiser Australian Workers' Union

Paul Harrison Deputy Director General Mine Safety and Health, Department of Natural Resources and Mines

John Kabel Senior Inspector of Mines, Electrical, Department of Natural Resources and Mines

Greg Lane Deputy Chief Executive, Queensland Resources Council



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**Business Sessions - Sunday to Wednesday** Townsville Entertainment and Convention Centre (TECC).

**Concurrent Sessions - Tuesday** TECC and Jupiters Townsville Hotel.

### Welcome Function - Sunday

The Museum of Tropical North Queensland.

Informal Dinner - Monday The Grand Marquee at Jupiters Townsville Hotel.

**Conference Dinner - Tuesday** The Townsville Entertainment and Convention Centre (TECC).

**Rescue Station** - Sunday to Tuesday The Lobby Bar at Jupiters Townsville Hotel.

Lunches - Monday to Wednesday The Grand Marquee at Jupiters Townsville Hotel.



# DISPLAYS – FOYER, FORECOURT AND PALM LAWN AT TECC

Of special interest are the wide range of new products and services which will be on Display for the duration of the Conference.

The Displays will be open each morning before Sessions commence and then again during all the Morning and Afternoon Breaks and at Lunch time on Monday and Tuesday.

We invite you to visit each Display Stand and discuss your requirements with the representatives who will be pleased to answer your questions and provide assistance as needed.

# **REGISTRATION INFORMATION**



#### **REGISTRATION DESK**

Registration will be in the Foyer of the Townsville Entertainment and Convention Centre (TECC) during the following times:

- 2.00pm 6.00pm Sunday
- 7.30am 6.00pm Monday and Tuesday
- 8.00am 1.30pm Wednesday

### **CONFERENCE ITEMS**

#### **CONFERENCE HANDBOOK**

Each delegate will be given a Conference Handbook containing the Full Program including Abstracts of Paper Presentations and a short form description of the Innovation Submissions.

Proudly Sponsored by MMG Dugald River



For quick reference a pocket sized Program will be supplied to all delegates.

Proudly Sponsored by Corporate Bodies International

11	Corporate
2957	Bodies
911	International

### **CONFERENCE BAG**

Proudly Sponsored by Falck Pty Ltd



#### NAME BADGE

Name badges will be provided at Registration. It is essential they be worn at all times to allow entry to Conference Sessions and all Social Functions.

Proudly Sponsored by CFMEU Mining and CFMEU Energy Queensland District



#### STUDENT HOST PROGRAM

This Program is designed to promote Health and Safety within the Mining Industry by giving students who are studying relevant courses exposure to the industry via the medium of the Conference. Students are nominated from the Queensland Resources Council Graduate Program, Central University of Queensland, Griffith University, James Cook University and the University of Queensland.

Proudly Sponsored by Safety Equipment Australia

#### **CONFERENCE PROCEEDINGS**

The following Proceedings will be available post conference on the website at www.qldminingsafety.org.au

- PowerPoint presentations provided by Keynote Presenters
- PowerPoint presentations provided by Concurrent Session Presenters
- Papers provided by Concurrent Session Presenters
- PowerPoint presentations from the Innovation Sessions
- Innovation Finalists Submissions

**Conference Proceedings Proudly Sponsored by Tyco Integrated Fire and Security** 



We wish to thank Jupiters Townsville for their generous Sponsorship of the Grand Marquee; the venue for the Informal Dinner and all lunches.

Proudly Sponsored by Jupiters Townsville



Jupiters

Integrated Fire & Security

#### **DRESS CODE**

Conference Sessions Welcome Function - Sunday evening Informal Dinner – Monday evening Conference Dinner – Tuesday evening Smart casual Smart casual Smart Casual - *Please remember to bring a warm jacket.* Lounge Suits or a Dress Shirt and Trousers for Men and Cocktail Attire for Ladies



	to the *Conference Hotels.
	Monday - This service will also operate on Monday morning, picking up delegates at the Airport and transferring them to their Hotel and/or to the Townsville Entertainment & Convention Centre.
	Wednesday - At the conclusion of the Conference Coaches will be waiting outside to transfer delegates from the Townsville Entertainment & Convention Centre to the Airport.
• Daily Coach Shuttl	e Service
Coach Shuttle Timetable wi	ll be available at the Registration Desk, at your Hotel Reception and in the Conference Bag.
<b>Business</b> S	Sessions
Sund	day Afternoon - This service will collect delegates from designated points close to the *Conference Hotels and transfer them to the Townsville Entertainment & Convention Centre in time for Registration and the commencement of the Conference.
Monday, Tuesday and	Wednesday - This service will operate each morning and Monday and Tuesday afternoons between designated points close to the *Conference Hotels and Townsville Entertainment & Convention Centre.
Social F	unctions
Sun	<ul> <li>Welcome Reception - The Museum of Tropical North Queensland</li> <li>Coaches will be waiting outside the Convention Centre at the close of the Opening Session to transfer any delegates who wish to go to their Hotel before attending the function. The coaches will return to transfer delegates to the Museum of Tropical North Queensland where the Welcome Function will be held.</li> <li>Delegates will be returned to their *Hotel at the end of the Function.</li> </ul>
Mon	day Evening - Informal Dinner - Jupiters Townsville Hotel Coaches will be waiting outside the Convention Centre at the close of the Business Sessions to transfer delegates who wish to go to their Hotel before attending the Dinner. The coaches will return to transfer delegates to Jupiters Townsville Hotel where the Informal Dinner will be held.

Delegates will be returned to their \*Hotel by a shuttle service at the end of the Function.

Tuesday Evening - Conference Dinner - TECC

Coaches will be waiting outside the Convention Centre at the close of the Business Sessions to transfer delegates back to the Hotels. The coaches will collect delegates from the designated points closest to their Hotel and transfer them to TECC for the Conference Dinner.

Delegates will be returned to their \*Hotel by a shuttle service at the end of the Function.

Delegates will be returned to their Hotel to change for the Social Functions on Monday and Tuesday evenings.

Coach Transfers Proudly Sponsored by GCG Health, Safety and Hygiene



### www.qldminingsafety.org.au

\* Those Hotels organised through

the Conference Organiser

# **CHARITY AUCTION**





#### STROKE RESEARCH AND TREATMENT AT RBWH

Royal Brisbane and Women's Hospital (RBWH) is Queensland's largest hospital caring for patients from not just Brisbane, but all over Queensland and northern New South Wales.

It is one of only a handful of hospitals in Queensland which has a dedicated Acute Stroke facility designed to maximise outcomes for patients who have suffered a Stroke through stabilising the patient and completing emergency evaluation and assessment. This then enables the specialised Stroke team to determine the best course of treatment including blood pressure control and the risks/ benefits for thrombolytic intervention.

Apart from caring for patients, the Stroke team at RBWH is also actively involved in research and clinical trials, particularly in the areas of emergency treatment and the secondary prevention of Stroke.

Up until recent years, there have been very few treatments for Stroke and, as a consequence, more Stroke-related deaths and disability. Now, thanks to research, new treatments such as thrombolysis and clot retrieval have been developed resulting in greater survival rates and the minimisation of Stroke-related disabilities. There is still so much that can be done to improve patient outcomes and more research is desperately needed to further improve diagnosis, treatment, management and prevention of Stroke.

The research focus for the Stroke team at RBWH is on determining methods of saving affected parts of the brain after Stroke, improving acute treatment and preventing secondary prevention of Strokes.

Current research projects at RBWH include:

- Emergency treatments for acute Stroke to minimise the damage done by the Stroke, including the use of MRI technology to identify Stroke locations in the brain and the use of 'clot busting' medications to reopen blocked arteries;
- Stroke rehabilitation to improve patient outcomes, maximise recovery, prevent long-term disability and help people to return to the community; and
- Stroke prevention to reduce the risk of a Stroke occurring again.

This research is in collaboration with researchers and organisations from around Australia and internationally and universities including the University of Queensland, Griffith University and QUT.

Many people support the Mining Industry in Queensland and this is just a small way of assisting those who provide that support.

#### **THE AUCTION**

This is a fun time for all – seeing who bids on what and the proceeds all go to a good cause. There are some great items for you to bid on – so make sure you are in the mood to spend a few dollars.

Master Auctioneer, Phil Black, is as entertaining as he is sharp, with his great wit and speed with the hammer, he will be doing his best to encourage you to dig deep to raise some much needed funding – the proceeds of which will go to this very important Program. There are also some excellent Prizes to be won.

If you would like to donate prizes for the Live and Silent Auctions or offer a cash donation in support of this initiative please contact Robert Seaman on site 0409 776 071.



### • SUNDAY 17th AUGUST



AND MINING

### MONDAY 18th AUGUST

7.30am - 6.00pm	<b>REGISTRATION – Townsville Entertainment and Convention Centre Foyer</b>
9.00am	KEYNOTE PRESENTATIONS - Proudly Sponsored by Glencore Mount Isa and Ernest Henry Mines MC Andrew Klein
9.00am – 9.45am	Extreme Leadershipat the Base of the Earth (where no one Hears You Scream) Rachael Robertson, Antarctic Expedition Leader
9.45am – 10.30am	<b>Safety for a Sustainable Life</b> Rob Neale, Chairman Westside Corporation Ltd and Chairman Dart Energy Ltd
10.30am - 11.00am	MORNING BREAK AND TRADE DISPLAYS - Proudly Sponsored by Downer EDI Mining
11.00am	<b>KEYNOTE PRESENTATIONS - Proudly Sponsored by KINNECT</b>
11.00am - 11.45am	Current Trends in Workplace Drug Testing Paul K Johnson, Chief Executive Officer, Express Diagnostics International Inc., USA
11.45am -12.30pm	<b>Stroke: Keeping Your World Separate from Mine</b> Dr Andrew Wong, Director, Neurology and Stroke, Royal Brisbane & Women's Hospital, together with Dan Crowley, Executive Director, Verifact Risk Management Group
12.30pm – 1.30pm	LUNCH AND DISPLAYS - Proudly Sponsored by Sonic HealthPlus
1.30pm – 3.00pm	INNOVATION PRESENTATIONS - <i>Proudly Sponsored by Glencore Coal Australia</i> Machine Door Lift Quick Detach System Attachment Presenter: David Caley, Rio Tinto Coal Australia - Kestrel Mine Hydraulic Valve Opening Tool
	Presenter: Stephen Fairbrother, Rio Tinto Alcan Weipa
	Hail Creek Mine Induction Program - Real Time Data Collection Tool Presenter: Tony Mapp, Mastermyne and Mynesight
	<b>Cylinder Assembly Bench Roller</b> Presenter: Patrick Taylor, Hastings Deering (Australia) Ltd
	<b>Cylinder Cradle</b> Presenter: Lawrence Hansen, Copper Refineries Pty Ltd



3.00pm – 3.30pm	AFTERNOON BREAK AND TRADE DISPLAYS - Proudly Sponsored by Downer EDI Mining
3.30pm – 5.15pm	<b>INNOVATION PRESENTATIONS - Proudly Sponsored by Glencore Coal Australia</b>
	Remote Grease Pressure Release System Presenter: Mick Carr and Eric Morgan, Downer EDI Mining
	Dragline Tub Maintenance Capsule Presenter: Steve Kovac and Laurie Stanton, Ensham Resources Pty Ltd
	<b>Remote Control Bogging Light</b> Presenters: Kent Twiname, MMG Dugald River and Maarten Zuhorn, Alliance Safety Equipment
	<b>Timber Block Trolley</b> Presenter: Kasey Kehoe-Cox, Hastings Deering (Australia) Ltd
	Crane Lifting Chain Trolley Presenter: Trevor Horsnell and Matt Wendtman, George Fisher Mine, Mount Isa Mines
5.15pm – 6.30pm	THE RESCUE STATION – Lobby Bar, Jupiters Townsville
5.15pm – 6.30pm	WIMARQ Function, Jupiters Townsville
7.00pm - 10.30pm	INFORMAL DINNER and CHARITY AUCTION in aid of the Stroke Research Unit at the Royal Brisbane & Women's Hospital <i>Proudly Sponsored by UVEX Safety Australia</i>

### • TUESDAY 19th AUGUST

7.30pm - 6.00pm **REGISTRATION – Townsville Entertainment and Convention Centre Foyer** 9.00am **KEYNOTE PRESENTATIONS - Proudly Sponsored by Glencore Coal Australia** MC Andrew Klein 9.00am - 9.45am A New Direction in US Mining Health and Safety Dr Susan Moore, Director, Division of Mining Science and Technology, Office of Mine Safety and Health Research, National Institute for Occupational Safety and Health, USA 9.45am - 10.30am Challenging the Challenges of a Regulatory Environment in PNG Mohan Singh, Chief Inspector of Mines, Minerals Resources Authority, Papua New Guinea 10.30am - 11.00am MORNING BREAK AND TRADE DISPLAYS - Proudly Sponsored by BHP Billiton Cannington 11.00 - 12.30pm **KEYNOTE PRESENTATIONS -** Proudly Sponsored by Anglo American Metallurgical Coal An Industry's Obligation to Care 11.00 - 11.25am New Lamps for Old - "Good Health is Still Good Business in Today's Workplace" Dr Frank Fox, Manager Occupational Health, Anglo American, South Africa 11.30 - 11.55am Beyond Occupational Hygiene Measurements - Back to Basics With a Difference Prof Cas Badenhorst, Occupational Hygiene Specialist, Anglo American, South Africa **Your Heart Matters** 12.00 - 12.30pm Sheree Hughes, Healthy Living Manager, National Heart Foundation of Australia (QLD Division)



### • TUESDAY 19th AUGUST

11.00 – 12.30pm CON

CONCURRENT PAPERS

#### **Magnetic Room**

#### ENGAGEMENT

#### Concurrent Session Sponsor: QML Pathology

**Chair -** Cowboy Stockham, Northern District Secretary, Australian Workers' Union

#### **11.00 - 11.25am** Improving Equipment Design Through Industry OEM Engagement – EMESRT *Alan Miskin,* Director safety, Training & Compliance, Peabody Energy

#### 11.30 - 11.55am

#### The Next Generation in Health and Safety Leadership - A Case Study from Mount Isa Mines, a Glencore Company Vaness Dodd, Consultant, Conexus Consulting and

Maryann Wipaki, HSEC Manager, Mount Isa Mines, Glencore

#### *12.00 - 12.30pm* A Simplified, Risk-based Approach to Control of NORM *Dr lan Ellison,*

Senior Inspector of Mines, Department of Natural Resources and Mines

#### **Palm Room**

### **MINE CLOSURES**

#### Concurrent Session Sponsor: Sparke Helmore Lawyers

**Chair -** Simon Delander, General Manager – HSE & Risk, Evolution Mining

#### **11.00 - 11.25am H&S Implications of Mine Closures** *Wayne Scott, Inspector of Mines-Small Mines Strategy, Southern Region, Department of Natural Resources and Mines*

#### 11.30 - 11.55am

**The Legal Impact of Mine Closures and Abandoned Mines** *Matthew Smith, National Practice Group Leader and Partner, Sparke Helmore Lawyers* 

#### 12.00 - 12.30pm Rehabilitation of the Trekelano Mine-site - a Health and Safety Perspective *Rod Coe, Manager Health, Safety, Environment and Community, Chinova*





#### 12.30pm – 1.30pm LUNCH AND DISPLAYS - Proudly Sponsored by New Hope Group

### 1.30pm – 3.00pm CONCURRENT PAPERS

#### Auditorium 1

#### UNDERGROUND COAL HAZARDS

*Concurrent Session Sponsor:* Protective Industrial Products

**Chair -** Samantha Evans, Group Health & Safety Manager, Vale Australia

#### **1.30 - 1.55pm Coal Industry GAGing in 2014** *Wayne W Hartley, Chief Executive Officer, Queensland Mines Rescue Service and Ken Liddell, Director, Mining Research and Development Centre, Simtars*

2.00 - 2.25pm AiroDust Comparative Testing with Dry Stone Dusting – ACARP Study Matt Ryan, Director, Mining Attachments

2.30 - 3.00pm Shotcreting Innovative and Practical Ways Wade Kathage, Compliance Manager, Anglo American Metallurgical Coal - Moranbah North Mine

### **Magnetic Room**

### SITE HEALTH ISSUES

*Concurrent Session Sponsor:* International SOS

**Chair -** Mauro Soto, Corporate Health & Safety Manager, New Hope Group

*1.30 - 1.55pm* Collaboration and Innovation for

Workforce Health Helen Scott, Queensland State Manager, Corporate Bodies International

#### 2.00 - 2.25pm FIFO Village Life: Improving Health and Wellbeing Adam Rolfe.

Project Manager and Site Senior Executive, ESS Support Services Worldwide

**2.30 - 3.00pm** Camp Accommodation – Living on the Edge? Cameron Dean, Partner, McCullough Robertson

#### Palm Room

# PROXIMITY DETECTION AND COLLISION AVOIDANCE

*Concurrent Session Sponsor:* SICK Pty Ltd

**Chair -** Alan Misken, Director Safety, Training & Compliance, Peabody Energy Australia

#### 1.30 - 1.55pm

Too Close for Comfort! - the Case for Proximity Detection and Vehicle Collision Avoidance Systems Dr Tilman Rasche, Senior Inspector of Mines, Department of Natural Resources – Mine Safety & Health

#### 2.00 - 2.25pm

Case Study: Implementation of CAS/ PD by Peabody Energy Nevile McAlary, SVP Safety and Training, Peabody Energy Australia

#### 2.30 - 3.00pm

Selection of a Collision Management System Utilising MDG2007 Lionel Smith, SA/Regional Inspector of Mines Department Natural Resources and Mines

### 1.30pm – 3.00pm WORKSHOPS

**The Pavilion** 

#### MENTAL HEALTH IN THE MINING INDUSTRY

Concurrent Session Sponsor: Health Security Education Pty Ltd

**Chair -** Adam Garde, General Manager, Anglo American Grasstree Mine

Workshop

**1.30 - 3.00pm** Introduction: A Strategic Approach to Improving Mental Health in the Mining Industry *Prof. Brian Kelly, Professor of Medicine and Public Health, The University of Newcastle* 

How Mines can be Mentally Healthy Workplaces....and What to do if People are Struggling

*Facilitator: Jaelea Skehan,* Acting Director, Hunter Institute of Mental Health

### **Coral Sea Room**

#### RISKGATE IN OPERATION

Concurrent Session Sponsor: SMI MISHC RISKGATE Workshop

1.30 - 3.00pm

#### Facilitator: Philipp Kirsch,

Associate Professor and Projects Manager, SMI-Minerals Industry Safety and Health Centre

This interactive and dynamic panel discussion will start with a succinct update about the RISKGATE system, followed by a number of mining company experts who will present on RISKGATE implementation at corporate and site level in their organisations.

Time will be available for an interactive panel discussion.

# **Conference Program**



#### 3.00pm – 3.30pm AFTERNOON BREAK AND TRADE DISPLAYS

Proudly Sponsored by BHP Billiton Cannington

#### 3.30pm – 5.00pm CONCURRENT PAPERS

#### **Auditorium 1**

#### **OPEN CUT STRATA MANAGEMENT**

**Concurrent Session Sponsor:** Gryphon Psychology

**Chair -** Andrew Clough, Chief Inspector of Coal Mines, Department of Natural Resources and Mines – Mine Safety & Health

#### 3.30 - 3.55pm

#### Burton High Wall Challenge David Wang,

Thiess Australian Mining Senior Technical Engineer, Burton Coal Project and **Matthew Tsang,** Thiess Australian Mining Geotechnical Engineer, Burton Coal Project

#### 4.00 - 4.25pm

#### Open Cut Multiple Fatality Risk -Critical Control Effectiveness Allan Gordon.

Regional Health and Safety Manager, Anglo American Coal (Australia and Canada)

#### 4.30 - 5.00pm

#### Investigations into the Applications of Micro-seismic Sensing to Slope Stability Monitoring in Open-cut Mining

Ken Liddell, Director, Mining Research and Development Centre, Simtars and Philip Shaw, Managing Director, Surewave Technology Ltd, UK

#### **Magnetic Room**

#### RISK MANAGEMENT

*Concurrent Session Sponsor:* LifeAid Pty Ltd

**Chair -** Jim Randall, Executive General Manager, New Hope Group

#### 3.30 - 3.55pm

Engineering People Out of Harm's Way

*Christian Mans,* Senior Geotechnical Engineer, Anglo American Metallurgical Coal

#### 4.00 - 4.25pm

Wirtgen SM4200 Surface Miner Trial Implementation at New Acland Coal Mine *Alison Nugent*,

Alison Nugent, Mining Engineer and Trent Knack, Maintenance Superintendent, New Hope Group

#### 4.30 - 5.00pm

Holing Underground - An Example of the Swiss-Cheese Model John Coughlan, General Manager Operations and SSE, Kestrel Mine, Rio Tinto

#### **Palm Room**

#### **COMMUNICATION SERVICES**

#### Concurrent Session Sponsor: SafeStart

**Chair -** Larry Jaudon, HSSE Manager, MMG Dugald River

#### 3.30 - 3.55pm

Is Compliance Killing Performance? Peter Smith, Director and Rod Sumner, Director, Carve Business Solutions Pty Ltd

#### 4.00 - 4.25pm

What Safety Can Learn from Neuroscience Dean Meijer, Senior Consultant, SafeStart

#### **4.30 - 5.00pm Optimising Safety Performance with the Brain in Mind Heather Ikin,** Consultant Psychologist, TMS Consulting Pty Ltd



# **Conference Program**

#### 3.30pm – 5.00pm WORKSHOPS

# 2014 A SAFETY CONTROL

### The Pavilion

HEAVY VEHICLE ROLLOVER PREVENTION PROGRAM

Concurrent Session Sponsor: Safe Option Solutions Chair - Mark Bartlett.

General Manager Safety, Thiess Pty Ltd

#### Workshop

**3.30 - 5.00pm Facilitator: Chris Stephens** Heavy Vehicle Safety Specialist, VicRoads

Presentation and Demonstration Regarding Heavy Vehicle Crash Mitigation Including Rollover

#### 5.00pm - 6.30pm THE RESCUE STATION – Lobby Bar, Jupiters Townsville

6.30pm – 7.15pm PRE DINNER DRINKS – Townsville Entertainment and Convention Centre, Forecourt

7.30pm CONFERENCE DINNER AND INNOVATION AND HEALTH PROGRAM AWARDS Townsville Entertainment and Convention Centre Auditorium Address by The Hon. Andrew Cripps MP, Minister Natural Resources and Mines Proudly Sponsored by Ansell Healthcare

### WEDNESDAY 20th AUGUST

#### 7.30am - 1.30pm REGISTRATION – Townsville Entertainment and Convention Centre Foyer

8.30am – 10.00am Addressing the "failure to learn" - Proudly Sponsored by THIESS

#### Session One: Why and What have we Failed to Learn?

This session will feature three presentations to set the scene for the workshop.

Mark Parcell of the Mine Safety Institute of Australia will address the "failure to learn" as it was identified by the Pike River Royal Commission, posing the questions – what have we failed to learn and why we have failed to learn from past disasters? Mark will also provide an overview of the recent fatalities in the Australian mining industry.

Retired Professor Jim Joy from the Minerals Industry Safety and Health Centre will discuss what Queensland mines can learn about their risk management processes from fatal incidents in general. He will pose the questions – what have we failed to learn and why we have failed to learn from these incidents? He will outline modes of learning failure before focusing on the hazards of inadequate energy control and risk evaluation, and discuss ways to improve control effectiveness.

Roger Kahler from Intersafe will then discuss the permanently disabling, non fatal accidents that occur at Queensland mine sites, illustrated with QComp data on the nature of these accidents. He will pose the questions – what have we failed to learn and why we have failed to learn from these incidents? He will highlight the different causes behind disasters, fatal accidents and permanently disabling accidents and that each needs to be addressed differently. He will demonstrate the risk of ineffective investigations and poor information sharing, particularly the danger posed by continued inappropriate use of outdated models within the mining industry.

10.00am – 10.30am MORNING BREAK AND TRADE DISPLAYS - Proudly Sponsored by Australian Workers' Union



### WEDNESDAY 20th AUGUST

#### 10.30am – 12.00pm Session Two: How Can we Improve the Mining Industry's Capacity to Learn?

#### **Proudly Sponsored by THIESS**

Following the break the three presenters will be joined by a representative of mine operators (John Coughlan), mine workers (Greg Dalliston) and the Mines Inspectorate (Julie Devine) to provide their insights into what industry can do to address the failure to learn. Mark Parcell will then facilitate a discussion to engage the audience in identifying things that can be done in order to continuously improve the mining industry's capacity to learn from past mistakes.

12.05pmFORMAL CLOSE OF CONFERENCEPaul Harrison, Chairman, Queensland Mining Industry Health and Safety Conference 2015

#### 12.30pm –1.30pm FAREWELL LUNCH - Proudly Sponsored by BHP Billiton Cannington

The presenters, topics and times are correct at the time of publishing and in the event of unforeseen circumstances, the Conference Committee reserves the right to alter or delete items from this program.

### MASTER OF CEREMONIES



#### Andrew Klein

Andrew is Director of SPIKE Presentations (....helping you get your point across) He is a Professional MC and Presentation Skills trainer. A former corporate lawyer, Andrew brings his casual yet corporate style to proceedings, adding an extra element with his humour and creativity.

He has become well-known on the conference circuit in Australia and Asia, for his ability to involve the audience in proceedings, his revealing speaker introductions, his improvisational skills and ability to adapt to different audiences. Apart from MC'ing, Andrew runs entertaining and highly educational workshops in Presentation Skills and Pitching for Business. His clients include Minter Ellison, MLC, AGL, Ernst & Young, Westpac, Allianz, NSW

Health, Bayer Healthcare, IBM, Aged Care Association Australia, Telstra and his mother-in-law's bridge club.

Andrew's hobbies include coaching basketball, getting his hair cut, reading Dr Seuss books and trying to convince his wife and 3 young kids that he has a real job.

#### KEYNOTE PRESENTERS



#### **Cas Badenhorst**

Cas holds a number of tertiary qualifications in the area of physiology, occupational health and hygiene and mine environmental control. He is a registered Occupational Hygienist, working in the field of occupational health and hygiene for more than 20 years. Cas joined Anglo American in November 2010 as Group Occupational Hygiene Advisor. He serves on a number of national and international advisory and technical committees and has co-authored a number of articles. Specific areas of interest include health risk assessment, exposure to chloroplatinates, nickel and diesel engine emissions.

Cas is actively involved in occupational hygiene skills development and research and is appointed as Associated Professor in Occupational Hygiene at the North West University, Potchefstroom, South Africa and as Honorary Lecturer in the School of Public Health, University of Witwatersrand, South Africa.



#### Sam Bailey

Sam is a farmer, pilot, husband and best-selling author. He has achieved all of those from a wheelchair....and has an incredible ability to take an audience on the journey of his life. From a childhood growing up in the Australian bush to a car accident in the outback that turned his life upside down and its aftermath, Sam tells his story in his own down-to-earth laconic style that captures the great Australian spirit of 'having a go'.

He relates how he beat the odds to fulfill his life-long dream to be a farmer, learning to ride a four wheel bike; devising a hoist to get into farm machinery and ultimately learning to fly an ultralight. Sam then found his soul mate in former Tamworth-based ABC radio Rural Reporter, Jenny Black – who he proposed to "live" on regional radio.

Today they live and work together on their beef cattle property in North West NSW, in between travelling the country telling their story and giving inspiration to others. They are also working towards their next big goal – Sam becoming the first quadriplegic in the world to fly a helicopter and flying into schools to inspire children to fulfill their own dreams and goals. The project, called Helifirst, will be launched later this year. It's sponsored by one of Australia's largest public companies, the Commonwealth Bank.





Following his graduation from the University of Rhodesia Frank worked in the government health services in rural hospitals for 4 years before moving to Botswana spending13 years in clinical practice on a copper-nickel mine.

While in Botswana he developed an interest in occupational and environmental medicine and qualified in occupational health at the University of the Witwatersrand in 1985 followed by a specialist qualification in occupational medicine from the Faculty of Occupational Medicine at the Royal College of Physicians in London. During the time in the nickel industry he served as vice-chairman of the scientific advisory committee of the Nickel Producers Environmental Research Association (NiPERA). In 1995 he moved to South Africa working in forestry and sawmilling (setting up the

health services for these businesses and the HIV/AIDS management programmes) and the paper industry eventually becoming the Group Medical Consultant with exposure to occupational health care at operations in Europe, Eastern Europe, Russia and the UK. Frank is the past Chairman of the Health and Safety task force of the International Commission on Metals and Mining (ICMM).

Current activities include membership of the BITC Workwell Leadership Team, the BITC Workwell expert working group on public reporting of employee wellness and engagement, National Secretary of the South African Society of Occupational Medicine (SASOM) and has served as an examiner for the College of Public Health Medicine (Division of Occupational Medicine) of South Africa and the Faculty of Occupational Medicine of the Royal College of Physicians in the UK. He currently heads up occupational health for Anglo American plc, a global mining company with its main operations in Brazil, Chile, South Africa and Australia.



#### Sheree Hughes

Sheree has been actively involved in the medical, health and fitness industry, through employment, study and voluntary work for approximately 20+ years. She has successfully participated in the planning, development, coordination, implementation and evaluation of many effective wellbeing initiatives. Sheree is the Healthy Living Manager in the Heart Foundation's Queensland Cardiovascular Health Team and has held this position since 2010.

Sheree has a particular interest in Preventative Health and Advocacy, with her current focus on enhancing the ways in which we can adopt a healthier lifestyle. Sheree is passionate about making a difference and as a cycle coach, actively practices what she preaches.



#### Paul K. Johnson

Paul is Chief Executive Officer and Managing Partner of Express Diagnostics Int'l, Inc. (EDI), U.S. manufacturer of DrugCheck® onsite drugs of abuse tests, as well as a growing catalog of rapid alcohol screening and health diagnostics devices. Paul, along with four Partners, acquired the DrugCheck brand in 2004 after purchasing the product for several years as partner and executive management for a SAMHSA certified toxicology laboratory and third-party administrator of drugs of abuse testing.

As Managing Partner of EDI, Paul was instrumental in the implementation of manufacturing processes at the company's Blue Earth, Minn., facility in 2006. EDI is now ISO 13485:2003 registered, CE certified, and FDA cGMP compliant for the manufacture of in vitro diagnostic devices. During his tenure as CEO, EDI's manufacturing output has grown to more than 4 million devices per year while its distribution network has expanded to include more than 70 countries.

Paul has been involved with drugs of abuse testing and toxicology since 1998, having previously worked in pharmaceutical manufacturing and lab-based toxicology testing in procurement, sales management and executive roles. Paul lives in Blue Earth, Minn.



#### Susan Moore

Susan began working for the United States' Office of Mine Safety and Health Research in 2006. Over the years, she has conducted research related to low-seam miners, maintenance and repair workers, falls from equipment, and proximity detection systems.

Presently she is the Division of Mining Science and Technology Director overseeing a multi-million dollar contracts effort to develop new and adapt existing technologies to improve health and safety in US mines. Additionally, she directs efforts related to effective training practices, behavioral interventions, management system strategies, cognitive engineering, musculoskeletal disorder prevention, surveillance and statistics, health communications, economic analyses, and computational programming.



#### Rob Neale

Rob is Chairman Westside Corporation Ltd and Chairman Dart Energy Ltd, and the current President of the Queensland Resources Council. He has a first Class Honours Degree in Geology and Mineralogy, and 40 years experience in the resources sector. His main areas of expertise lie in exploration and mining industries in several different countries covering gold, base metals, synthetic fuels, coal, bulk materials and shipping as well as power generation projects.

Over the past 15 years, Rob has effectively led corporate growth through business improvement, asset management and successfully implemented new business ventures. Rob was appointed to his current position within New

Hope in 2008. He is currently responsible for the overall management and leadership of the coal operations, coal marketing, land development, energy projects and new business development.

### • KEYNOTE PRESENTERS





#### **Rachael Robertson**

Rachael (CSP, MBA) is a former Antarctic expedition leader, Chief Ranger and leader with 20 years of 'extreme' leadership experience. She is a best-selling author and leadership guru whose talents are in great demand from leading organisations around the globe.

As only the second female to lead a team to Davis Station in Antarctica, she managed a diverse group of up to 120 people, through total isolation, months of darkness, with no way in and no way out. It was a leadership laboratory in the most extreme and hostile environment on Earth, where most of the theory doesn't apply. Rachael was responsible for all aspects of life on the Station, from the safety and welfare of over 80 expeditioners

in Summer, to the delivery of the Australian Government's \$20m science program. In any circumstance, this would be a tough role, but for a female in a male dominated environment, it was also a very challenging one!

Prior to this Rachael held senior operational management roles for 16 years in a range of complex and challenging environments, was Victoria's youngest Chief Ranger and led the media coordination unit during the Black Saturday bushfires. Leading an Antarctic expedition, coordinating media during the Black Saturday bushfire event and guiding teams through turmoil all require extreme leadership and the ability to inspire through tough times. As Rachael reveals using incredible and often hilarious examples, these situations demand big leadership in small moments, because it's the small moments that build momentum.



#### **Mohan Singh**

Mohan has over 33 years of professional experience in the mining industry, out of which 25 years have been in various regulatory roles.

He served as Deputy Director of Mines Safety with the Government of India from 1988 to 1998 and then from 1998 to 2008 he held the position of Director of Mines Safety with Government of India. From 1980 to 1988 he was employed as a Senior Mining Engineer in an underground copper mine in India. He is currently the Chief Inspector of Mines in Papua New Guinea.

Mohan has a Masters in Mining Engineering from the University of Alberta, Canada; B. Tech in Mining Engineering from Indian School of Mines, India; he is the Holder of a First Class Mine Manager's Certificates of Competency - Coal and Metalliferous Mines and is the Holder of a Project Management Professional (PMP) Designation.



#### Andrew Wong

Andrew is a Brisbane-trained Neurologist and Stroke Specialist. He is Director of Neurology and Stroke at the Royal Brisbane and Women's Hospital and is also a visiting Neurologist at The Prince Charles Hospital and the Holy Spirit Northside Private Hospital.

Andrew has a clinical and research focus on the delivery of high-quality stroke care in a variety of different settings. This includes the emergency assessment and treatment of acute stroke, early prediction of stroke outcome and rehabilitation. His PhD studies involved assessing changes in physiology in the first two days after stroke.

### The virtual training reality is safety - Book at the Simtars Desk

**Simtars**, in partnership with solutions provider VR Space will offer delegates the chance to learn and experience how virtual training is being implemented in Queensland to improve mine health & safety through enhanced understanding of risk and procedural awareness.

Simtars mobile VR system will be on display in Ballroom 3 at Jupiters throughout the conference, providing experiential learning demonstrations focused on improving awareness of operational hazards in both underground and open cut mine environments.

Visitors will be able to inspect Simtars open cut and underground training mines and see how the training tool can heighten understanding and awareness of mine hazards and potential incidents. The Simtars trainers will demonstrate how they are blending VR into competency training methodology with a core focus on strata control, vehicle interactions, ventilation and risk assessment competencies.

VR Space will also provide demonstrations of the virtual mine applied to spatial data visualisation, mine production optimisation and risk assessment training & permitting systems.

Call us to book an exclusive demonstration time or visit us in Jupiters ballroom 3 from 7am - 7pm each day.



To book your demonstration contact: You can either pre-book your demonstration by contacting: **m** 0412 871 053 | **e** mark.williams@simtars.com.au or by visiting the Simtars registration desk in person at the conference.





Social Activities offer a rare and invaluable opportunity for networking. They present the perfect opportunity

for you to catch up with friends and colleagues and make new contacts within the industry. Therefore we encourage you to arrive early to take part in the Welcome Function on Sunday Evening.

The Informal Dinner is another great chance to catch up with friends and the Conference Dinner is a great event – attracting over 600 attendees last year.

#### **TICKETS INCLUDED**

TICKETS TO ALL LUNCHES AND SOCIAL FUNCTIONS <u>ARE INCLUDED IN THE REGISTRATION PRICE FOR ALL DELEGATES WHO</u> <u>HAVE PURCHASED FULL REGISTRATIONS</u>.

#### PARTNER AND GUEST TICKETS AVAILABLE.

Additional tickets for partners and guests are available for purchase by completing this section of the Registration Form. There will be a limited number of tickets still available at the Conference. Please ask the staff at the Registration Desk as soon as you arrive to avoid disappointment.

### • SUNDAY 17th August

6.30pm WELCOME FUNCTION – The Museum of Tropical North Queensland - Proudly Sponsored by Peabody Energy

The Welcome Function this year will be at The Museum of Tropical North Queensland. A great location right on the Ross River. Delegates will have access to some of the amazing features of the Museum. This is a state of the art facility and a great venue for the first event of the Conference.

Always one of the most important events at this Conference, the Welcome Function sets the scene for the whole event. This is where we kick off the Social part of the Conference and commence the networking. You can be guaranteed a mouth watering menu, some great entertainment and the chance to catch up with friends and colleagues, many of whom you may not have seen for years. Make sure you arrive in time for this event.

**COACH TRANSFERS** - *TECC to Hotels and return to The Museum of Tropical North Queensland* - At the conclusion of the Business Session coaches will be waiting outside TECC to transfer those delegates who wish to go back to their Hotels prior to returning them to The Museum of Tropical North Queensland for the Welcome Function.

#### **COACH TRANSFERS - Back to the Hotels**

At the end of the Function a Coach shuttle will be available to transfer delegates back to their Hotels.

#### Partner and Guest Tickets \$90.00 per person

If you wish to bring your partner or a guest tickets may be purchased through the Registration Desk. (Your tickets are included in your Registration if you are a Full Paying Delegate).

### MONDAY 18th August

#### **12.30pm** LUNCH – The Grand Marquee, Jupiters Townsville - Proudly Sponsored by Sonic HealthPlus

Partner and Guest Tickets \$45.00 per person

#### **7.00pm** INFORMAL DINNER AND CHARITY AUCTION at The Grand Marquee, Jupiters Townsville Hotel *Proudly Sponsored by UVEX Safety Australia*

A Big night for all with a Spit Roast, the Mason Rack Band, recently returned from a sell out tour of Germany will provide some great entertainment - a great sound by a leading edge band.

Coaches will transfer all delegates from their Accommodation to the Jupiters Townsville Hotel and return delegates at the end of the event.

CHARITY AUCTION – This year's charity auction will support the Stroke Research Unit, Royal Brisbane and Women's Hospital.

Please contact the Conference Organiser, Robert Seaman on 0409 776 071 if you would like to donate a prize for the Live and Silent Auctions in support of this initiative.

Partner and Guest Tickets \$110.00 per person



### • TUESDAY 19th August

#### **12.30pm** LUNCH – The Grand Marquee, Jupiters Townsville - *Proudly Sponsored by New Hope Group* Partner and Guest Tickets \$45.00 per person

- 6.30pm PRE DINNER DRINKS Townsville Entertainment and Convention Centre, Forecourt and Palm Lawn
- 7.30pm CONFERENCE DINNER INNOVATION AND HEALTH PROGRAM AWARDS Townsville Entertainment and Convention Centre *Proudly Sponsored by Ansell Healthcare* The Conference Dinner is always the highlight of the Conference. Winners of the Innovation and Health Awards will be announced and Prizes awarded. Dinner and beverages will be served and excellent entertainment has been engaged

Partner and Guest Tickets \$150.00 per person

### WEDNESDAY 20th August

for your enjoyment.

#### 12.30pm LUNCH – The Grand Marquee, Jupiters Townsville - Proudly Sponsored by BHP Billiton Cannington

Partner and Guest Tickets \$45.00 per person

### WIMARQ Networking Function - Jupiters Townsville - Coral Sea Room Monday 18th August 5.15pm to 6.30pm - Jupiters Townsville

Award winner to speak at Networking Function. Coinciding with the Queensland Mining Industry Health and Safety Conference our guest speaker will be the winner of the 2014 QRC/WIMARQ Resources Award for Women, Laura Tyler. Laura was the first woman to be appointed as an asset president within BHP Billiton when she took up the role for the company's Cannington Mine in North-West Queensland, the world's largest silver and lead mine. She is a mother of three children, who has been 'a working FIFO wife'. She has worked across four continents and is passionate about attracting and retaining women in the sector. She has led the introduction of Cannington's first diversity plan to ensure the business supports high potential females and spends many hours mentoring women both inside and outside the company.

Laura is also the first women to be appointed as a Vice President of the Queensland Resources Council.

The WIMARQ events are well known for providing entertaining networking opportunities for women in the resource sector throughout Queensland. **Men are also encouraged to attend**.

The event is **free**, but places are limited so it's advised to **book early**. Drinks and finger food will be provided. We look forward to seeing you there.

To book go to: https://www.qrc.org.au/02\_cal/index.asp and follow the prompts. Further inquiries contact Caroline Morrissey at carolinem@qrc.org.au or 07 3316 2507



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### Queensland Mining Industry Health and Safety Innovations Awards 2014

In recent years the importance of the Innovation Awards has grown with entries received from a wide section of the industry. Given the work that goes into each submission, the Conference Committee offers a concession on the Registration Fee to the principal presenter of an accepted Innovation.

**2014 Innovation Award Prize** The prize for the Innovation Award Winner will be a registration, accommodation and travel package for one person to an International Mining Health and Safety Conference.





### **Queensland Mining Industry Health Program Awards 2014**

This is the second year we are able to offer the Queensland Mining Industry Health Program Awards which will again be sponsored by the Mine Safety Institute of Australia.

#### 2014 Health Program Award Prize

The Awards include both a Corporate Award of a Perpetual Trophy and an Individual Award to the value of over \$5,000.



### HEALTH HUB - It's time to check your engines!

Regular health checks and screening tests can prevent many diseases and catch others before they put a spanner in your works. In your Conference bag you will find a Health Hub card. For your chance to win an iPad, i The Chairman's trophy for taking responsibility for your healthî, you need to make a pit stop at all four Health Hub Exhibits.

- 1. The Heart Foundation Check out the Health Navigator tool designed to help you identify your risk for developing heart attack, stroke, kidney disease and diabetes.
- 2. RBWH Foundation Stroke Research: Same Stroke Different Folk, anyone can have a Stroke, 90% of us can prevent it, come and find out how.
- 3. Bowel Cancer visit to complete a bowel cancer risk and screening assessment via the bowel cancer app and order a screening test kit, where appropriate.
- 4. Workplaces for Wellness visit to find out what your workplace can do to support you in making healthy lifestyle choices.

Rev up and race on into the Health Hub on the Palm Lawn throughout the conference for your chance to win!

Proudly Sponsored by Simtars

**Innovation Awards Finalists 2014** 

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### **Machine Door Lift Quick Detach System Attachment**

Presenter: David Caley, Rio Tinto Coal Australia - Kestrel Mine

#### The Problem

To allow the ventilation system in an underground mine to operate, various ventilation control devices (VCD's) are required to be installed. These items allow roadways to be blocked off as required to direct the air travelling through the mine to be directed to the locations where it is needed. It is sometimes necessary to install machine doors into different parts of the vent circuit to allow access to areas of the mine by mobile plant- loaders etc. The machine doors are built using an outer frame which is bolted to the roof and ribs of the roadway, and have 2 doors hung from the frame. Each door has an approximate weight of 400 kg.

In the past, these doors were hung using a sling or chain from the horns of the loader, which was attached to a shackle on the top of the door. There was no positive connection between the loader and the door, the sling could slide off of the horns, and during the installation of the door the operator who had to install the hinge pin was exposed to a suspended load and pinch points between the loader, the door, the frame and the ribline. The activity had to occur in a confined working area with up to 3 people maneuvering the door.

#### The Solution

This was achieved by designing and constructing a QDS attachment which allows the door to be pinned to the loader and lifted into place. The attachment has the ability to allow the door to be moved forward and backward using the crowd function of the loader, raised and lowered on the boom of the loader, and rotated left and right on a pivot set up on the attachment. All of this allows for the door to be moved into the correct position regardless of the loader position as the floor is never flat.

This removes personnel from the pinch point of the door during installation and eliminates the risk of the door falling from the loader and crushing the operator. This attachment can be made to fit any underground loader.







### **Hydraulic Valve Opening Tool**

#### Presenter: Stephen Fairbrother, Rio Tinto Alcan Weipa

#### The Problem

The bauxite mining process involves washing the product before it is loaded onto ships for transport. At the end of the washing process small material and waste water is transported to the tailings storage facilities through large pipework systems. These pipes have large spigot valves that regulate the flow into the tailings storage facilities. The Civil Services Water team is responsible to for maintaining both tailings storage facilities, therefore they are required to open and close these valves on a daily basis. Previously the maintainers were opening these valves manually.

This method came with several hazards;

- If valves are too tight it can take 5-10 minutes to open each valve. This causes excessive manual handling, muscular fatigue and potential strains of the back and upper body.
- Potential for slips and falls due to maintainer working on a slippery uneven bauxite surface.
- Awkward postures as the maintainer is required to bend over and work at approximately knee level
- Maintainer is standing in the 'line of fire', if tool was to slip and come free
- Potential for pinch points

#### **The Solution**

A mechanical tradesman identified an opportunity to change the process in which valves were being opened and closed by developing a hydraulic tool. The tool is powered by petrol driven hydraulic pump fitted to the back of a utility vehicle. The tool is driven by a hydraulic motor which turns the shaft; and the lugs engage with the valve handle. The pressure of the pump is set to regulate the power of the motor to enable safe operation of the hydraulic valve tool.

The benefits of using this innovation include:

- Eliminates risks of musculoskeletal strains of the back and upper body.
- Eliminates potential impact injuries caused by the maintainer being positioned in the line of fire.
- Reduction in time
- The cost of the innovation is minimal.
- Allows the operator to stand in a correct position addressing posture and slips, trips and falls.



Figure 1 Manual method previously used to open and close valves



Figure 2 Hydraulic valve opener tool



### Hail Creek Mine Induction Program - Real Time Data Collection Tool

Presenter: Tony Mapp, Mastermyne and Mynesight

#### The Problem

Five percent of all work place fatalities in Australia in 2013 were within the mining industry. So far this year, six mining industry workers have lost their lives at work. The underground mining operation is one of the most dangerous conducted within the mining industry. Specific Mine site induction programs are one essential component in a holistic training program designed to ensure workers are fully aware of the hazards and rules of the destination mine before they start work on site.

MyneSight a division of the Mastermyne Group have a contract to deliver the Hail Creek Mine Inductions for personnel before they start on site. The Mastermyne Group and Rio Tinto Coal have a working relationship which dates back over 12 years. It is this close working relationship, which has allowed us to develop the following innovative training program for the Hail Creek Mine Induction.

Rio Tinto Coal's Hail Creek Mine approached MyneSight looking for smarts to possibly change their induction system to reduce future training costs and improve efficiency of the training data administration process. After investigating numerous new technologies and how they would suit our training needs. We identified the Turning point data collection and assessment tool. A tool which would allow trainees to answer questions via an electronic Keepad, which fits in the palm of their hand. Replacing our need for cumbersome written assessment paperwork and eliminating 98% of the paper we produced during theory assessments.

By moving towards a fully electronic data collection model we also eliminate the need to handle the completed written assessments multiple times. Documents are unstapled, scanned, restapled, filed and archived. The electronic scanned files are renamed manually, filed in to individual files and passed on to Hail Creek Mine where they go through a data entry process to ensure information is recorded in their training management system. With our new Keepad system all of these processes are redundant as the records are exported from the Turning Point software in to excel. From the excel spreadsheet information is easily extrapolated in to the required format and automatically imported in to the Hail Creek Mine training management system.

By introducing the real time data collection Keepads in to our classrooms we have been able to reduce Rio Tinto Coal's monthly bill by 5%. What started out as an exercise in cost savings and a review of an inefficient paper based system has had a flow on effect, improving our overall assessment techniques.

MyneSight were the pioneers of introducing KeePad in to the Mining sector training programs. Since their implementation other training providers have started to introduce similar tools in to their classrooms. Electronic, paperless assessment is the way of the future.



Figure 1 - KeePad tool



### **Cylinder Assembly Bench Roller**

Presenter: Patrick Taylor, Hastings Deering (Australia) Ltd

#### The Problem

Hastings Deering's Expanded Mining Products facility in Mackay includes a workshop equipped for repairs and rebuilds of hydraulic cylinders used with underground and large mining equipment. A custom-built assembly bench is used for the cylinder rebuilding. It comprises of a beam, a series of sliding roller assemblies and fixed v-blocks.

Following an internal risk assessment of the cylinder assembly process, it was identified that the inner rod of a cylinder on the bench could fall if subjected to a side load during the rebuild process. The weight of the inner rods (each up to 3 tonnes) and the close proximity of service personnel meant that the consequence of a fall escalated risk to an unacceptably high level.

The roller assemblies were also removed and replaced up to 12 times per day, so a method of attachment and removal had to be developed that was as efficient and ergonomic as possible. Hastings Deering's Engineering Services team devised a design for the roller assemblies that would prevent cylinders falling from the bench and address the identified ergonomic constraints.

Some alternative solutions were originally considered, but these were rejected due to inefficiency or weight. The preferred solution to improve worker safety was a new cylinder assembly bench roller design. The design included a self-closing and locking mechanism that could be released easily by the bench operator to remove the roller assembly from the bench.



Figure 1 — Cylinder assembly bench general layout: original roller assemblies shown.



Figure 2 — New roller assembly design showing mechanism in open and closed state.

### **Cylinder Cradle**

Presenter: Lawrence Hansen, Copper Refineries Pty Ltd

#### The Problem

Design of the walking beam did not consider removal or change out of walking beam cylinders. Replacing defective cylinders required the removal of the main structure of the beam to take out the pin or unscrew the cylinder from its clevis. Re-engineering of the structure was not viable, but unscrewing the hydraulic cylinder rod from its clevis was a high risk task involving multiple hazards associated with heavy weights (excess 350kg per cylinder), cramped work environments, suspended loads, surface friction (cylinder turning against slings and or harnesses) and manual handling risks. In addition to the safety risks, the job was heavily resource intensive (60 man hour commitment).

#### The Solution

The solution was to design and fabricate a cradle utilising rollers on a bed of frictionless bearings that would support the cylinder, whilst enabling it to be unscrewed from its rod clevis. The cradle takes the full weight of the load, and the slings and harnesses are now used for secondary suspension control only. With the issue of friction removed, less momentum, personnel and manual handling is required to unscrew the cylinder from the clevis.

The cylinder cradle has been successful in:

- Preserving the structural integrity of the walking beam by eliminating the need to re-engineer the main structure
- Eliminating the use of slings and harnesses as a primary method to control a suspended load
- Eliminating friction risks associated with turning the cylinder in slings
- · Significantly reducing exposure to manual handling risks
- Reducing labour commitment and time required to complete the task
- Being portable and adjustable to suit not only the various diameters but the random heights and weights of all site walking beam cylinders
- Being height adjustable to allow for uneven floor surfaces

#### The Outcome

From a small financial outlay (\$1,000 including certification costs) our company has achieved numerous benefits including quantifiable time savings of 52 man hours per change out and reduced risk to production, to the immeasurable advantages of improved safety and job satisfaction for our maintenance crews.





### **Remote Grease Pressure Release System**

Presenters: Mick Carr and Eric Morgan, Downer EDI Mining

#### The Problem

In January 2013, a service person at a Downer Mining project sustained a serious high-pressure grease injection injury while greasing the blade assembly on a dozer. The grease gun became stuck on the grease nipple due to a blocked hose. As the serviceman wiggled the line to free it, the nipple sheared off. Grease shot out under pressure, dislodging his safety glasses and hard hat, and hitting him near his right eye. On investigation, it became apparent that the industry standard for removing the grease gun in these instances was to wiggle it in a circular direction until it came off. With such high pressure in the grease system, it was clear that this was a hazardous practice that regularly put service people at risk.

#### The Solution

The challenge was to find a simple, cost-effective solution that would eliminate the hazard without adding any additional steps to the greasing task. The result was the Remote Grease Pressure Release System. This unique engineering solution comprises an electrical-operated control unit, mounted on top of the service truck near the grease pumps, and operated (from as far away as 50 metres) by a simple garage-door-style remote control. In the case of the grease gun becoming struck, the remote control activates the system, which relieves the grease pressure back to the tank via a solenoid valve. A set of LED lamps in the lube cabinet indicates when the grease pressure has been released. Following extensive testing, the system has also been applied to the bulk grease systems, and is now being installed on all Downer Mining-owned service trucks nationally.



Remote Grease Pressure Release System.



### **Dragline Tub Maintenance Capsule**

Presenters: Steve Kovac and Laurie Stanton, Ensham Resources Pty Ltd

#### The Problem

Ensham identified the need to conduct regular repairs on its Marion 8050 Dragline tub floor plates. Rather than wait for a major shutdown, the work would need to happen many times during regular maintenance days. Completing this work in a manner which was at an acceptable level of risk to coal mine workers was cost prohibitive and ineffective. The materials cost alone for traditional trench shoring required to protect workers was \$10,000 per maintenance day. Additionally, only outer plates could be changed on short maintenance days as the ancillary equipment used to safely manoeuvre the 450kg plate could not reach far into the trench. Many plate repairs would still wait until a major shutdown. A safe, cost effective solution was required to protect workers and reduce costs.

#### **The Solution**

Transforming a redundant 1260W dragline bucket into a safety capsule. The capsule protects the CMW in the trench eliminating the risk of engulfment. Its solid floor has also improved the work environment allowing other risks to be addressed, such as providing capacity for mechanical aids to reduce manual handling. With tasks involving work above their head and conducting hot work within a confined space, workers have responded very positively to the protected environment the capsule provides.

The capsule is easily installed and removed by heavy plant and is reusable. All mines operating draglines are affected by the safety and cost risks from tub wear. The benefits of this innovation lie in the combination of risk elimination in a cost effective manner. Given most sites likely have old, redundant buckets that would otherwise be scrap, they have access to this innovation making it highly transferrable across the resources industry. Total cost approx. \$41,000.



Above: Marion 8050 Dragline above trench with capsule



Below: Capsule in place



### **Remote Control Bogging Light**

Presenters: Kent Twiname, MMG Dugald River and Maarten Zuhorn, Alliance Safety Equipment

#### The Problem

At Dugald River, and most underground mines in Queensland, loaders in the underground workings have to have a flashing light positioned above a Danger sign to indicate that they are working in the vicinity. This is to inform other vehicles (particularly Light Vehicles) that they are entering a danger zone.

The flashing light indicates to the driver of vehicle that they have to make contact with the loader operator before progressing any further. The common practice at Dugald River, and other sites, is the use of a flashing bicycle light. Several problems have been identified in this system of work, namely:

- Lights not being seen due to low illumination.
- Exiting the cab to manually turn the light on increases risk of interaction with other mobile equipment
- Dust in the cabs.
- Musculoskeletal injuries.
- Operators not turning off the machine and existing with engine still running (a breach of procedure due to risk of uncontrolled movement, potential articulation crush and inability to deal with a potential fire situation).
- Lights not being turned on or off due to time required to perform the task.

#### The Solution

The solution to the problems outlined above was to install a light that did not require the operator to leave their cab. The result was a wall-mounted light that is activated remotely by the operator from the cab.

The 'remote activation' solution resulted in:

- 1. New light being considerably brighter and clearly visible from any direction of approach.
- 2. As the light can be connected to the existing electrical boxes, it never goes flat.
- 3. Measurable boost in productivity due to increased asset utilisation of the loaders.
- 4. Potential reduction in maintenance costs due to the reduction in starting and stopping engines.
- 5. Lights always being turned on and off in line with safety procedures.
- 6. Likely reduction in musculoskeletal injuries.
- 7. Operators conforming to site procedures and not exiting with the loader still running.
- 8. Reduction in dust entering the cab.
- 9. Elimination of potential articulation crush injuries.



### **Timber Block Trolley**

Presenter: Kasey Kehoe-Cox, Hastings Deering (Australia) Ltd

#### The Problem

Timber blocks are used in the Hastings Deering workshop to support large truck chassis and allow workers easy access to the machines. The 50 kilogram-plus individual blocks are heavier than standard manual handling limits allow. A risk assessment found a high probability of back injuries when staff worked in pairs to move the blocks. Mechanical lifting with forklifts is one solution, but this is subject to increased resources, hazards and delays when forklifts are not available.

#### The Solution

A solution was needed to create a safer and more efficient working environment by enabling a single person to manually move a timber block/s without harm. The Timber Block Trolley, designed by Hastings Deering's Engineering Services team, is the ideal solution to moving the timber blocks safely.



Figure 1 – A risk assessment found back injuries were a high probability when manually handling 50 kilogram-plus timber blocks.



Figure 2 - The Timber Block Trolley supports a safer work environment. It is easy to use and has a safe design.





### **Crane Lifting Chain Trolley**

Presenters: Trevor Horsnell and Matt Wendtman, George Fisher Mine, Mount Isa Mines

#### Background

The George Fisher Mine (GFM) Rebuild Workshop is fitted with two overhead travelling cranes to improve productivity and reduce manual handling of heavy machinery parts. Lifting chains are available for attachment to the crane based on load requirements. The largest chain weighs more than 200 kilograms.

#### The Problem

Chains were housed in a wall mounted storage locker in line with industry best-practice. To attach a chain to the crane hook from this point, the crane had to be travelled as close as possible to the wall (approximately three metres from the storage locker), then the chains were lifted via a two-person lift, held at chest height and walked the three metres to the connection point before being hoisted onto the hook. This process posed a significant risk for pinch, hand and finger injuries and musculoskeletal strains and sprains due to the level of exertion and awkward postures required to move and manipulate the chains from the locker onto the chain hook.

#### The Solution

We fabricated a mobile trolley to house the chains which allows us to lower the crane hook to the trolley to connect straight onto the bull ring with no manual handling of the chains required. This has resulted in the following benefits:

- 1. Minimum of 99 per cent reduction in physical exertion required of task: The trolley allows us to hook the crane directly onto the bull ring of the chain by simply depressing the crane hook clip. This requires only two kilograms of force, reducing the exertion required to change out the heaviest chains by 99 per cent.
- 2. Mobility and easy manoeuvrability of chains around workshop: The trolley is moved about on pivoting castors, which provide maximum mobility with just 15 kilograms of force required to initiate trolley movement.
- 3. Improved housekeeping of lifting accessories: The trolley improves housekeeping, reducing the possibility of chains tangling in storage, further reducing the manual handling required to untangle the chains and maintaining chains' structural integrity.
- 4. Increased work efficiency and productivity: The trolley has resulted in a more efficient work environment by eliminating the need for employees to request assistance to carry out a two-person lift every time they need to use the crane, as well as reducing the amount of time spent maintaining/detangling stored chains before use.



**1.** The trolley allows the crane hook to be lowered and clipped directly onto the chain's bull ring, requiring <2kg force.



**2.** The chain can then be hoisted directly off the trolley, with no manual handling required.

# **Queensland Mining Industry Health and Safety Conference 2014**



Please cast your vote below and tear out for collection at the end of the Session.

	Inn	ovation	Please tick <u>only one</u> box	
	1.	Machine Door Lift Quick Detach System Attachn Rio Tinto Coal Australia - Kestrel Mine	nent	
	2.	Hydraulic Valve Opening Tool Rio Tinto Alcan Weipa		
	3.	Hail Creek Mine Induction Program - Real Time Mastermyne and Mynesight	Data Collection Tool	
	4.	Cylinder Assembly Bench Roller Hastings Deering (Australia) Ltd		
	5.	Cylinder Cradle Copper Refineries Pty Ltd		
	6.	Remote Grease Pressure Release System Downer EDI Mining		
	7.	Dragline Tub Maintenance Capsule Ensham Resources Pty Ltd		
	8.	Remote Control Bogging Light MMG Dugald River		
	9.	Timber Block Trolley Hastings Deering (Australia) Ltd		
'n	10.	Crane Lifting Chain Trolley George Fisher Mine, Mount Isa Mines		
<u> </u>				





### Hydraulic Hose Storage Reeler System

#### **Redpath Australia Pty Limited**

#### The Problem

Manual Handling,Slips,Trips and falls are at the top of the list of the most common mechanisms resulting in injuries to workers across all workplaces no matter what the the industry. During a routine inspections of a Redpath workshop area it was identified that there was a continuing housekeeping issue in regards to the storing and handling of 3 /4" and larger hydraulic hoses that could not be supplied on reels like smaller diameter hosing. The current method of storing and handling the larger sized hydraulic hoses has the potential to impact employees Health & Safety by creating;

- manual handling hazards due to the weight of the hoses
- slip, trip or falling hazards due to the difficult nature of storing the hoses once the hose length is unraveled

Prior to the Hydraulic Hose Storage Reeler System concept being designed and implemented there was a real risk of exposure to employees as seen in Picture 1 below.

Redpath along with G3 Engineering Brisbane investigated options to improve functionality of the hose container and reduce the potential exposure. The concept of a vertical steel upright frame with cable reels attached that have roller mechanisms which allow the hydraulic hoses to be pulled through easily in a controlled manner with out physical exertion was designed and installed.



Picture 1. Hose container prior to installation



Picture 2.Hose reeler installed in container

This design meant that the larger size hydraulic hose could now be stored off the ground and out of the way minimising exposure to any slip, trip or fall hazard. The design also has an attached winch which enables easy lifting of the cable reels eliminating the need for employees to lift the heavy hose to hang on to the wall.



### **Body Pin Installation and Removal Tool**

Hastings Deering (Australia) Limited

#### The Problem

The installation and removal of body pins that attach the OHT truck body to the chassis had been carried out by workers operating under the body once it was suspended by a crane (see figure 1).

A risk assessment identified the potential risks to workers installing and removing the body pins, including crush injuries, falls and ergonomic hazards.



Figure 1: Suspended 797F OHT Body

The Body Pin Installation and Removal Tool uses a hydraulic pump and cylinders along with a remote camera to allow assembly and maintenance personnel to remotely install and remove OHT body pins (see figure 2).



Figure 2: Body Pin Installation & Removal Tool

The tooling can be used on a range of OHT models and is not limited to one specific model. The tool components are light enough to be able to be lifted and located without the need for mechanical lifting devices.

Finally, mounted video cameras remotely guide the lowering of the body into position, eliminating the need for workers to operate under the suspended body.



### **Off Highway Truck Support Stand Dollies**

Hastings Deering (Australia) Limited

#### The Problem

Support Stands are used in the Hastings Deering workshop to support large truck chassis in order to allow required repairs to be carried out. The support stand adaptor/dolly supplied by the original equipment manufacturer posed a high risk of the machine falling or slipping off the support stand.

A risk assessment found that there was significant stored energy being supported by the stands and the standard type of dolly. It was determined that minimal force would be required to dislodge or move the machine, potentially causing a catastrophic event.



Figure 1 - Conventional method used for off highway trucks.

#### The Solution

A solution was needed to create a safer working environment by either eliminating the stored energy or significantly reducing the likelihood of the machine falling off the stand. The Support Stand Dollies designed by Hastings Deering personnel based in Mackay and the Engineering Services team significantly reduced the likelihood of this event occurring.



Figure 2 - The Support Stand Dolly.

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1.30 - 3.00pm Workshop

**Presentation and Discussion Forum:** An Industry Half Pregnant: Completing the Journey to Risk Based Regulation, Based on the ACARP Project.

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### **MAGNETIC ROOM** ENGAGEMENT



### • CONCURRENT PAPER

### Improving Equipment Design through Industry-OEM Engagement – EMESRT

Presenter: Alan Miskin Author: Alan Miskin Organisation: EMERST

Since 2006 a large number of mining companies from various parts of the world have been working together to influence the industry's major Original Equipment Manufacturers (OEMs). Mining companies recognised that risks could be reduced at the sites by improving the operability and maintainability of the equipment. The Earth Moving Equipment Safety Round Table (EMESRT) became the mechanism for making changes by involving major, if not majority, representation of the sales market to the OEMs.

The EMESRT member companies decided on three initial strategies for improving design:

- Engage with the OEM to discuss the problems, not prescribing the solutions
- List the major hazards or issues related to needed greater design consideration
- Suggest that the OEM apply task based risk assessment in the design process

Over the past 8 years as many as 15 global mining companies have worked with 7 major OEMs with the following messages.

- Designing beyond standards
- Balancing both design & behaviour
- Recognising the value of task based design review
- Appreciating that the OEM will do its best with the end user involved

In recent years EMESRT evolved its approach into an equipment procurement process. The EMESRT Design Evaluation for Equipment Procurement (EDEEP) process was documented in 2012 and presented to the major OEMS twice that year. EDEEP requires that OEM suppliers demonstrate that they have designed their equipment to address major hazards and issues. EDEEP is now in place in the procurement processes of some EMESRT member companies.

In 2014 EMESRT has taken on the Vehicle Interaction (collision) challenge. Workshops involving many mining companies are being operated in Australia to examine the methods of reducing risk that can be applied by both the site and the OEM in order to better define the problems that must be addressed.

EMESRT has demonstrated the value of mining companies efficiently working together to solve common problems. Changes in many designs can already be seen in new equipment from our OEMs. However, EMESRT is not a short term project. The industry must continue to engage with the OEMs to acquire optimal risk reduction in the design of new equipment and the advancing technology.

### • CONCURRENT PAPER



### The Next Generation in Health and Safety Leadership - A Case Study from Mount Isa Mines, a Glencore Company

Presenters: Vanessa Dodd and Maryann Wipaki Author: Andrew Russell Organisation: Conexus Consulting and Mount Isa Mines, Glencore

In 2010 Glencore was faced with a plateau in their safety performance. They desired a shift in their safety culture despite approaching commercial constraints. Cultural improvements were required to align with the corporate strategy as oppose to traditional behaviour-based safety.

Glencore partnered with Conexus Consulting to deliver a solution. Leadership Interventions, Crew Training, On-the-job coaching and On-the-job tools were the practical tools applied to produce the desired outcome. It is important to note that no changes were made to their systems/reporting to maintain costs.

High value results were achieved across all levels of the organisation including:

- Cultural shift
  - Open communication
  - Increase in employee engagement
- Increased ownership/accountability/teamwork
- Proven business outcomes (cost saving to the business):
  - Leaders who attended workshops/were coached = 0 recordable incidents
  - Leaders who attended workshop/no coaching = minor reduction in recordable incidents
  - Leaders who did not attend workshop/no coaching = majority of recordable incidents
  - (results data to be referenced in full paper)

Conexus and Glencore will present a combination of models, frameworks, principles and strategies to achieve sustainable safety transformation in a challenge environment for the resource industry.

### **MAGNETIC ROOM** ENGAGEMENT



### • CONCURRENT PAPER

### A Simplified, Risk-based Approach to Control of NORM

Presenter: Ian James Ellison

Author: Ian James Ellison

Organisation: Mines' Safety & Health Division HQ (Queensland Mines' Inspectorate), Department of Natural Resources & Mines

Australia has two well-established uranium-producing jurisdictions (SA & NT), but the three big mining states (WA, QLD & NSW) have opened up their uranium mining sectors to varying extents.

However, the current volume of regulatory detail available in relation to controlling safety and health risks from naturally occurring radioactive materials (NORM) – all siting under the broad over-arching RPS9 'Mining Code' produced by ARPANSA - in each jurisdiction varies greatly. Hence, ensuring compliance in different parts of Australia to the required local standard, especially for companies working across multiple states and territories, can be complicated and confusing.

Queensland has sought to revise, simplify and demystify its required health and safety standards for NORM in uranium exploration, mining and processing by writing two complementary documents that:

- Clearly demarcate mandatory guideline (code) from advisory guidance;
- Embrace Occupational Health & Safety (or 'Robens') law principles that always govern the Mine Safety &

Health Management Systems;

- Have a common and intuitive format with summaries in the margins for quick reference;
- Highlight and explain sections directly interpreting or reflecting law / best practice; and,
- Require a Radiation Management Plan (RMP), which itself is:
  - o compatible with ARPANSA's RPS 9...
  - o aligns with WA's existing RMP content in mining...
  - o to give it (potentially) a standardised (national?) structure...
  - o with content scopes for the various sections of the RMP...BUT...
  - o using OHS language & concepts (e.g. the Robens' model risk assessment & hierarchy of control) that makes it part of the overall system to manage safety...and
  - o referencing commonly-used examples of mining controls known to be effective...BUT
  - o is not reliant on pre-approval by the regulator.

This presentation will attempt to discuss the main features of the new Code and guidance documents – including competencies to be demonstrated in relation to NORM - in the context of the past history and future of uranium mining legislation in Queensland and beyond.

### CONCURRENT PAPER



### **H&S Implications of Mine Closures**

Presenter: Wayne Scott Author: Wayne Scott Organisation: Department of Natural Resources and Mines

Mining sites often cover large areas and provide many hazards to unauthorised visitors. This paper will outline these hazards and what legislation and common law require of us in managing them. It will also cover some practical examples of what can go wrong and offer Mine sites some guidance on how to manage these situations.

### The Legal Impact of Mine Closures and Abandoned Mines

Presenter: Matthew Smith Author: Alan Girle Organisation: Sparke Helmore Lawyers

In the tumultuous mining market we currently find ourselves in, we are becoming accustomed to hearing about yet another mine closure. But what are the legal implications for closing down a mine and mines that are left abandoned? Who is responsible for those mines and if those responsible are nowhere to be seen, who picks up responsibility?

This presentation will look at the legal impact of mine closures and abandoned mines under the Environmental Protection Act 1994, the Coal Mining Safety and Health Act 1999 and Mining and Quarrying Safety and Health Act 1999. We will also look at the Petroleum and Gas (Production and Safety) Act 2004 as it applies to abandoned wells and briefly touch upon common law obligations.

Using real life examples, we will explain who holds obligations under the legislation, who might inherit those obligations and outline the extent of those obligations

### **Rehabilitation of the Trekelano Mine-site - a Health and Safety Perspective**

Presenter: Rodney Coe Author: Rodney Coe Organisation: Chinova Resources

The Trekelano mine was first mined in the period 1911-1945 and was the longest continual producer of copper ore from the Cloncurry Mining Field. It was one of the few mines mined below the surface zones (to 213 metres) and produced 188,000 tons @10.9% Cu. The recent mining campaign commenced in August 2006 and produced 2.4Mt @ 1.6% Cu as supplementary ore feed to the Osborne copper/gold plant.

Rehabilitation was completed immediately following mining and included management of historic workings as well as the two new open cuts and the waste rock dump. Rehabilitation included reviews of physical, geotechnical and geochemical stability of the landforms and appropriate measures to restrict access.



### • CONCURRENT PAPER

### **Coal Industry GAGing in 2014**

Presenters: Wayne W Hartley and Ken Liddell Authors: Wayne W Hartley and Ken Liddell Organisation: Queensland Mines Rescue Service and Simtars

This presentation describes a mine Inertisation study that was undertaken at Kestrel North mine as part of an ACARP funded investigation into the use and impact of the GAG. Two mine inertisation exercises were carried out at the Rio Tinto operated mine in February 2014.

A long awaited GAG experiential operation was given by Kestrel Coal in conjunction with Simtars and with the support of ACARP. A segregated roadway at the mine was inerted as a staged assessment and evaluation of the inertisation products during the operation and application of this type of technology. The operation in mid-February this year was a chance of a life time to monitor the product migration into the mine environs and the effect of the GAG Inertisation.

The exercise was targeting the GAG operational "known's" and "unknowns". Whilst staging this controlled experiment, the effect was to afford the opportunity to improve the application of this technology. The GAG Unit is operated by the Queensland Mines Rescue Service organisation, utilises a Russian Jet Engine to facilitate the creation of inert gas to flood the underground environment of a coal mine, in affect displacing the oxygen and suppressing coal oxidation and coal mine fires. Emergency Response and Safety of Queensland coal mines, is in good hands.

### AiroDust Comparative Testing with Dry Stone Dusting – ACARP Study

Presenter: Matt Ryan Author: Matt Ryan Organisation: Mining Attachments and ACARP

This presentation will provide an update on ACARP Project C20002 "AiroDust comparative testing with Dry stone dusting". The research into the effectiveness of AiroDust in preventing and or suppressing a coal dust explosion is now in its final stages.

The presentation will provide an overview of how stone dust works to prevent or suppress a coal dust explosion. The timeline of key events in stone dust research will also be described, including the introduction of wet dusting and subsequent research that showed it was ineffective.

The presentation will then describe how AiroDust works as a method of applying stone dust. It will describe the research that has been undertaken to prove the process is effective, including the development of best practice audits, the provision of information to SSEs and undertaking site based risk assessments.

The presentation will include demonstration videos showing the suppression of full scale explosions.

### • CONCURRENT PAPER



### **Shotcreting Innovative and Practical Ways**

Presenter: Wade Kathage Author: Wade Kathage Organisation: Anglo American Metallurgical Coal – Moranbah North Mine

Moranbah North Mine (MNM) has had two significant strata related projects where existing industry strata remediation techniques were not optimal – these were life of mine strata remediation, and increasing secondary support in underground drifts.

A new solution was proposed that addressed two key criteria: reducing risk to mine workers ie removing proximity to unstable roof, reducing manual task exposures, removing people from proximity to conveyors, reducing interactions with mobile equipment, AND improved efficiency ie improved application rates, reduced curing times, meet support specifications, no impact on coal clearance availability and reduce diesel fleet requirements.

This paper discusses the result that meets these criteria by introducing pipe delivery systems and flame proof mobile shotcreting machine with improved performance, on a conveyor mounted platform and ground level applications that provides a solution to the strata remediation issues, with possible other benefits being trialled.

### **MAGNETIC ROOM** SITE HEALTH ISSUES



### • CONCURRENT PAPER

### **Collaboration and Innovation for Workforce Health**

Presenter: Helen Scott Authors: Helen Scott and Caitlin Braddick Organisation: Corporate Bodies International

The redistribution of budget and time pressures on site Health and Safety personnel are key challenges to implementing traditional health and wellbeing programs within the Queensland mining and resources sector. An innovative and sustainable approach to workforce health and wellbeing can help overcome these challenges, to yield improved workforce morale and culture, improved worker productivity and reduce the organisational impact of absenteeism, injury and illness.

A collaborative approach to workforce health was exemplified at Yancoal Yarrabee Coal. The program at Yancoal Yarrabee provides evidence for best-practice health and wellbeing program implementation. Since winning the inaugural QMIHSC Health Program Award in 2013, the Yarrabee Health and Safety Team have continued to implement an innovative program, despite the mining and resources downturn, that has produced measurable health outcomes. This paper will provide an insight into how this holistic model can be tailored to other mining workplaces to achieve a return on investment for both the employer and employee.

### **FIFO Village Life: Improving Health and Wellbeing**

Presenter: Adam Rolfe Author: Adam Rolfe Organisation: ESS Support Services Worldwide

Health is defined by the World Health Organisation as 'a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity'. With more employees choosing a FIFO lifestyle over residing in traditional mining town locations it is clear that mining companies have an opportunity to positively impact the health and wellbeing of their employees.

A FIFO/DIDO lifestyle allows employees to secure employment without having to consider relocating their family from their existing home base.

Recent studies have shown that FIFO employees are at risk of suffering a range of health issues at a higher rate when compared to the general population. Irregular hours, shift work, long rosters and extended absences from families and support structures can all contribute to increased rates of obesity, mental illness, cardiovascular illness and alcohol related problems - all impact on productivity and increase the risk of workplace injuries.

This paper looks at strategies employed by mining businesses and their service providers to combat these health issues and instead affect positive change on the welfare of FIFO employees:

- Health and wellness programs
- Fatigue management
- Village construction
- Drug and alcohol management plans
- Understanding demographics

### • CONCURRENT PAPER



### **Camp Accommodation – Living on the Edge?**

Presenter: Cameron Dean Author: Cameron Dean Organisation: McCullough Robertson

Camp accommodation is a fact of life for many Queensland mining operations, but the regulation of health and safety matters for these camps walks a fine line in finding a balance between what are work activities that need to be managed and private activities that do not. As a consequence, novel issues can arise in working out what health and safety laws camps are governed by, and what matters occurring within camps should be governed as part of health and safety systems. Even where there are specific obligations (for example those specified under the harmonised Work Health and Safety Act 2011 (Qld)), issues arise as to how those obligations are monitored and enforced.

This presentation is based on recent experiences in dealing with mine camp issues and will examine some key issues that have arisen, how the legislative regimes are set up to deal with those issues and some practical guidance for responding to them.



CONCURRENT PAPER

### Too Close for Comfort' – the Case for Proximity Detection and Vehicle Collision Avoidance Systems – an Update

Presenter: Tilman Rasche Author: Tilman Rasche Organisation: Department of Natural Resources and Mines

The increase in the number, physical size and speed of ever-growing mobile mining and support equipment fleets in open cut mines worldwide has created many operational benefits.

Regrettably the decision to design and manufacture larger and larger mobile mining equipment - trucks, dozers and graders to achieve higher productivity has created new hazards and so far unresolved and largely ineffectively controlled risks such as vehicle interaction which still too often result in the accidental collision of vehicles and the death of vehicle occupants or pedestrians.

The need to hasten the development and implementation of proximity detection and collision avoidance systems has been again highlighted by a recent fatality at a NSW mine where a light vehicle and its driver were crushed by a moving haul truck. One of the two most recent fatalities in Queensland (2012) resulted from a mine supervisor being run over by a front end loader. In previous years about 45% of all fatalities were caused by vehicle interactions. In late 2013, a person was killed in NSW when his LV was crushed by a haultruck and shortly after a LV was also crushed by a reversing dozer.

The US regulator MSHA reports that at least 9 fatalities (over 20%) were caused by vehicle interaction in 2013. Fatal vehicle/pedestrian interactions also occur in underground mines - Queensland has seen several deaths in recent years were miners were crushed by mobile equipment. Proximity detection and collision avoidance systems, in many if not most cases would have helped prevent the fatalities from occurring.

To maintain the industries effort towards the elimination of vehicle interaction fatalities and achievement of 'zero harm', this presentation will repeat to make a case for the on-going development, improvement and installation of proximity detection and collision avoidance systems at all mines.

It will deliver a brief assessment of state, national and international mine vehicle interaction and fatality statistics, including root and contributing causes and provide a fresh look at what aspects must be considered for a successful selection and implementation of a proximity detection system at any mine site, anywhere in the world.

### • CONCURRENT PAPER



### **Implementation of CAS/PD by Peabody Energy**

Presenter: Neville McAlary Author: Neville McAlary Organisation: Peabody Energy Australia

Peabody Energy is actively moving forward with Proximity Detection and Collision Avoidance Technology at its Open-cut and Underground Coal mining operations in Australia. This presentation will discuss the journey so far, where they are at now and where they are heading.

Peabody Energy has implemented, or currently implementing, the following systems:

- 'Safemine' Proximity Detection system at its Burton Downs Open cut Coal Mine
- 'Infotronics' Collision Avoidance System into a working panel at its North Goonyella Underground Coal Mine
- 'Joy's' Man-down longwall collision avoidance system at its Metropolitan Underground Coal Mine

### Presentation and presenter to be announced



• WORKSHOP

### A Strategic Approach to Improving Mental Health in the Mining Industry

**Presenter: Brian Kelly** 

Authors: Robyn Considine and Jaelea Skehan Organisation: University of Newcastle and Hunter Institute for Mental Health

The Australian resources sector is an integral part of Australia's economy, contributing significantly to the economy overall, to regional and rural economies and communities. Over 260,000 people were employed in mining in Australia in 2013, approximately 2% of the Australian workforce.

Mental ill-health is common in Australia with most common mental illnesses experienced by 20% of the population in any 12 month period. While no industry specific data exist, as part of the Australian community it is likely that people in mining are also affected by mental ill-health.

Building on a mining industry lead, the University of Newcastle established the Mental Health and Mining Program in 2013 to oversee a set of research initiatives to address mental health in the industry. In collaboration with the industry this program aims to improve the mental health of people working in mining. This program of work is guided by the NSW Minerals Council Blueprint for Mental Health and Well-Being.

This paper aims to describe the program focusing on a range of projects addressing mental health in mines and communities. It will also describe progress to date for one of the projects being undertaken in the NSW and Queensland Coal mining industry.

# How Mines can be Mentally Healthy Workplaces ...and What to do When People are Struggling

#### Presenter: Jaelea Skehan

Authors: Jaelea Skehan, Katie McGill, Brian Kelly, Carole James and Robyn Considine Organisation: Hunter Institute of Mental Health and University of Newcastle

In any given year, one in five Australians experience a mental illness. From this, it is estimated that every year in Queensland at least 15, 000 mine workers experience a common mental illness like anxiety, depression or a substance use disorder. This raises specific questions about what is the workplace's role in promoting wellbeing and supporting people who are struggling.

This workshop will provide an overview of principles for how mining workplaces can support the mental health and wellbeing of their workers. It will also specifically cover the issues that are relevant to managers and supervisors of workers experiencing mental illness. This will include discussion about the signs and indicators of mental health and ill-health, health and safety obligations, confidentiality and disclosure considerations, common workplace stressors, and discussion about how to take all of this into account when mental illness affects someone in your workplace or a person in your team.

# **CORAL SEA ROOM** RISKGATE IN OPERATION

### • WORKSHOP



Facilitator: Philipp Kirsch Organisation: SMI-Minerals Industry Safety and Health Centre

This interactive and dynamic panel discussion will start with a succinct update about the RISKGATE system, followed by a number of mining company experts who will present on RISKGATE implementation at corporate and site level in their organisations.



### • CONCURRENT PAPER

### **Burton High Wall Challenge**

Presenters: David Wang and Matthew Tsang Authors: Gus Jorquera and Gary Maher Organisation: Thiess

The Burton Coal mining operations occurs primarily in the Burton Widening pit, which is a steep, open-cut terrace mine with a long narrow working area. Forecasts indicate the high wall will be approximately 250 metres deep when operations reach the bottom of the pit. The pit's complex geology and footprint demand meticulous planning to ensure high wall stability and prevent vehicle congestion.

The management team has assessed the site's potential safety risks and has implemented a number of initiatives to ensure a safe, productive work environment. One such initiative is an industry-leading monitoring system that can predict with a high level of accuracy when and where the next failure might occur. This is providing operators with the confidence that the systems and controls are in place to secure their safety as they work underneath the high wall. In addition to the systems, the leadership team has introduced a safety culture program that has transformed site behaviours from one of compliance to collective ownership of the challenges at hand.

### **Open Cut Multiple Fatality Risk - Critical Control Effectiveness**

Presenter: Allan Gordon Author: Allan Gordon Organisation: Anglo American's Coal business

TThis presentation briefly describes a strata management incident – a low wall failure at an operating open cut mine that occurred in May 2013, partly engulfing an excavator and a haul truck. Fortunately the three people involved with the affected equipment suffered no serious physical injuries but the potential existed for very serious outcomes. The investigation into the wall failure revealed a fundamental systemic short-coming associated with the ability to ensure that critical controls put in place to manage major risks remain effective over the long term.

This presentation focuses on how addressing this short-coming has led to the development of a specific program of higher level assurance regarding the ongoing effectiveness of critical controls for strata management and other multiple fatality risks. Critical controls for multiple fatality risks are now subjected to high level monitoring under the auspices of the responsible risk owner – one of the site senior leadership team members. In addition to the benefits of ensuring critical controls remain in place and effective, the additional benefit has been a significantly greater focus on high level risks and their management generally throughout the sites.

### Investigations into the Applications of Micro-seismic Sensing to Slope Stability Monitoring in Open-cut Mining

Presenters: Ken Liddell and Philip Shaw Authors: Philip Shaw and Ken Liddell Organisation: Simtars

Unexpected high wall failure has the highest potential impact in open cut coal mining operations and current methods of risk management rely on slope stability monitoring. One example of a reliable monitoring technique is the use of radar, which has been deemed by many as the most effective system available to provide reliable advanced warning of an impending event.

Recent developments in micro-seismic sensing technologies and the associated signal processing techniques allow the use of sensors without drilling bore holes that could allow the precursors of slope movement to be detected, localised and mapped, delivering insight into how the high wall is responding to mining activity. During 2014/15 Simtars is intending to initiate its own trials of this technology in QLD with the specific aim of identifying if and how micro seismic systems could contribute to safety in open cut mines. Other investigations will focus on UG mining applications. Similar micro-seismic systems have been trialled successfully to detect and locate trapped miners.

### • CONCURRENT PAPER



### **Engineering People Out of Harm's Way**

Presenter: Christian Mans Authors: Claire Stevens, Christian Mans and Paul Buddery Organisation: Anglo American Metallurgical Coal

Mining in the Goonyella Middle Seam has historically been plagued by poor tailgate conditions requiring routine standing support installation which limits tailgate access. Moranbah North Mine frequently transported replacement parts via the maingate, involving the use of suspended loads and considerable manual handling in areas with limited room such as the bootend.

Installing the mainly timber standing support in the tailgate required ~200 man hours per week working on muddy, uneven ground with poor visibility and significant amounts of manual handling. High gas levels frequently restricted tailgate access, preventing standing support installation and heavily impacting upon production.

An 18 month project of step change and engineering redesign to, at first, reduce and then completely remove the routine installation of standing support yielded very impressive results, enabling the mine to beat its own production records and recently set an Australian longwall record. More significantly, the mine has seen average reductions in injuries, reported hazards and damaged/lost equipment of 88%, 92% and 78%, respectively. The improvement is largely attributed to the reduction in tailgate man hours. The innovative application and presentation of a variety of monitoring techniques has been extended to other underground areas to provide further enhancements in safety.

### Wirtgen SM4200 Surface Miner Trial Implementation at New Acland Coal Mine

Presenters: Alison Nugent and Trent Knack Author: Alison Nugent Organisation: New Hope Group – New Acland Coal

New Hope Group (NHG) operates two thin seam coal mines in Queensland. With a strong focus on employee and community welfare, NHG continually strives to improve efficiency without negatively impacting safety or the environment. One current effort is New Acland Mine's trial of a Wirtgen SM4200 Surface Miner (SM4200) in place of the current dozer/ loader system for mining parting and coal.

Surface Miners are extensively used in Western Australian iron ore mines to selectively mine ore. The SM4200 uses a drum and conveyor configuration that cuts and loads material directly into haul trucks.

Introduction of a surface miner in Queensland coal – and within NHG – is a new and novel process requiring significant preparation work including adopting key success factors, procedures and risk assessments that will ensure safe implementation and project success. Queensland statutory requirements and site standards for electrical, mechanical, production and safe operation must also be addressed prior to trial commencement. NAC selected a project team comprising key members from several mine departments to oversee trial preparation and implementation. This presentation provides a summary of the project to date and the expected outcomes for a successful trial of the SM4200 Surface Miner at New Acland Coal.

### **MAGNETIC ROOM** RISK MANAGEMENT



### • CONCURRENT PAPER

### Holing Underground - An Example of the Swiss-Cheese Model

Presenter: John Coughlan Authors: Don D'Souza, Jason Kachel and John Coughlan Organisation: Rio Tinto – Kestrel Mine

On the 5th February 2014, at 10:35am a 600mm diameter borehole was holed through from the surface into the underground workings at Kestrel Mine. At this time two people were in the vicinity of the hole-through location. The resultant flow of material from the bore hole discharged under considerable pressure, knocking the people over and peppering them with debris. On this occasion the injuries sustained were minor.

So today, with all the focus on safety and critical risk management that goes into a modern coal mine, how does it come to pass that two people can be in the vicinity of a release of material such as this at the very moment it releases? This paper explores the aspects of change management, process execution and communications that can create an alignment of factors in the classic "Swiss cheese" manner. It also considers the effectiveness of controls and their interpretation by different individuals involved in a complex task at different stages.

This is an opportunity to learn from doing an infrequent but not entirely unusual task how subtle shifts along the path to conclusion can accumulate to a near catastrophic result.

## **PALM ROOM** COMMUNICATION SERVICES

### • CONCURRENT PAPER



### **Is Compliance Killing Performance?**

Presenters: Peter Smith and Rod Sumner Authors: Peter Smith and Rod Sumner Organisation: Carve Business Solutions Pty Ltd

"No coach has ever won a game by what he knows; it's what his players know that counts." – Coach Paul Bryant.

Performance in mining relies on our frontline workers ability to understand and execute required game plans.

A strong focus on Legislative compliance has meant organisations have built their information systems for the requirements of the Regulator and not necessarily their frontline workers. This focus has meant we often fail to communicate clear and engaging information to our workforce, limiting their ability and willingness to perform in the workplace.

We continually fill our procedures and policies with pseudo-safety science and legalese terminology, jargon and principles, while research shows that up to 47% of the Australian population struggle with prose and documents. Modern cognitive theory highlights that our working memory is limited to 5-7 elements of information. However, we continue to deliver pages and pages of procedures to our workforce and expect adherence and implementation.

Using fundamental cognitive principles for memory, combined with metaphors and structures based on sport. Ultimate Mine Games (UMG's) allow organizations' to provide information in a format that is engaging and relevant to frontline workers, meeting legislative requirements and delivering safety, production and quality performance.

### What Safety Can Learn from Neuroscience

Presenter: Dean Meijer Author: Cristian Sylvestre Organisation: SafeStart

Most of us have worked out that what we do has a lot to do with our incidents. However, we have a tendency ('bias') to view our incidents as the outcome of a 'conscious' process. That is, if we got hurt, then we must have made:-

- a 'bad' decision
- an 'incorrect' judgement, or,
- the 'wrong' choice

Research in the field of neuroscience is uncovering how the mind works and what is increasingly clear is that subconscious processes drive most of what we do. So, for many of the everyday things we do, it is not our conscious mind that makes those thousands of decisions, but our subconscious habits that drive us to do things in the way we have conditioned ourselves through repetition.

This is the reason why, for example, the impulse to text while driving overtakes most people and they end up doing things that, in hindsight, they know they shouldn't.

This presentation investigates how the discoveries of neuroscience are helping us understand the role of the subconscious mind and how this can be used to help people to stay safe.

# PALM ROOM



### CONCURRENT PAPER

### **Optimising Safety Performance with the Brain in Mind**

Presenter: Heather Ikin Author: Heather Ikin Organisation: TMS Consulting Pty Ltd

The Mining Industry maintains a strong focus on health and safety systems and initiatives, and yet despite this fact, there have recently been a number of fatalities in Mining in Australia. In order to combat this, employees, contractors, supervisors, executives and mining operators need to work together to maintain a focus on identifying and managing the risks inherent in mining work environments.

Most organisations have sound risk management practices in place, so why aren't they working as effectively as they should?

The fields of neuroscience and cognitive psychology can better help us to understand the limitations of human performance, and the need to design safety systems accordingly. Critical concepts to consider include how we attend to stimuli in the work environment, conscious processing capacity, decision-making accuracy, and information storage and retrieval.

This paper considers the brain science behind risk awareness, perception and attention, providing insights into how the brain works in relation to safety. Practical suggestions for making improvements to safety management systems to accommodate human performance, as well as lessons from the field of psychology on influencing safe behaviour at work will be discussed.

### • WORKSHOP



### Presentation and Demonstration Regarding Heavy Vehicle Crash Mitigation Including Rollover

Facilitator: Chris Stephens Organisation: VicRoads



• WORKSHOP

# Presentation and Discussion Forum: An Industry Half Pregnant: Completing the Journey to Risk Based Regulation, Based on the ACARP Project.

Facilitator: Neil Gunningham Organisation: Australian National University

•	Notes

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The Conference Organiser ACCLAIM Special Events and Meeting Management 23 Deerhurst Road, Brookfield, Qld 4069

Tel: 61 7 3254 0522 Email: safeconf@acclaimsemm.com.au

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