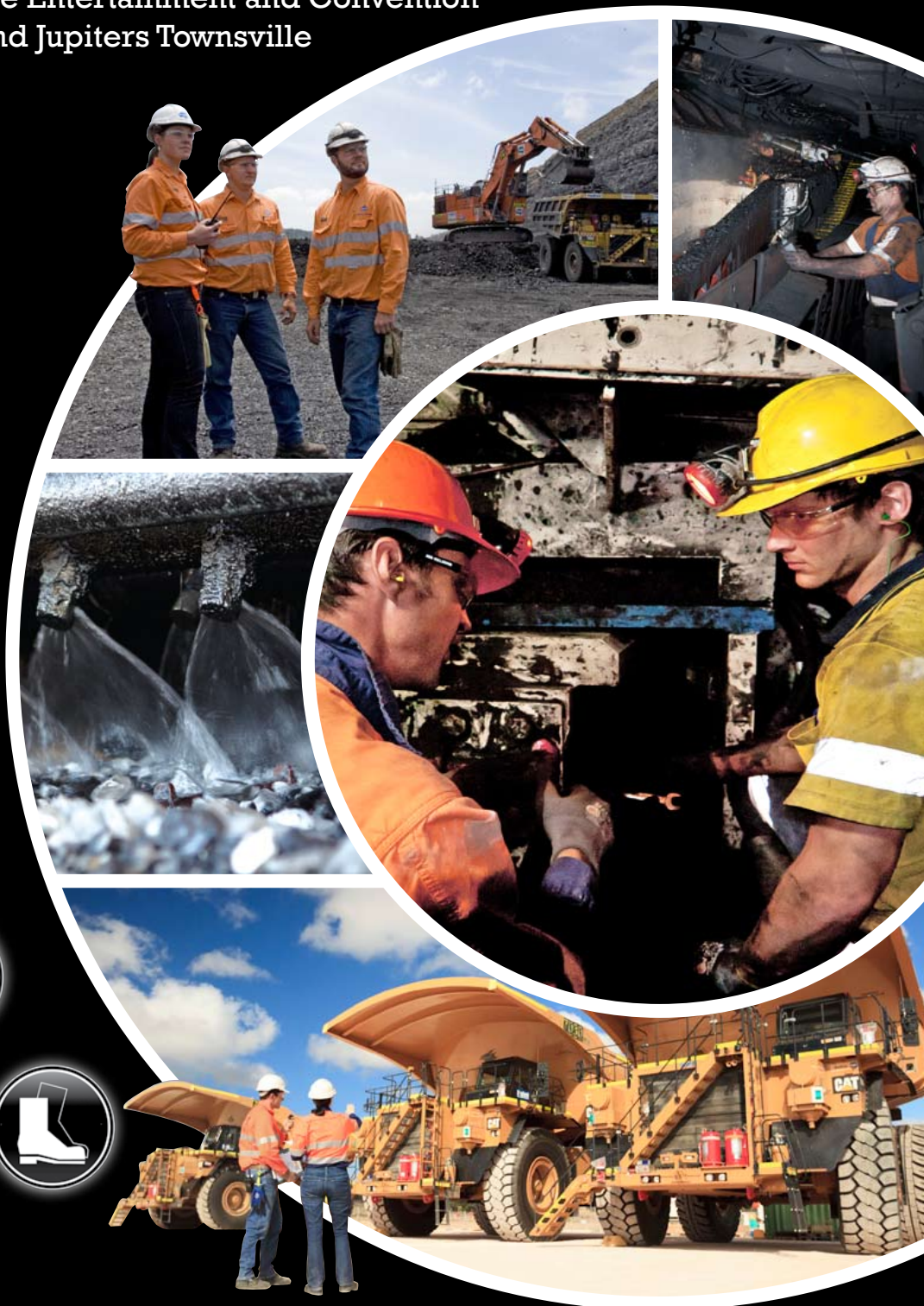


Townsville Entertainment and Convention Centre and Jupiters Townsville



SPONSORS

The Committee of the Queensland Mining Industry Health and Safety Conference 2015 wishes to thank our Sponsors for their generosity and continuing support of this event.



CFMEU



Mining and Energy
QUEENSLAND DISTRICT



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Evolution
MINING



health safety hygiene



The above Sponsors were confirmed at the time of printing.

DISPLAYS

Abbott Point of Care
ATOM

Australian Institute of Management

Breathalyser Sales and Service

Caterpillar Safety Services

CFMEU Mining & Energy Division
Queensland District

Corporate Bodies International

Croomo

4P System

GCG Health Safety and Hygiene

Gryphon Psychology

Haul Road Optimisation Alliance

IPAR Rehabilitation
JobFit Systems International
KINNECT

LifeAid Pty Ltd

Projection Group

Protective Industrial Products

Protector Alsafe

QML Pathology

Master Seat Suspension

MateCheck Health and Wellbeing
Solution

MISHC-SMI University of
Queensland

Resources Industry Skills
Association (RISA)

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Safety Equipment Australia

Safe Work Laboratories Pty Ltd

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VEHICLE DISPLAYS

Queensland Mines Rescue Service

Protector Alsafe

Simtars

St John Ambulance Queensland

HEALTH HUB

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Heart of Australia

MATES in Construction

Workplace Health and Safety Queensland

GUEST DISPLAYS

Australasian Mine Safety Journal

A Miners Legacy

Driver Safety Australia

Heart of Australia

Queensland Mines Rescue Service

RACQ CQ Rescue

St John Ambulance Queensland



The above Displays were confirmed at the time of printing.

www.qldminingsafety.org.au

Welcome

Dear Industry Colleagues,

As the Chairman of the 2015 Queensland Mining Industry Health & Safety Conference, and on behalf of the committee, it is my pleasure to extend a warm welcome to everyone.

As we convene for the 27th conference I am reminded that from very humble beginnings at Yeppoon, where we were lucky to have 50 people in attendance, this event has grown to be the largest and most respected conference in the mining industry in Queensland. To continue to grow in stature and relevance is a testament to how serious we are about the safety and health of all those who work in our industry.

Despite that, from last year to this we had six fatalities at Queensland mines in a period of 10 months. You have to go back as far as 1997 to find the last time the number of fatal accidents was this high. We all need to take stock and re-affirm our serious commitment to the safety and health of ourselves and our colleagues in the industry.

With the downturn still taking its toll, this year we are trialling a different format to give as many as possible the opportunity to attend. Beginning with an earlier start at 1.30pm on Sunday and finishing after the conference dinner on Tuesday evening, we have a packed program full of presentations designed to provide you with the most up to date safety and health information possible to take back to your mine site.

We have also added value by holding the welcome reception amongst the trade displays, providing more quality time with the exhibitors.

Over the next few days our focus will be on how we can best bridge the gaps between all sectors within our industry and how we can better use our combined resources.

I would like to make special mention of our sponsors and those taking up display spaces. Without their continued support, the conference would not be the high standard event we have come to expect and we thank them most sincerely.

Our thanks must also go to Glencore Coal Assets Australia who has taken the major sponsorship of the conference dinner and uvex who has sponsored the informal dinner. In addition, uvex has generously offered to host the winner of the Innovation Award to the A + A Trade Expo in Dusseldorf in late October. And we cannot forget our speakers who give up their valuable time to share with you, important information and developments in mine safety and health.

The stage is set, now it is up to you to make the most of your time here. Plan to attend all keynote sessions, take your pick from the 33 concurrent sessions, visit the Simtars VR presentation, take time to visit all the displays and please be there on Monday afternoon to assist with the judging of the 2015 Innovation Award People's Choice winner.

If we all take just one thing we have learned from the next few days and put it into practice we can make our workplaces a safer and healthier environment for all of us.

The committee members look forward to meeting you over the next few days – we are easily recognisable in our red shirts, so if there is any way we can assist please don't hesitate to ask.



Paul Harrison
Deputy Director-General, Mine Safety and Health, Department of Natural Resources and Mines
Chair
Queensland Mining Industry Health and Safety Conference 2015



Conference Committee

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

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Ryan Glen

Manager QRC Online, Queensland Resources Council

Phil Goode

Chief Inspector of Mines,
Department of Natural Resources and Mines

Bede Harding

Organiser, Australian Workers' Union

Liz Sanderson

Occupational Health Specialist, Anglo American

REGISTRATION DESK - OPENING TIMES

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

10am – 6.30pm Sunday
7.30am – 6.00pm Monday and Tuesday

CONFERENCE - SESSION TIMES & VENUES

Sunday - 16 August

1.30pm – 5.30pm Conference Opening - *TECC Auditorium*
6.00pm – 9.00pm Welcome Function and Opening of Trade Displays - *TECC Foyer; Forecourt; Palm Room*

Monday - 17 August

8.30am – 2.45pm Business Sessions - *TECC Auditorium*
3.15pm – 5.30pm Innovation Presentations - *TECC Auditorium*
5.30pm – 6.30pm WIMARQ Function - *Jupiters Townsville, Coral Sea Room*
7.00pm – 10.30pm Informal Dinner - *Jupiters Townsville, Grand Marquee*

Tuesday - 18 August

8.30am – 10.15am Business Sessions - *TECC Auditorium*
10.15am – 10.45am Poster Sessions - *TECC Magnetic Room*
10.45am – 12.15pm Concurrent Sessions - *TECC Auditorium 1; Magnetic Room; Palm Room; Jupiters Townsville, Coral Sea Room*
12.35pm – 1.15pm Workshop - *TECC Orpheus Room*
1.15pm – 5.30pm Concurrent Sessions - *TECC Auditorium 1; Magnetic Room; Palm Room; Jupiters Townsville, Coral Sea Room*
6.30pm – 7.25pm Pre Dinner Drinks - *TECC Foyer; Forecourt*
7.25pm – 11.00pm Conference Dinner - *TECC Auditorium*

ADDITIONAL TICKETS TO SOCIAL FUNCTIONS

To purchase additional tickets for partners and guests please contact the Conference Secretariat as soon as possible to avoid disappointment.

NAME BADGE

Name badges will be provided at Registration. It is essential they be worn at all times to allow entry to all Conference Sessions and Social Functions. Replacements will be provided - just visit the Conference Secretariat. *Proudly Sponsored by Croomo*



DRESS CODE

Conference Sessions each day	Smart casual
Welcome Function – Sunday evening	Smart casual
Informal Dinner – Monday evening	Smart /Dressy casual (plus warm jacket)
Conference Dinner – Tuesday evening	Lounge Suits or a Dressy Shirt and Trousers for Men & Cocktail Attire for Ladies

Complimentary Coach Service



• Airport Transfers

Sunday - The Coach service will meet all main flights into Townsville Airport and transfer Delegates to the *Conference Hotels, between 8am and 7pm.

Monday - This service will also operate on Monday from 8am to 10am, picking up Delegates at the Airport and transferring delegates to their Hotel and/or to the Townsville Entertainment and Convention Centre.

Wednesday - Please refer to the Coach Shuttle timetable for details.

• Daily Coach Shuttle Service

A Coach Shuttle Service will be provided to transfer Delegates to and from their *Hotel to all Business Sessions and Social Functions.

Coach Shuttle Timetables will be available at the Registration Desk, at your Hotel Reception and in the Conference Bag.

**The following Hotels are those organised through the Conference Organiser.*

JUPITERS TOWNSVILLE * HOLIDAY INN * IBIS TOWNSVILLE * GRAND HOTEL * MERCURE TOWNSVILLE
PARK REGIS ANCHORAGE * RYDGES SOUTHBANK TOWNSVILLE * CHIFLEY PLAZA
* OAKS M ON PALMER * QUEST TOWNSVILLE

THE PICKUP POINT FOR HOTELS IN THE PALMER STREET PRECINCT IS AT THE BUS STOP NEAR RYDGES SOUTHBANK AT 23 PALMER STREET.

FIRST AID SERVICE

Throughout the Conference Delegates will have access to a First Aid Service.

Proudly Sponsored by St John Ambulance Queensland



Simtars

VR Self-Escape Simulation Jupiters Townsville Ballroom 2

Demonstrating experiential training in a virtual underground self-escape scenario to improve knowledge retention and decision-making skills.

Session Times

Sunday	5:30 PM
Monday	3:00 PM
Monday	5:00 PM
Tuesday	10:45 AM
Tuesday	1:15 PM
Tuesday	3:15 PM

Don't miss out!

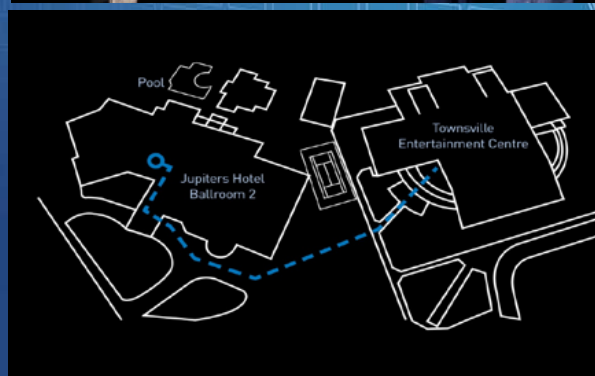
Book your session at the Simtars stand at Townsville Entertainment and Convention centre.



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■ - SUNDAY 16th AUGUST

10.00am - 6.30pm **REGISTRATION – Townsville Entertainment and Convention Centre, Foyer**

1.30pm - 2.00pm **CONFERENCE OPENING AND WELCOME**

Russell White, Master of Ceremonies, Managing Director, Driver Safety Australia
Paul Harrison, Chair, Queensland Mining Industry Health and Safety Conference 2015
Cr Jenny Hill, Mayor City of Townsville

2.00pm - 2.15pm **IF WE WANT TO LEARN, WE NEED TO SHARE** - *Proudly Sponsored by Glencore Coal Assets Australia*
Introduction to this Session which will examine industry cooperation in health and safety and the importance of sharing safety information, including a brief overview of the concept of industry-led Health and Safety Voluntary Initiatives.
Prof Jim Joy, Principal, Jim Joy and Associates

2.15pm - 3.00pm Keynote address on industry cooperation in health and safety, *using Step Change In Safety*, which operates in the North Sea oil and gas field, as a case study.
How can a Tripartite Approach to Health and Safety Really Deliver Improvements?
Steve Walker, Consultant, United Kingdom

3.00pm - 3.30pm **AFTERNOON BREAK AND TRADE DISPLAYS**

3.30pm - 5.30pm **PANEL DISCUSSION** - *Proudly Sponsored by Glencore Coal Assets Australia*

The Need for Safety = the Need to Share.

A panel of experts and industry representatives, Chaired by Prof. Jim Joy, will discuss the impediments to greater cooperation in health and safety in the Queensland resources sector.

Panellists

Steve Walker, Consultant, United Kingdom

Greg Ashe, Chief Operating Officer, Glencore (Zinc Aust)

Steve Badenhorst, previously Australia Country Manager and Chief Operating Officer, Vale Australia

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

Phil Goode, Chief Inspector of Mines, Department of Natural Resources and Mines

Harold Downes, Partner, Herbert Smith Freehills

6.00pm - 9.00pm **WELCOME FUNCTION AND TRADE DISPLAYS** - *Proudly Sponsored by Peabody Energy Australia*
Townsville Entertainment and Convention Centre - Foyer; Forecourt and Palm Lawn

9.30pm - to late **THE RESCUE STATION – Jupiters Townsville, Lobby Bar**

■ - MONDAY 17th AUGUST

- 7.30am - 6.00pm** **REGISTRATION – Townsville Entertainment and Convention Centre; Foyer**
- 8.30am - 8.45am** **Master of Ceremonies**
Russell White, Managing Director, Driver Safety Australia
- 8.45am - 10.15am** **KEYNOTE PRESENTATIONS - Proudly Sponsored by Glencore Nth Qld Operations (Copper and Zinc)**
When is Enough, Enough?
Russell White, Managing Director, Driver Safety Australia and Bev Brock, Author and Road Safety Advocate
- 10.15am - 10.45am** **MORNING BREAK AND TRADE DISPLAYS - Proudly Sponsored by Downer Mining**
- 10.45am - 12.15pm** **KEYNOTE PRESENTATIONS - Proudly Sponsored by Glencore Coal Assets Australia**
- 10.45am - 11.30am** **Systemic Risk Management: Completing the Journey**
Prof. Neil Gunningham, Director, National Research Centre for Occupational Health and Safety Regulation, Australian National University
- 11.30am - 12.15pm** **On Leadership, Gold Mining, Wealth Creation and Professional Cricket**
Dr Geoff Garrett AO, Queensland Chief Scientist, Queensland Government and Craig Roy, Deputy Chief Executive, CSIRO
- 12.15pm - 1.15pm** **LUNCH AND TRADE DISPLAYS - Proudly Sponsored by New Hope Group**
- 1.15pm - 2.45pm** **KEYNOTE PRESENTATIONS - Proudly Sponsored by Anglo American**
- 1.15pm - 2.00pm** **Psychosocial Wellbeing and the Benefits for Health and Safety in Mining**
Dr Rob McCartney, Medical Director, Resile Pty Ltd
- 2.00pm - 2.45pm** **Health and Safety in New Zealand – a New Way of Working**
Gordon MacDonald, Chief Executive, WorkSafe New Zealand
- 2.45pm - 3.15pm** **AFTERNOON BREAK AND TRADE DISPLAYS - Proudly Sponsored by Downer Mining**
- 3.15pm - 5.30pm** **INNOVATION PRESENTATIONS - Proudly Sponsored by Peabody Energy Australia**
- Agitator Sonar Discharging System**
Presenters: Graeme Christie and Tim Lanyon, Redpath Australia Pty Ltd
- Pulley String Catcher**
Presenter: Ben Hibberd, Anglo American, Moranbah North Coal Mine
- QDS Tyre Handler**
Presenter: Scott Dobbie and Michael Medway, Oaky Creek Mine – Glencore
- Monorail Beam Installation and Salvage System**
Presenter: Daniel Bonne, Glencore Oaky Creek Coal No 1 Colliery
- Stonedust Spraybar**
Presenter: Nathan Corbett, Vale Australia
- Automatic Brake Application System (ABAS)**
Presenter: Michael Jeffreys, New Hope Group Coal Operations
- Multi Fit Pipe Lifting Attachment**
Presenter: Andrew Scouller, New Acland Coal
- Shuttle Car Cable Reel Interlock Valve**
Presenter: Tim Reeves, Anglo Coal (Grosvenor Management) Pty Ltd
- Infra-red Thermal Camera on Underground Mobile Equipment**
Presenter: Neville McAlary, Peabody Energy Australia
- T282C Air Filter Lift Access Platform**
Presenter: Brad Enthoven, Peabody Energy Australia - Millennium Mine

- 5.30pm - 6.30pm** **WIMARQ Function and Presentation, Jupiters Townsville, Coral Sea Room**
Guest speaker: Janette Hewson, Winner of the 2015 QRC/WIMARQ Resources Award for Women
- 7.00pm - 10.30pm** **INFORMAL DINNER AND CHARITY AUCTION in aid of Diabetes Queensland Jupiters Townsville, Grand Marquee - Proudly Sponsored by uvex safety Australia**
- 10.30pm** **THE RESCUE STATION – Jupiters Townsville, Lobby Bar**

■ - TUESDAY 18th AUGUST

- 7.30am - 6.00pm** **REGISTRATION – Townsville Entertainment and Convention Centre, Foyer**
- 8.30am - 8.45am** **Master of Ceremonies**
Russell White, Managing Director, Driver Safety Australia
- 8.45am - 10.15am** **KEYNOTE PRESENTATIONS - Proudly Sponsored by Glencore Coal Assets Australia**
- 8.45am - 9.30am** **We Safe Program**
Shane Stephan, Managing Director, New Hope Group
- 9.30am - 10.15am** **From Deep Lead to Deep Safe Where Few Have Gone Before**
Corrie Pitzer, President, SAFEmap International Inc.
- 10.15am - 10.45am** **MORNING BREAK AND TRADE DISPLAYS - Proudly Sponsored by BHP Billiton**

- 10.15am - 10.45am** **POSTER SESSIONS - TECC Magnetic Room**
During the Morning Break the Authors of a number of the Innovation and Health Award Submissions will be available to discuss them with you.
Please take advantage of this unique opportunity.



Conference Program

10.45am - 12.15pm **CONCURRENT PAPERS**

Auditorium 1

SPREADING THE WORD

Concurrent Session Sponsor:
Sparke Helmore Lawyers

Chair - Matthew Smith, Partner,
Workplace, Sparke Helmore Lawyers

10.45am – 12.15pm Spreading the Word – Preventing Future Incidents

A panel discussion about the sharing of information and lessons learnt across the resource sector following an HPI or incident. This session will focus on addressing the current hurdles to sharing information through means that will bring about real safety outcomes.

The panel will be chaired by **Matthew Smith**, Partner, Workplace, Sparke Helmore Lawyers and comprise experts within the industry with diverse backgrounds working on-site, in corporate safety and management roles and within the regulator.

Andrew Ross, Senior Associate
Sparke Helmore Lawyers

David Peff, Safety and Training
Manager, SSE, HDR

Inspectorate Representative

Magnetic Room

FATIGUE

Concurrent Session Sponsor:
Caterpillar Safety Services

Chair - Trudy Tilbury, Inspector
of Mines Inspector of Mines
(Occupational Health), Department of
Natural Resources and Mines

10.45am – 11.15am Risk Manage for Fatigue – Not Rosters

Dr Naomi Rogers, University
of Sydney and **Greg Dalliston**,
Industry Safety and Health
Representative, CFMEU – Mining and
Energy Division Queensland District

11.20am – 11.45am Fatigue and Distraction: How to Assess the Invisible Threat

Brett Haskins, AP Regional
Manager, Caterpillar Safety Services

11.50am - 12.15pm Lessons from an In-field Fatigue Management Study

Helen Wood, Chief Executive
Officer, TMS Consulting

Palm Room

EXHIBITOR PRESENTATIONS

Exhibitors Have Their Say!

An invitation has been extended to Exhibitors to provide a 10 minute presentation on how they have developed a product or implemented a program for a resource company or a particular mine site.

10.45am – 10.55am

4P System

Mick Storch Managing Director,
4P System

10.55am – 11.05am

Haul Road Optimisation Alliance

Eric Tomicek, Sales Manager,
Australian Diversified Engineering

11.05am – 11.15am

Protector Alsafe

Bronwyn Crabb, Branch Manager,
Protector Alsafe and **Phil Knight**,
Operations Manager, APC TECH safe

11.15am – 11.25am

LifeAid Pty Ltd

Alan Close, Managing Director,
LifeAid Pty Ltd

11.25am – 11.35am

JobFit Systems International Pty Ltd

Dr Jenny Legge, Managing Director,
JobFit Systems International Pty Ltd

11.35am – 11.45am

Caterpillar Safety Services

Simone Smyth, Marketing &
Communications Consultant,
Caterpillar Safety Services

11.45am – 11.55am

SAFEmap International

Lincoln Eldridge, Vice President
(Australasia), SAFEmap Australasia

11.55am – 12.05pm

Breathalyser Sales & Service

Rob Colgan, Queensland Manager,
Breathalyser Sales & Service

12.05pm -12.15pm

Abbott Point of Care

John Nipperess, Sales Manager,
Abbott Point of Care

Coral Sea Room

SAFETY TRAINING WORKSHOP

Concurrent Session Sponsor:
**Resources Industry Skills
Association**

Chair - Rod Ramsay, Chief Executive
Officer, Resources Industry Skills
Association

10.45am – 12.15pm

How can we improve Training to Reduce the Incidence of Contractor Injuries

Facilitator

Rod Ramsay, Chief Executive Officer,
Resources Industry Skills Association

The Inspectorate View on Contractor Training, the Good and Bad, and New Initiatives

Trevor Brown, District Inspector
Northern Region, Department of
Natural Resources and Mines

A Large Company View on Contractor Training, the Good and Bad, and New Initiatives

Maryann Wipaki, Safety and Health
Manager, Glencore

A Contractors View on Contractor Training, the Good and Bad, and New Initiatives

Tim Magoffin, General Manager,
Haynes Group

Discussion/ questions

12.15pm - 1.15pm **LUNCH AND TRADE DISPLAYS** - Proudly Sponsored by Safety Equipment Australia

WORKSHOP Orpheus Room - enter via Palm Room

12.35pm - 1.15pm Safety and Leadership in the Real World

Facilitator: **Corrie Pitzer**, President, SAFEmap International

Conference Program

1.15pm - 2.45pm

CONCURRENT PAPERS

Auditorium 1

MENTAL HEALTH

Concurrent Session Sponsor:
Anglo American

Chair - Brian Kelly, Professor of Medicine and Public Health, The University of Newcastle

1.15pm – 1.45pm

The Extent of Mental Health Problems in the Coal Mining Industry in Australia: Results of ACARP Funded Research in NSW and Queensland Coal Mines
Prof. Brian Kelly, Professor of Medicine and Public Health, The University of Newcastle

1.50pm – 2.15pm

MATES in Construction a Model for Mining?
Jorgen Gullestrup, Chief Executive Officer – National and Queensland, MATES in Construction

2.20pm – 2.45pm

How Well are You Managing Mental Health in Your Workplace?
Naomi Armitage, Director, Gryphon Psychology

Magnetic Room

PERSONAL PROTECTION EQUIPMENT

Concurrent Session Sponsor:
uvex safety Australia

Chair - David Cliff, Director, Minerals Industry Safety and Health Centre, The University of Queensland

1.15pm – 1.45pm

Clothing for Improving Mine Worker Visibility
Prof. Joanne Wood, School of Optometry and Vision Science and Institute of Health and Biomedical Innovation, Queensland University of Technology

1.50pm – 2.15pm

PPE - A Cautionary Tale
Terry Gorman, Senior Occupational Hygienist, 3M Personal Safety Division

2.20pm – 2.45pm

Challenges in PPE from a Manufactures Perspective
Michael Riggall, Director Business Development and Product Management, uvex safety Australia

Palm Room

SAFETY TRAINING

Concurrent Session Sponsor:
Work Safe Laboratories

Chair - Rod Ramsay, Chief Executive Officer, Resources Industry Skills Association

1.15pm – 1.45pm

The AQF and Training in Mines, Quarries and Drilling
Genevieve Hey, Health, Safety and Training Superintendent, Oaky Creek Coal (Surface Operations)

1.50pm – 2.15pm

Assessment Validation: Training Outcomes to Improve Workplace Safety
Lynda Gale, Consultant, Down Under Training

2.20pm – 2.45pm

Awareness Training With Real Learning Outcomes
Daniel Bermingham, Chief Executive Officer, Croomo

Coral Sea Room

RESEARCH

Concurrent Session Sponsor:
MISHC-SMI University of Queensland

Chair - Martin Watkinson, Executive Mining Engineer, Simtars

1.15pm – 1.45pm

Sharing Safety Performance Improvement and Changing the Culture
Ray Parkin, Student, University of NSW

1.50pm – 2.15pm

Modelling of Plausible Underground Gas Explosions
Greg Collicutt, Managing Director, Simphysics

2.20pm – 2.45pm

Use of Plastic Metal in Underground Coal Mines for Minor Repair of Flameproof Equipment
Bipin Parmar, Principal Engineer, Engineering, Testing and Certification Centre, Simtars

2.45pm - 3.15pm

AFTERNOON BREAK AND TRADE DISPLAYS

3.15pm - 4.45pm

CONCURRENT PAPERS

Auditorium 1

BEHAVIOURAL SAFETY

Concurrent Session Sponsor:
CFMEU Mining and Energy Division Queensland Region

Chair - Shane Stephan, Managing Director, New Hope Group

3.15pm – 3.45pm

Relationship Based Safety RBS Can Move Your Safety Program Beyond BBS
Jim Whiting, Executive General Manager and Risk Engineer, Soteris Pty Ltd

3.50pm – 4.15pm

Reducing Incidents by Improving Operator Abilities
Denis Hazbic, Organisational, Psychologist, Confiance

4.20pm – 4.45pm

Overcoming Human Limitations in Managing Risk
Heather Ikin, Consultant Psychologist, TMS Consulting

Magnetic Room

RISK MANAGEMENT

Concurrent Session Sponsor:
Evolution Mining

Chair - Mitch Hughes, Executive Vice-President, CFMEU Mining and Energy Queensland

3.15pm – 3.45pm

The Next Phase in Managing Operational Risk: Critical Control Management (CCM)
Prof. Jim Joy, Principal, Jim Joy and Associates

3.50pm – 4.15pm

How to Develop and Maintain a Management Structure at Queensland Coal Mines to Facilitate the Development and Implementation of the Safety and Health Management System
Russell Albury, Acting Chief Inspector of Mines (Coal) and **Kevin Poynter**, Inspector of Mines, Department of Natural Resources and Mines - Safety and Health

4.20pm – 4.45pm

Permanent Personal Damage from Queensland Mining: the Size and Nature of the Problem
Roger Kahler, Principal Consultant, InterSafe

Palm Room

ROAD SAFETY/VEHICLES

Concurrent Session Sponsor:
Rio Tinto Coal Australia

Chair - Phil Goode, Chief Inspector of Mines, Department of Natural Resources and Mines

3.15pm – 3.45pm

Stopping Water Truck Related Uncontrolled Movements on Mine Haul Roads
David Tulloch, Managing Director, Road Safety Training Services

3.50pm – 4.15pm

The Pros and Cons of Vehicle Technology in the Resources Sector
George Foessel, Director, Motor School

4.20pm – 4.45pm

Avoiding Collisions and False Alarms in the Mine
Edward Bardo, Global Sales Manager, Safety Solutions, Modular Mining Systems Inc., Tucson, Arizona, USA

4.50pm – 5.20pm

49" EV Rim Safety: An Analysis of Potential Failure Modes
David Bond, General Manager - Health Safety & Security, Thiess Pty Ltd

Coral Sea Room

HEALTH AND HYGIENE

Concurrent Session Sponsor:
Glencore Nth Qld Operations (Copper and Zinc)

Chair - Christian Wakeling, Physiotherapist, Rio Tinto Alcan Weipa

3.15pm – 3.45pm

Building a Health Culture in Mining – How it Became 'Cool to be Healthy' at New Acland Coal
Stewart Sherrington, Safety and Training Coordinator and **Gordon Evans**, Production Mineworker, New Hope Group, New Acland Coal Mine

3.50pm – 4.15pm

Healthy Eating Guidelines for Shift Workers
Kristen Clark, Health Promotion Coordinator, Diabetes Australia – Queensland

4.20pm – 4.45pm

Can We Learn from Our Experiences with Pre-employment and Fitness for Duty Testing?
Dr Jenny Legge, Managing Director, JobFit Systems International Pty Ltd and **Dr Rob McCartney**, Medical Director, Resile Pty Ltd

Conference Program

5.00pm - 6.30pm	THE RESCUE STATION – Jupiters Townsville, Lobby Bar
6.30pm - 11.00pm	CONFERENCE DINNER, INNOVATION AND HEALTH PROGRAM AWARDS Townsville Entertainment and Convention Centre, Auditorium
6.30pm - 7.25pm	Pre Dinner Drinks – TECC Foyer; Forecourt
7.25pm - 11.00pm	CONFERENCE DINNER – TECC Auditorium Address by Stewart Bell, Commissioner for Mine Safety and Health (Retired) <i>Sponsored by Glencore Coal Assets Australia</i>
11.00pm	THE RESCUE STATION – Jupiters Townsville, Lobby Bar

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.

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

■ Master of Ceremonies *Proudly Sponsored by Master Seat Suspension*



Russell White

Russell's experience in the road safety field is unique. His career spans more than 25 years and encompasses expertise across a broad range of road safety matters. He is widely regarded as one of Australia's leading road safety advocates and media commentators, with regular appearances on Channel 7's Sunrise program.

The driving force behind his commitment to reducing road trauma is based around three key factors: Advocacy, Research and Education. Russell is the Managing Director of Driver Safety Australia. In addition, he is also the Founder and CEO of the Australian Road Safety Foundation. The Foundation operates Australia's only national community based road safety campaign – 'Fatality Free Friday'. His vision, innovation and long term experience makes him a "one of kind" in the road safety industry. Russell is also a Keynote Presenter with Bev Brock.

■ Keynote Presenters



Bev Brock

The last 30 years have combined life in the fast lane with motherhood, working with people in crisis, teaching life skills, public speaking, writing, organising retreats and assisting people to reach their maximum potential. In spite of personal dramas Bev is determined to practice what she preaches in order to maintain credibility.

Bev trained as a Home Economist then as a Science teacher and then moved to Special Education. These days her main focus is in the areas of Road Safety and as a Road Safety Advocate her objective is to encourage people to take full responsibility when they take to the roads.



Geoff Garrett AO

Geoff was appointed Queensland Chief Scientist from January 2011. A Cambridge graduate in metallurgy and an academic for 13 years, Geoff led two of the world's major national research institutions - CSIR in South Africa and CSIRO in Australia.

He is a recipient of the Centenary Medal for service to Australian society through science, and in 2008 was appointed as an Officer of the Order of Australia (AO) in the Queen's Birthday Honours List.



Neil Gunningham

Neil is Professor and Director of the National Research Centre for Occupational Health and Safety Regulation at the Australian National University.

His books include Managing Mining Hazards and Mine Safety: Law, Regulation, Policy.

He also works as a consultant to various Commonwealth and State government bodies and OHS Inquiries and to ACARP.



Gordon MacDonald

Gordon is the Chief Executive of WorkSafe New Zealand. He has 35 years' experience in health and safety in the United Kingdom. He joined the UK's Health and Safety Executive in 1978, ultimately rising to be Acting Deputy Chief Executive before accepting the top job at WorkSafe NZ.

During his career with HSE, Gordon worked in a wide range of operational and policy areas. He helped develop major hazards legislation to implement European Union Directives, led strategic and research functions in the nuclear industry, managed regional teams of inspectors, and led the Hazardous Industries Division regulating the offshore oil industry and the onshore chemicals and petrochemicals industries. Gordon joined WorkSafe NZ in March 2014.



Rob McCartney

Rob is a physician who has specialised in the field of Occupational and Environmental Medicine for over 20 years. His career goal is to maximise the health, wellbeing and productivity of working people. He is a Fellow of the Australasian Faculty of Occupational and Environmental Medicine with the Royal Australian College of Physicians and Past President of the Australian and New Zealand Society of Occupational Medicine. He has been an adjunct Associate Professor at Griffith University School of Human Services and Social Work.

A passionate and highly experienced Doctor with a track record of managing risk and solving problems at the worker/workplace interface. He has extensive experience in the diagnosis and management of occupational injury and illness as well as assisting individuals in returning to the workforce after health problems. Rob is a seasoned presenter and his well-developed interpersonal communication skills enable him to translate highly complex issues into readily digestible information for a wide range of audiences.



Corrie Pitzer

Corrie completed advanced degrees in Industrial Psychology, Education and an MBA. He worked in the resources industry for 10 years as a senior executive for Billiton in South Africa, and founded SAFEmap in 1994. He became a leading safety and leadership consultant in Australia and moved to Vancouver, Canada in 2005, where he is now based and leading a team of SAFEmap partners globally.

He consults to major companies globally, including Boeing, Goldcorp, Umicore, Edison Intergen, Anglo American, BHPBilliton and many more. The American Society of Safety Engineers (ASSE) selected Corrie as the Mine Safety Professional for 2013.



Craig Roy

In his role as Deputy Chief Executive of CSIRO, Craig's key responsibilities include Organisational Strategy, Science and Research, Health and Safety, Business Development and Commercial, International and Organisational Innovation, and performance of the National Research Flagship Program. The Flagship's focus on key nation challenges in areas such as mining, agriculture, food, manufacturing, digital economy, energy, water, oceans and biosecurity.

Craig is a Board Member of the Australian National Commission of UNESCO; the University of Technology, Sydney (UTS); Vice-Chancellor's Industry Advisory Board; a Co-Chair of the CSIRO-Chinese Academy of Science Joint Steering Committee and an International Member of Thailand's National Science and Technology Development Agency's International Advisory Committee. Craig is a Fellow of the Australian Institute of Company Directors and previously served as an officer of the Royal Australian Navy.



Shane Stephan

Shane was appointed to the position of Managing Director of New Hope Corporation in November 2014. Shane brings to the role a unique wealth of experience, after a career in the Australian resources sector spanning more than a quarter of a century.

Shane started his career as an underground cadet manager and has been an underground machineman miner as well as holding senior line management roles in the Australian coal industry before assuming the position of District Inspector of Mines in Mackay. In this role, Shane held health and safety inspectorial responsibility for operations producing more than half of the coal production in the State of Queensland. He also made a significant contribution as a member of the Coal Industry Health and Safety Advisory Council.

During the late 1990's he presented a number of papers to this conference on the importance of the culture of any organisation for safety performance and the impact of human factors in the management of safety.



Steve Walker

Steve's background is in chemical engineering. For 38 years he was a regulator for the UK's Health and Safety Executive (HSE), covering operational and policy posts in, among others, the construction, railways and chemical industries. He ended up as Head of HSE's Offshore Division, which was responsible for regulating the UK's 300-odd offshore oil and gas installations.

He was Chair of the UK's tripartite Offshore Industry Advisory Committee, and inaugural co-chair of the European Union's Offshore Authorities Group. Since retiring from HSE in 2014, Steve has been undertaking ad-hoc consultancy work, and was recently made a Chartered Fellow of IOSH.

Social Program

Recognising there is little time for networking during the course of the year, over the next few days we invite you to make the most of the time available during the Social Functions to make new contacts and catch up with colleagues and friends.

TICKETS INCLUDED

Tickets to all Lunches and Networking/Social Functions (Welcome Function, Informal Dinner and Conference Dinner) are included in the Registration Fee for all Delegates who have purchased a Full Registration.

ADDITIONAL PARTNER AND GUEST TICKETS AVAILABLE

There will be a limited number of tickets still available for purchase at the Conference. However to avoid disappointment, please contact the Acclaim Staff through the Registration Desk as soon as you arrive.

■ - SUNDAY EVENING 16 August

6.00pm - 9.00pm WELCOME FUNCTION and OPENING OF TRADE DISPLAYS

TECC Foyer; Forecourt; Palm Lawn

Proudly Sponsored by Peabody Energy Australia



The Welcome Function this year will be held among the Trade Displays at the Townsville Entertainment and Convention Centre. Arguably the most important event at this Conference, the Welcome Function provides delegates with the perfect opportunity for networking whilst visiting the Trade Displays and meeting with many of the Suppliers.

A casual dinner with a range of beverages will be served amongst the Trade Displays. Entertainment will be provided by "The Voice" finalist Talia Gouge.

This function will commence immediately following the Business Session on Sunday evening.

(A ticket to the Welcome Function is included in your Registration Fee if you have paid for a Full Registration).

COACH TRANSFERS - TECC to Hotels and return to TECC for the Welcome Function - At the conclusion of the Business Session on Sunday, coaches will be waiting outside TECC to transfer those delegates who wish to go back to their Hotels prior to returning to TECC for the Welcome Function.

COACH TRANSFERS - Back to the Hotels at Function End - At the conclusion of the Welcome Function coaches will be available to transfer delegates from the Entrance to TECC back to their Hotels.

If you wish to bring your partner or a guest to this Function, tickets may be purchased at the Conference by visiting the Registration Desk.

Partner and Guest Tickets \$95.00 per person

■ - MONDAY 17 August

12.30pm LUNCH – The Grand Marquee, Jupiters Townsville

Partner and Guest Tickets \$50.00 per person

Social Program

■ - MONDAY EVENING 17 August

7.00pm - 11.00pm **INFORMAL DINNER AND CHARITY AUCTION** **The Grand Marquee, Jupiters Townsville**

Proudly Sponsored by uvex safety Australia **UVEX**

The Informal Dinner is always a great night. It's the time to unwind and enjoy the company of fellow delegates whilst raising much needed funds for Diabetes Queensland. Dinner and beverages will be served and as a special feature the entertainer will be the amazing 'Unusualist' - Raymond Crowe. His signature Hand Shadow piece performed to the Louis Armstrong classic "What a Wonderful World", a global YouTube sensation that has now been seen by an **estimated 200,000,000 people**.

In high demand around the world, some of Raymond's amazing performances include the UK's **Royal Variety Performance** in front of the Queen, **Caesars Palace in Las Vegas** for NBC's **The World's Greatest Magic** and the **Late Show with David Letterman**.

In his own backyard, Raymond is a highly respected artiste who was a grand finalist on **Australia's Got Talent** with other appearances including **Spicks and Specks**, **The Footy Show** and **The Melbourne Comedy Extravaganza**.

CHARITY AUCTION – The Charity Auction and Raffle this year will be in support of Diabetes Queensland.

(A ticket to the Informal Dinner is included in your Registration if you are a Full Paying Delegate).

DONATIONS – *It's not too late!!*

Please contact the Conference Organiser, Acclaim on 07 3254 0522 if you would like to donate a prize or money for the Live and Silent Auctions in support of Diabetes Queensland.

Partner and Guest Tickets \$120.00 per person

If you wish to bring your partner or a guest to this Function, tickets may be purchased at the Conference by visiting the Registration Desk.

COACH TRANSFERS - TECC to Hotels and return to Jupiters Townsville - At the conclusion of the Business Session coaches will be waiting outside TECC to transfer Delegates back to their Hotels prior to returning them to Jupiters for the Informal Dinner.

COACH TRANSFERS - Back to the Hotels - At the conclusion of the Informal Dinner coaches will be available to transfer Delegates from the entrance to Jupiters Townsville back to their Hotels..

■ - TUESDAY 18 August

12.30pm **LUNCH – The Grand Marquee, Jupiters Townsville**

Partner and Guest Tickets \$50.00 per person

■ - TUESDAY EVENING 18 August

6.30pm - 11.00pm **CONFERENCE DINNER – Innovation and Health Program Awards, TECC**

Proudly Sponsored by Glencore Coal Assets Australia

**COAL ASSETS
AUSTRALIA**
GLENCORE

6.30pm - 7.25pm **PRE DINNER DRINKS – TECC, Forecourt**

7.25pm - 11.00pm **CONFERENCE DINNER – INNOVATION AND HEALTH PROGRAM AWARDS**

The Conference Dinner is an important night on the industry calendar. The announcement of the winners of the Innovation and Health Program Awards are the most important part of the evenings Program. So make sure you attend to cheer on your workmates.

Entertainers this year will be one of Australia's most celebrated comedians, Paul Martell and the talented Jane Scali. Together they have entertained countless audiences both overseas and within Australia. In April this year Paul and his wife Jane entertained guests on the Gallipoli Centenary Cruise alongside Bert Newton, Daryl Braithwaite, Kate Ceberano, John Williamson, Ross Wilson and Normie Rowe.

Both are incredibly talented and extremely charismatic performers with an enviable ability to immediately connect with their audience.

Partner and Guest Tickets \$165.00 per person

If you wish to bring your partner or a guest to this Function, tickets may be purchased at the Conference by visiting the Registration Desk.

COACH TRANSFERS - TECC to Hotels and return to TECC - At the conclusion of the Business Session coaches will be waiting outside TECC to transfer Delegates back to their Hotels prior to returning them to TECC for the Conference Dinner.

COACH TRANSFERS - Back to the Hotels - At the conclusion of the Conference Dinner coaches will be available to transfer Delegates from the entrance to TECC back to their Hotels.

The Charity Auction in support of Diabetes Queensland will be held during the Informal Dinner on Monday Evening in the Grand Marquee at Jupiters Townsville.

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

THE AUCTION - (Live and Silent) The Grand Marquee, Jupiters Townsville

The pace set by master Auctioneer Phil Black provides an action packed few minutes of entertainment whilst giving everyone willing to bid a chance at some excellent bargains. Phil, 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.

Lucky Door Prize - Also, if you are feeling lucky there is a great Lucky Door Prize to be won by purchasing tickets in the raffle.

DIABETES QUEENSLAND

Diabetes Queensland is a charity and member-based organisation that serves as the peak body for people with diabetes in Queensland - providing a single, powerful and collective voice for the diabetes community. Diabetes Queensland also works with communities and workplaces across Queensland to help people prevent or avoid developing type 2 diabetes. To find out more, contact us on our Helpline – 1300 136 588 or visit www.diabetesqld.org.au

Type 1 and type 2 diabetes are lifelong conditions that can affect every part of an individual's life. Both need to be looked after to reduce the risk of consequences of diabetes, improve quality of life and life expectancy. While type 2 diabetes is largely preventable and can often be managed by healthy eating and exercise alone, type 1 diabetes is an autoimmune condition that attacks the cells in the pancreas that produce insulin. Type 1 diabetes can occur at any age but it generally occurs in children and young adults. Type 1 diabetes cannot be prevented.

Type 2 diabetes is the world's fastest growing lifestyle disease. There are currently more than 186,000 people in Queensland diagnosed with type 2 diabetes. However, Diabetes Queensland believes there could be more than 500,000 Queenslanders who are either undiagnosed, have prediabetes or are at high risk of developing the condition. Every day around 60 Queenslanders are diagnosed with type 2 diabetes. The number of people diagnosed with type 2 diabetes has increased by around 25 per cent this century. Type 2 diabetes is estimated to cost the Australian economy around \$14.6 billion per year including health care costs and Federal subsidies.

Australia also has one of the highest rates of type 1 diabetes in the world with incidence of the condition also increasing. Type 1 diabetes cannot be prevented and it cannot be cured. The condition affects around 10 to 15 per cent of people living with diabetes including around 21,000 Queenslanders. Approximately two Queenslanders are diagnosed with type 1 diabetes every day.

Facts and Statistics

- More people die from diabetes and its complications than from breast and prostate cancer combined.
- People with unmanaged diabetes could die up to 15 years younger.
- Type 2 diabetes can be largely prevented through healthy eating, exercise and maintaining a healthy weight.
- Aboriginal and Torres Strait Islander people are three times more likely to develop type 2 diabetes than on-indigenous Australians.
- Half of all women diagnosed with gestational diabetes will develop type 2 diabetes later in life.
- Overweight or obese children are at increased risk of type 2 diabetes.

WIMARQ Networking Function - Jupiters Townsville Monday 17th August 5.15pm to 6.30pm

Janette Hewson to speak at Networking Function. Coinciding with the Queensland Mining Industry Health and Safety Conference our guest speaker will be the winner of the 2015 QRC/WIMARQ Resources Award for Women, Janette Hewson. Janet began her career in 1995 after graduating with an arts/law degree, specialising in advising mining and energy clients. She later joined Peabody and led internal legal and sustainable development teams before taking up her current role, which controls hundreds of millions of dollars' worth of spending on services for the company's operations. 'When I graduated from school, there is no way I thought that in my early 40s I would be working in senior management in the mining industry and having the chance to reinvent myself every few years. I have learnt during my 20-year career it is important to not close doors or assume that you will always work in the same field.' Janette has three children and credits her ability to rise through the ranks to supportive employers and family.



The WIMARQ events are renowned 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.

Innovations and Health Awards

Queensland Mining Industry Health and Safety Innovations Awards 2015

The finalists of the Innovation Awards will be presenting their Innovations on Monday afternoon. The Innovation Session is a feature of the Conference and the Winners will be announced at the Conference Dinner on Tuesday evening.

The Innovation Awards are designed to demonstrate the initiative, ingenuity and advances in technology and systems that can and will provide enormous benefit to the health and safety of those in the mining industry of Queensland.

There are three Award Categories:

- Winner – as judged by the Industry Judging Panel
- People's Choice – as judged by the Conference Delegates
- Highly Commended – combined vote count of the Judging Panel and the Conference Delegates

2015 Innovation Award Winning Prize - Proudly Sponsored by uvex safety Australia



We are pleased to welcome back uvex safety Australia as the sponsor of the major prize for the Winner of the Innovation Award for 2015.

The Winning Organisation will have the opportunity to nominate one person associated with the development of the Innovation to travel with Team Members of uvex safety Australia during the period 26th to 30th October 2015 to participate in activities that may include:

- **Attendance at the A+A International Trade Show** in Dusseldorf, Germany for 2 days between 27th and 30th October 2015.
- **A visit to the uvex's Global Head Office and Training Centre** in Fuerth, Bavaria, Germany.
- **Experience uvex hospitality and typically German Gemuetlichkeit** in Bavaria and Rhineland.

Queensland Mining Industry Health Program Awards 2015

The Queensland Mining Industry Health Program Award will again be sponsored by the Mine Safety Institute of Australia.

2015 Health Program Award Prize



- A Perpetual Trophy, an Annual Trophy, a framed Certificate and \$1,000.00 to donate to your charity of choice.

Conference Items

CONFERENCE HANDBOOK

Each Delegate will be provided with a Conference Handbook containing the Full Program including Abstracts of Paper Presentations and a short description of the Innovation Submissions. *Proudly Sponsored by GCG Health Safety and Hygiene*



POCKET PROGRAM

For quick reference a pocket sized Program will be supplied to all delegates. *Proudly Sponsored by Corporate Bodies International*



CONFERENCE BAG

Every Delegate will receive a Conference Bag containing all information relevant to the Conference. The Conference Handbook, the Pocket Program and the Attendee List, as well as promotional material and items from sponsors and exhibitors will be included. *Proudly Sponsored by CFMEU Mining & Energy Division Queensland District*



STUDENT HOST PROGRAM

This Program is designed for students who are studying relevant courses giving them exposure to the industry by hosting their attendance at the Conference. Students are nominated from the Queensland Resources Council Graduate Program, Central University of Queensland, James Cook University and the University of Queensland. *Proudly Sponsored by Safety Equipment Australia*



JUPITERS GRAND MARQUEE

It gives us great pleasure to extend our appreciation to Jupiters Townsville for their generous Sponsorship of the Grand Marquee; which is the venue for the Informal Dinner and all Lunches. Without this support it would be extremely difficult to stage this event in Townsville. *Proudly Sponsored by Jupiters Townsville*





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Agitator Sonar Discharging System

Redpath Australia Pty Limited

The Problem

Personnel and equipment interaction continues to be a significant risk in the mining industry and especially in the underground mining environment where equipment and personnel work in close proximity to each other to complete a number of tasks in an underground mining cycle. Of particular concern to Redpath, has been the personnel and equipment interaction risks associated with the set up and discharge process during the supply of shotcrete from the underground agitator trucks to the underground shotcrete spray rigs working at the face.

In a typical scenario the shotcrete spray rig is set up in an underground working face (typical 5.5 x 5.5 mtr in diameter) in preparation to apply shotcrete to the newly blasted excavation. When the Agitator truck arrives at its designated location it is required to reverse back on to the spray rig aligning its discharge chute with the spray rigs hopper in preparation to discharge the load.

This process requires the spray rig operator to guide the reversing agitator back into position over the hopper of the spray rig, potentially putting him/herself in the line of fire between the two pieces of equipment and then once in position the agitator operator is then required to operate/manage the discharge of shotcrete from the rear controls of the agitator putting him/herself in the potential interactive zone.

The Solution

The Redpath Cannington project team along with Remote Control Technologies (RCT) investigated options whereby we could eliminate the need for personnel to be positioned in the interaction zone between the Agitator and the Spray Rig during the supply and application of the shotcrete cycle.

The solution needed to be a simple process that operators would fully endorse and that would not require major structural changes to equipment and processes. It also needed to be robust enough to sustain the harsh environmental conditions of the underground environment.

The concept of the Sonar Discharging system was developed and utilises a bullet camera, sonar sensor and alarm, sonar backing plate, cabin monitor and proximity alert and has eliminated the requirement for personnel to work in the interaction zone.



Picture 1 - Agitator discharging load using sonar discharging system.



Picture 2 - Operator discharging load from cab of agitator.

Pulley String Catcher

Anglo American, Moranbah North Coal Mine

The Problem

An excessive buildup of string (as in Figure 1) around the end of the pulley would enter the labyrinth seal, resulting in bearing failures and having to change the pulleys. When a bearing failure occurs, there is potential for a fire to develop as the string becomes a fuel source for the fire. The risk of injury to personnel further increases, as changing out the conveyor pulley (weighing between 1.5 and 3 tonne) is a non-standard hi-risk activity.

The original conveyor pulley block design didn't allow for visual inspections to check for sufficient lubrication in the labyrinth seal and string build up on the shaft. The conveyor requires isolation and guards removed to conduct these inspections, hence production downtime.

The 'pulley string catcher' includes a pulley block that has been specifically designed to allow for safe and effective visual inspections, whilst the attached barrier device captures any string that may be dangling from a damaged belt. Installing a 'pulley string catcher' will reduce bearing failures, allow for non-invasive monitoring, and reduce the exposure to an unacceptable level of risk. By eliminating string build up in the labyrinth seal significantly reduces the potential for a fire to develop in the pulley area.

Two pulley string catchers were installed approximately five weeks ago. There has been no ingress of string into the labyrinth seal and the ability to conduct visual inspections on this equipment is safer and easier. The catchers are straightforward to manufacture, transport and install. The design could easily be adjusted to suit another conveyor system.

This innovation is a simple, practical design and is unique from anything in the industry. Overall, this new design improves the safety of coal mine workers by reducing exposure, improving maintenance of the pulleys by allowing uncomplicated visual inspections and a reduction the mine production downtime.



FIGURE 1: Buildup of string on pulley shaft



FIGURE 2: 'Pulley string catcher' being set up

QDS Tyre Handler

Glencore – Oaky North Underground

People and vehicle interaction when changing tyres underground

Glencore developed in collaboration with Jet Engineering the QD900 Tyre Handler in response to the mining industry's need for a safe and efficient method of handling solid filled tyres on shuttle cars and other machinery. The QD900 allows the removal and installation of shuttle car and LHD wheel assemblies with absolutely no manual handling. What's more, it allows the job to be carried out by two men instead of four.

The QD900 consists of a combination of proprietary and custom manufactured components, which work together to provide 6 ranges of motion: raise/lower, reach, tilt, sideshift, horizontal slew and rotation. It's these 6 ranges of motion that are the power behind the QD900, as together they allow wheel assemblies to be removed and reinstalled while the LHD remains completely stationary. The dangerous practice of moving the LHD while a worker endeavours to line the wheel up with the hub is completely eliminated. As well as being the safest way to carry out the challenging task of changing out solid filled tyres on shuttle cars, the QD900's versatility means it is also perfectly suited to many other applications, including



Changing out shuttle car wheel units, and



changing out tyres on LHD's and Cat IT's.

Monorail Beam Installation and Salvage System

Glencore Oaky Creek Coal No1 Colliery

The Problem

Oaky No. 1 uses a monorail system to safely and efficiently manage the services required to operate the longwall face. Moving the monorail beams has traditionally been a labour intensive task that involved the following manual handling components:

- retrieving the 35kg beam from the roof
- manually carrying the beam for 30 metres under the incoming rail system, usually with poor floor conditions
- loading the beam onto the underslung monorail sled to transport it to the unloading area
- retrieving beam from the underslung sled
- carrying the beam another ten metres to the transport pod
- depositing beam into the transport pod.

During the life of the mine to date, it's calculated that 2,800 tonnes of beam have been lifted by personnel, and a beam carried by underground personnel for a total distance of 800km. SiteSafe statistics reflect the high manual handling risk, with the Monorail System showing a high incidence of crush, strike, strain and trip incidents.

The Solution

The Monorail Beam Installation and Salvage System includes the design and manufacture of purpose built storage pods that are mounted on the work platform at the point of monorail salvage. The beams are slid directly into the pod, with the individual compartments providing protection against damage to the mounting brackets. The pods also incorporate provision to store chains, brackets and roof mounts required for each beam.

The new Monorail Beam Installation and Salvage System will deliver significantly improved safety outcomes, including:

- a reduction of lifting tasks involved in retrieving each 35kg beam by 50% (from a minimum of 4 to 2 movements)
- a reduction of carrying tasks by 100% (from at least 40 metres to nothing as there is now no need for beams to be carried manually)
- a reduction in potential for trips and other injuries.



New decluttered work platform, showing storage pods and skid (as part of the mini-build).

The work area has been further improved by the addition of mesh plates to cover gaps in the flooring platform.

Stonedust Spraybar

Vale – Carborough Downs Coal Mine

The Problem

Stonedusting in the underground mine is conducted both by Mechanical Means (Flinger Dusters attached to Loaders) and Trickle Dusters (Brains, Drums – Manual Loading Requirement).

The Trickle Dusting option (usually implemented in areas where mechanical dusting is not possible – Trunk Conveyors / Drive heads / Coal Clearance) has previously been a physical / manual task. i.e. the loading of 20 Kg stonedust bags into the trickle dusters, dusting under belts and non-walk sides of conveyors by hand due to application of stonedust not effectively reaching these places. This method is slow and requires multiple people to perform the manual intensive task.

The Solution

Stonedusting Spray Bars were designed and coupled to a 3 Tonne Pressurised Stonedusting Pod Duster. The Spray bars were then hung off the roof and testing on angles of the Application nozzles and the method for supplying Stonedust to the spray bars from the Stonedusting Pod were trialled.

The trials were initially conducted in the Trunk Conveyor areas of the mine with the Stonedusting Spray bar method now being included as part of the sequence plan for Stonedusting at the mine. The Stonedust Spraybar effectively coats 150m of roadway & ribs. The stonedust coats up to 250m+ but for the purpose of effectiveness this area is overlapped and dusted separately.

Benefits/Effects

- Elimination of the manual handling risk of loading numerous stonedust bags by hand. Utilisation of Mechanical Aid (Loader) to deliver bulk materials.
- Increased cost efficient. Only 1 person is required to setup and execute the task and can complete Stonedusting the same area 3 times faster than the Trickle Dusting Method.
- Increased effectiveness and consistency of stonedust application



Automatic Brake Application System (ABAS)

New Hope Group

The Jeebropilly Coal Mine is located within close proximity to heavily populated areas. A gazetted and heavily trafficked road is located through the mining lease with mining occurring on either side of the highway. In order to conduct mining activities, the mine utilises an 'underpass' as a means for mining equipment to traverse under the road between the different areas of the mine.

As a result, it was imperative to deliver a solution that gave all key stakeholders confidence that the associated risks involved with traversing under the highway (most notably the risks associated with bridge contact due to a raised off-highway truck body) were to be suitably controlled. Utilising the hierarchy of control, an engineering solution was adopted and a Radio Frequency system designed to engage existing on-board truck capabilities to deliver an outcome.

In the event that a body is in the raised position while travelling, activation of an overhead 'trip-wire' (via contact with the body) causes a signal to be sent to the on-board component of the system which in turn enacts the 'fail to safe' park brake system of off-highway trucks at risk (i.e. within a defined circumference of the bridge). In turn, a modulated release of the park brake system air pressure causes the park brake to be applied, allowing the truck to halt its progress without significant wheel 'lock-up' or skidding - allowing a safe stop before potentially making contact with the bridge.

This system allows for a low-cost engineering solution to a high risk application, removing reliance upon human awareness/reaction and effectively lowering the risk profile of the task to an acceptable level.



Multi-Fit Pipe Lifting Attachment

New Acland Coal Pty Ltd

The Problem

Difficulties encountered in the safe & efficient removal of slurry pump discharge pipes within the CHPP at New Acland Coal. The majority of slurry pumps are located on the ground floor and often under the footprint of the plants. This restricted and confined work environment presented challenges to Maintenance Personnel to safely and efficiently remove the discharge pipes for maintenance and inspection purposes. Traditionally this work would involve a considerable amount of complex rigging and manual handling which exposed personnel to the potential risk of personal injury, surrounding equipment to the possibility of damage and contributed greatly to the amount of time required to perform the job.

The Solution

The design and manufacture of a custom built and load rated Multi-Fit Pipe Lifting Attachment that fits a cross section of larger sized pipe spools typically found on slurry pump discharges. The device is easily fitted to a standard Franna Crane boom and can safely be operated by anyone with basic rigging skills. Once attached the Multi-Fit Pipe Lifting Attachment allows for Maintenance Personnel to be well away from the immediate work area while a pipe is being removed or installed.



Fig.1 New Acland Coal's Multi-Fit Pipe Lifting Attachment shown in the process of removing a discharge spool from a XG-350 Metso Pump.

Shuttle Car Cable Reel Interlock Valve

Anglo American – Grosvenor Mine

Underground coal mines operating shuttle cars in the development panels have a known hazard which is the possibility of cable damage due to being run over by the car itself, which in turn results in cable failure with the potential of an arch flash occurring in a flammable gas rich environment.

Grosvenor mine has experienced shuttle car cable damage in the past 12 months with two root causes being identified as being loss of hydraulic pressure to the cable reel resulting in the cable not being reeled in when travelling towards the cable and cable reel failing to rotate due to coal build up, cable jam, component failure ect.

An engineering control to prevent the cable damage occurring and removing the arch flash hazard was implemented on one of the shuttle cars in the Grosvenor Mine fleet, which incorporate a hydraulic manifold which utilises the pressure from the cable reel to pilot valve.



Image: Shuttle Car Cable



Image: Introduced Manifold

Infra-Red Thermal Camera on Underground Mobile Equipment

Peabody Energy Australia

The Problem

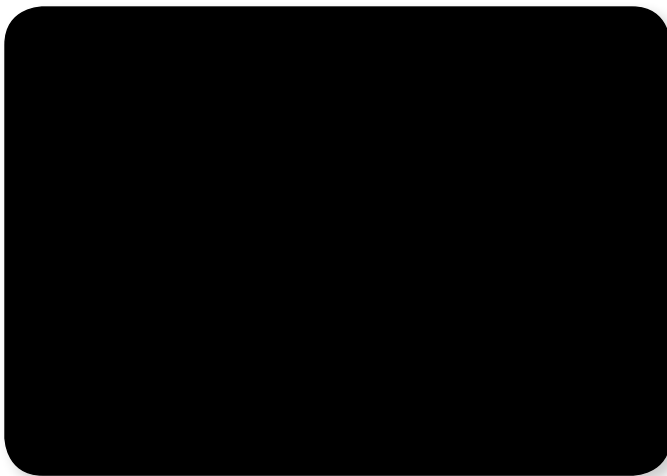
Across all underground mining operations visibility while operating machinery is challenging due to operator line of site and the need for personnel to work in close proximity to the operating equipment.

The issue confronting operations is the environmental limitations that come with being underground in confined areas including darkness, dust, water spray mist and machine line of site. Cap lamps and or machine lights provide some visibility in direct line of site situations however blind spots remain. Operating large machinery in limited areas exposes employees to risks of crushing, pinning or being run over causing serious injury or death, this has resulted in fatalities.

The Solution

The Infra-Red Thermal camera technology reduces the risk to persons from machinery operating close proximity to people with low visibility. The Infra-Red Thermal camera was aimed at providing the operator with the ability to detect people in traditional blind spots, this was achieved using Nautitech's Infra-Red Thermal camera. Peabody's approach to Nautitech was the first time the camera had been considered for personnel detection.

The trial has been well received in the underground environment with operator's adopting the technology well. Operators have requested inclusion onto other machines with similar visual limitations.



Screen without Infra-Red Thermal Camera



Infra-Red Thermal Camera

T282C Air Filter Lift Access Platform

Peabody Energy Australia - Millennium Mine

The Problem

The process to change out the engine air filters on the Leibherr T282C haul trucks was identified to involve a level of manual handling/ergonomic risk to the Fitters engaged in the procedure. Fitters were lifting, pulling, twisting, and reaching above their shoulders to change out the four 25kg air filter units on top of an access ladder. This activity exposed Fitters to possible injury, particularly strains to the shoulders and back. Furthermore, there was potential for a loss of balance and grip when carrying the units down the flight of stairs, all the while trying to maintain three points of contact.

The Solution

Millennium's Mechanical Engineer and Ricbuilt Engineering designed and built a first of its kind custom prototype Lift Access Platform. The access platform incorporates a battery drill operated winch pulley attached to a hoist cage. Through the operation of the battery drill, the hoist (carrying the two air filters) is winched up and down between the top of the access platform and the workshop floor. This eliminates the manual handling risk associated with walking the air filters down the flight of stairs.

Benefits/Effects

The success of the innovation is attributed to the reduction in the amount of manual handling involved in the change -out of the air filters, as well as savings in the time it takes to complete the procedure. The required manpower has also been reduced to a single Fitter, now making this a very safe and time efficient activity.

Transferability

The design and application of the winch set-up could be easily applied to any other platform. The simplicity of the lift system means that it is a cost effective solution to a very common problem. Other mines with the same fleet could consider applying a direct replication of this design for improvements to their T282C air filter maintenance. The platform can also be used for additional workshop activities, such as horn and mirror maintenance.



Lift Access Platform



Platform during the loading process with two air filters shown

Queensland Mining Industry Health and Safety Conference 2015



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

Innovation

Please tick only one box ☒

- | | | |
|-----|--|--------------------------|
| 1. | Agitator Sonar Discharging System
Redpath Australia Pty Ltd | <input type="checkbox"/> |
| 2. | Pulley String Catcher
Anglo American, Moranbah North Coal Mine | <input type="checkbox"/> |
| 3. | QDS Tyre Handler
Glencore - Oaky North Underground | <input type="checkbox"/> |
| 4. | Monorail Beam Installation and Salvage System
Glencore Oaky Greek Coal No 1 Colliery | <input type="checkbox"/> |
| 5. | Stonedust Spraybar
Vale - Carborough Downs Coal Mine | <input type="checkbox"/> |
| 6. | Automatic Brake Application System (ABAS)
New Hope Group | <input type="checkbox"/> |
| 7. | Multi Fit Pipe Lifting Attachment
New Acland Coal Pty Ltd | <input type="checkbox"/> |
| 8. | Shuttle Car Cable Reel Interlock Valve
Anglo American - Grosvenor Mine | <input type="checkbox"/> |
| 9. | Infra-red Thermal Camera on Underground Mobile Equipment
Peabody Energy Australia | <input type="checkbox"/> |
| 10. | T282C Air Filter Lift Access Platform
Peabody Energy Australia - Millennium Mine | <input type="checkbox"/> |





Excavator Improved Access System

Jellinbah Mining

The Problem

The large Hitachi EX5600 and EX5500 excavators are fitted with access steps from the engine bay level to the operator cab level that are in between a ladder and a set of stairs. Climbing this access system is difficult for operators carrying crib bags and for fitters carrying tools or parts. Descending the access system requires personnel to turn at the top of the opening in the walkway and to climb down backwards using the handrails as support which has led to incidents when personnel have overbalanced while turning to descend the stairs.



Photo 1 – Original Hitachi EX5600 Excavator Access System

The Solution

The solution was to design an improved access system that would fit in with the existing layout and functionality of the excavator.



Photo 2 – New Access System Installed

Knife Support Unit

Copper Refineries Pty Ltd (A Glencore Company)

The Problem

Site automated stripping machines incorporate two vertically mounted hydraulic cylinders (each fitted with a brass knife wedge block) known as Knife Cylinders. Their purpose is to force/strip copper cathode from stainless steel mother plates through a vertical motion. The process of removing each 70kg copper cathode plate is demanding on equipment resulting in significant maintenance requirements on cylinders to address damage and failures. Any breakdown incurs a 50% reduction in production output, generating a priority maintenance task where failures occur.

This maintenance task is high risk due to:

- Knife cylinders weigh 40kg and are vertically suspended. To unscrew the cylinder the wedge block was 'man handled' into position using timber/chocks or a crow bar which were at risk of movement and slippage as the cylinder moved;
- Wedge block develops a razor sharp edge through the stripping process causing a serious risk of laceration or amputation if the block was to uncontrollably move;
- Trip hazards. The work area is constrained and besieged with trip hazards. Pathways are limited and restrictive in foot placement.

The Solution

The Knife Support Unit (KSU) is a manoeuvrable pneumatically operated hardened plastic die with machined v-grooves. Supported on an extendable arm with heavy duty greasable hinged joints, the KSU is height adjusted into position by pneumatic cylinders to take up the weight of the wedge block. Once in position the knife cylinder can be unscrewed, wedge lowered and knife cylinder removed. Pneumatic cylinders on the KSU allow it to vertically run up and down four shafts on four linear bearings providing for a stable, controllable movement and ensure the cylinder is centralised. Locking pins (home and operating positions) and safety interlocks ensure precision use and operational safety.

As an engineering solution the KSU has:

- Eliminated manual handling, laceration and amputation risks associated with the knife cylinder replacement and wedge interactions;
- Provided an insitu maintenance solution enabling: faster response and return to production time lines; improved safety / accessibility of the work environment; and reduced tools and personnel working in a restricted area;
- Precision alignment enables the knife wedge block and cylinder shaft thread to be separated and returned without damaging the shaft threads (brass and stainless). The plastic die protects the wedge during contact;
- Through Standard Work Instructions provide maintenance with a process to complete a high risk task in a safe and consistent manner;
- Provided maintenance teams satisfaction in realising an engineering solution from idea to concept and actuality.



Loader Boom Adjustable Support Tool

Rio Tinto Alcan Weipa

The Problem

When a loader is split in half for maintenance, multiple plates are placed into a cavity between the loader frame and the boom. This is live work, and it has been identified that there is a risk of:

- Plates falling and hitting the fitter.
- The plates becoming a projectile once weight has been applied.
- Pinch points.
- Other ergonomic issues associated with the height of the work being performed by the fitter.



Figure 1: Fitter placing the plates between the loader and the boom

The Solution

In order to reduce the risks associated with the task, a loader boom adjustable support tool was developed. This tool has reduced the risk by removing the requirement to use multiple plates. The tool is adjustable and fastens to the loader frame. This eliminates both the requirement for energized work, and the risk of plates becoming projectiles, due to the fact that this tool can be fitted and adjusted while isolated and plates are no longer required. The fact that this tool is positioned at a lower height than the plates, reduces the likelihood of a crush injury to the hands, and can be fitted without the use of ladders and steps.



Figure 2: Loader boom adjustable support tool innovation

Mobile Lighting Plant Improvement

Rio Tinto Alcan Weipa

The Problem

Northern Haulage & Diesel Services, a contracting company on site, routinely use mobile lighting plat when working in areas of reduced light. In order to change the direction of the light, NHDS personnel identified a number of manual handling concerns, including:

- Personnel having to step onto the trailer drawbars to access the turning wheel, therefore the risk of slips, trips and falls.
- Significant amount of exertion required when trying to turn the lighting to the desired position. Often this required two people to do this.
- Maximum exertion through the hands.

The cumulative manual handling risk to the shoulders and hands was assessed as high.



Figure 1:
How task was previously performed.

The Solution

To address these manual handling concerns, a purpose built tool has been fabricated. To turn the lighting, personnel now simply attach the jig then insert a light weight galvanized pole into the slot then turn. This increased lever arm combined with better access ergonomics has significantly reduced the amount of exertion through the upper limbs and hands. It is now a one person task. In addition, the risk of slips, trips and falls has been eliminated. The acute and cumulative manual handling risk to the whole body has now been assessed as low.

The benefits of using this innovation include:

- The mobile eliminates manual handling risks which have the potential to result in musculoskeletal strains of the back and upper body.
- The innovation also eliminates potential impact injuries caused by the main workshop personnel being positioned in the line of fire (crush injuries/pinch points).
- The cost of the innovation is minimal.
- The mobile plant improvement tool allows the operator to stand in a correct position addressing posture and slips, trips and falls.



Figure 2:
Mobile lighting tool improvement.

Nylatron Travelling Sheaves for Reedrill SK Drills

Hail Creek Mine – Rio Tinto Coal Australia

The Problem

Hail Creek operates a number of Reedrill SK drill rigs. During rope changes on these rigs maintainers are required to manually handle steel traveling sheaves which weigh approximately 52 kg. Due to the location of these sheaves no lifting aids can be used and only one maintainer can perform the lift. In addition, the sheaves are covered in grease making them slippery. The strength and stability of the shoulder is compromised during this task. This presents a significant risk of injury.



Figure 1. Sheave position in relation to maintainer's shoulders.



Figure 2. Maintainer holding the 10kg Nylatron sheave

The Solution

Hail Creek maintainers identified the need for a lighter sheave to reduce the risk of personal injury. As no commercially available option could be identified, the team commenced investigation into a suitable material for custom made sheaves. Through computer modelling and laboratory testing a Nylatron sheave was developed and trialled. Over a period of 36 weeks the sheaves were operationally tested and frequently inspected. No distortion or cracking was observed. Over the following 12 months of operation there have been no failures of the sheaves. During the trial top and bottom sheave modifications were also made in order to allow for rope changes without the need for the sheave removal.

Benefits/Effects

The Nylatron sheaves have resulted in a weight reduction of 43kg per sheave, dropping the individual sheave weight to 10kg. This has resulted in a significant reduction in the risk of musculoskeletal injuries from manual handling activities. The Nylatron sheaves have also extended rope life due to the elimination of steel on steel contact. This is also the case in the event of sheave bearing failures. The sheave carrier no longer sustains considerable damage requiring lengthy maintenance. These have reduced the frequency of maintenance which further reduces the likelihood of injury to maintainers. As a result of the top and bottom sheave modifications, rope changes can be completed without the removal of the sheaves. This has eliminated crane use and associated hazards. This has also reduced manning allocations from five to three maintainers, and the job time by half.

Transferability

Nylatron sheaves can be installed in any Reedrill SK or Caterpillar MD6420 without equipment modification. This can be readily adopted by industry to reduce the risks associated with sheave handling. Top and bottom sheave modifications are recommended to provide the additional benefits mentioned.

Cost

A set of four Nylatron sheaves cost \$16,400. This includes bearings and seals. OEM steel sheaves cost \$13,200. The purchase cost is offset by savings in rope replacement costs, crane hire, equipment downtime, and maintainer utilisation.

Pulley Removal Frame

Rio Tinto Alcan Weipa

The Problem

During our beneficiation plant shut downs, the plant maintenance team conduct regular maintenance and inspections on the conveyor pulleys. Most of the conveyor pulleys across site are difficult to access for maintenance. The risks identified for this task include:

- Pinch points
- Manual handling issues
- Cranes and lifting
- Suspended loads
- Hot works

These combinations of tasks not only carry significant risk but also increase the maintenance time.

The Solution

The East Weipa plant maintenance team designed a pulley frame to assist in pulley change outs. The frame is slid underneath the pulley once it has been lifted. A chain block is then used to slide the pulley clear before it's lifted out with a crane.

The frame minimised some of the existing hazards and decreased the change out time. Similar frames could be utilised on other conveyor pulleys across other mine sites.



Figure 1: Pulley removal frame drawing.



Figure 2: Pulley removal frame in use.

The benefits of using this innovation include:

- The pulley removal frame reduces manual handling risks which have the potential to result in musculoskeletal strains of the back and upper body.
- The innovation also reduces the risk of any pinch point/hand red zone injuries.
- The innovation allows for shorter pulley change out time resulting in cost savings.
- The pulley removal frame allows personnel to work in a safer environment.

Pump Drive Box Change Over Support Stand

Rio Tinto Alcan Weipa

The Problem

The pump drive box is removed from the trucks and placed on a bench so that the pumps can be removed. The concern was that the pump drive box assembly could fall off the bench while the pumps were being removed as it was not secured. There was also the problem of poor access to pumps while the assembly was lying on the bench. Due to poor manoeuvrability, there is was also a risk of crush injuries when the pumps are removed.



Figure 1: Pump drive box assembly on bench.

The Solution

The new support stands hold the pump drive box securely and in a position that makes the pumps easily accessible for removal and replacement. This support stand has:

- Eliminated this risk by: Supporting the pump drive box at the correct height for ease of access. The overhead crane is used to lift and swap the pumps from the old drive box to the new, alleviating any manual handling injuries.
- Engineered this risk by: Fabricating some support stands on an existing work bench to enable the pump drive boxes to be securely supported to the bench.



Figure 2: Pump drive box assembly on support stand.

Rethinking Choices: Driving Fatigue and the Real Consequences

Wesfarmers Curragh Mine

The Problem

The continuing prevalence of fatigue-related incidents is evidence that the educational and awareness efforts of police, government and employers is still not getting across to some drivers. There have been many fatigue awareness campaigns developed based on emotion (young kids waiting for dad to come home), based on facts and statistics, based on clever slogans. But the incidents continue as many mine workers think they are invincible and have an 'it won't happen to me' attitude.

The Solution

Curragh Mine organised for a representative of Queensland Police Service (QPS) to speak to Curragh workers on "The legal implications relating to fatigue related accidents". These sessions received positive feedback from the workforce, with a number of mine workers commenting that they would be more likely to plan their journeys to consider fatigue, as a result of having a more in depth understanding of the legal implications.

Curragh Mine, with the assistance of the Department of Natural Resources and Mines (DNRM), then undertook consultation across the site to determine if messaging on legal responsibilities for drivers to manage their fatigue, and 'real life' stories could supplement current policies on journey management.

Input from the consultative process resulted in a decision to video questions and responses from representatives from the QPS, with the intention of making these video clips readily accessible to a wider audience, including family members and others who may be able to influence the decision of their loved one.

The video clips approach the topic from a different direction and highlight the real consequences of driving fatigued, which include:

- If I drive fatigued:
 - I could end up dead
 - I could end up in jail for fourteen years for killing someone
 - I'm off work with injuries for six months and have all these hospital bills—but WorkCover won't pay!
 - My car is written off and I've wrecked someone's car—but my insurance company won't pay!

The aim is to get around the 'message fatigue' in the hope that this fresh approach may cause a person to stop and rethink their choices.

The short duration of the clips mean it's more likely that people will watch the clips in their entirety, and the clip titles in the form of a question work on the curiosity factor.

Wesfarmers Curragh Mine has decided to share these videos with QPS and DNRM, making them available without cost to other mine sites or organisations who would like to access this information to share with their workforce.

Self-Supported Press

Rio Tinto Alcan Weipa

The Problem

Main workshop personnel are routinely required to operate a hydraulic ram to press various metal components. Main workshop personnel were required to hold extension pieces between the hydraulic ram and the job that was being pressed. This meant that workers were required to lean over the press and hold heavy steel extension pieces whilst the press was driven up and put under load.

This task not only put the lower back and upper limbs under significant load, but there was potential for a serious hand crush injury to occur. In addition, potential for impact injuries due to extension bar suddenly releasing if not well supported. The acute hand red zone (HRZ) risk of injury was assessed as extreme.



Figure 1: Main workshop personnel demonstrating how the extension pieces were held in place by hand and leaning over press.

The Solution

To address the hand red zone and manual handling exposure concerns, main workshop personnel have engineered and fabricated interchangeable extension bars and face plates that are self-supported.

This innovation has eliminated the need to sustain prolonged bent over and awkward postures whilst holding onto a heavy weight out in front of the body. Moreover, it has eliminated the potential of a serious hand injury and impact injuries from unstable and unsupported objects. The hand red zone and manual handling exposure risk to the hands and whole body is now assessed as low.

The benefits of using this innovation include:

- The self-supported press eliminates manual handling risks which have the potential to result in musculoskeletal strains of the back and upper body.
- The innovation also eliminates potential impact injuries caused by the main workshop personnel positioning themselves in the line of fire (crush injuries/pinch points).



Figure 2: Self-supported press plate and extension piece.

Excavator Stick Guard Assembly Redesign

Clermont Open Cut – Glencore

The Problem

The stick guard on the Hitachi EX5500/EX5600 range is designed to protect the grease injector and GPS assembly from rock impact damage during operation. The original assembly is retained in position by backing plates and bolts.

Two main issues were identified with the original stick guard;

- Maintenance was required every 2-4 weeks due to damage.
- Removal and fitment of the guard during maintenance repairs and works in this area could lead to manual handling risks.

The Solution

Through utilisation of the hierarchy of controls, a boilermaker came up with the idea to engineer out the risks caused from the manual handling of the guard by designing a new assembly that would;

- Withstand operational impacts to the protection guard,
- Allow for removal and fitment without being under a suspended load,
- Allow for controlled removal and installation via mechanical aids, and
- Include an innovative retention system, not requiring direct retaining bolts to secure in position.

Incorporating a heavier gauge material into the guard, the operational benefits have so far been achieved. The implementation of the innovative retention system allows the guard to self-align on locating hooks and retained in position by a solid block of metal under the bottom locating hooks. A cover plate is then positioned over the lock securing in position. Consideration to safely enable the removal and installation of the guard was paramount during the designing of the assembly.

Once completed the guard was fitted to one excavator on site for a trial period of three months. During this three month trial period no damage was sustained by the guard and no redesign was required. More recent inspections of the guard at eight months post fitment continue to show no signs of damage, maintainers who have had to remove the guard for general maintenance reported that the task is now significantly quicker and easier.



Figure 1 – Original stick guard assembly.



Figure 2 – New stick guard assembly.

Benefits

The two issues identified, frequent damage to the guard and difficulty with removal and fitment, have both been addressed through this solution. Firstly, the redesign of the guard to remove the external bolts and increase the thickness has significantly reduced damage. Previously breakdown maintenance was required every 2-4 weeks yet since the tried the new guard has been in place for eight months without requiring remedial repairs. With the reduction in time spent on these tasks maintenance resources are able to be redirected to other more worthwhile tasks. Incidentally there is also an increase in production due to reduced downtime which more than offsets any costs from fabricating the guard.

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■ Concurrent Papers

Spreading the Word - Preventing Future Incidents

Presenter: Matthew Smith and panel

Author: Laura Regan

Organisation: Sparke Helmore Lawyers

Purpose

The purpose of this session is to bring together diverse expert viewpoints and provide valuable insights and practical solutions to address current limitations in the resource sector when it comes to sharing information. Our approach to this session is to run an informal yet interactive session that focuses on sharing the different perspectives, experiences and ideas of key industry experts who are regularly involved in incidents (HPIs, injuries and fatalities).

Our Panel will comprise:

- Chair – Matthew Smith (Partner, Sparke Helmore)
- Representative of the Inspectorate
- Health and safety representative – David Peff, Safety and Training, SSE, HRD
- Legal representative – Andrew Ross (Senior Associate, Sparke Helmore)

Presentations

Each representative will deliver a short (10 minute) introductory presentation on their specific experiences with sharing information following an incident or HPI. Presentations will seek to address the following issues from a different perspective – for example, sharing insights from the inspectorate, health and safety experts and mining companies:

1. how information is currently shared within the mining industry between the Inspectorate, mining companies and/or other relevant parties (e.g. industry groups, experts, etc.)
2. what hurdles currently exist and how they restrict the form and nature of information shared, and
3. what lessons have already been learnt about the need to share and act upon such information.

For instance, Andrew Ross of Sparke Helmore will draw upon his extensive experience as both a prosecutor and a defence lawyer to highlight the lessons learnt from cases such as:

- Bauer Foundations Australia Pty Ltd and Juanita Saltmer (2010) where limiting the sharing of information post incident to CEO level had fatal consequences, and
- the Inquest into the death of Jason Blee (2009), at which Coroner Hennessy made several recommendations aimed at breaking down existing communication barriers across the Inspectorate, Industry and Worker Representatives, including the recommendation of Tri Partite investigations.

Question and Answer

Matthew Smith will then guide the panel through pre-formulated questions drawn from real-life scenarios and incorporate questions from the audience. The core aim of this portion of the session is for the chair, panel and audience to work collaboratively on exploring and coming up with practical solutions to prevent similar incidents in the future.



■ Concurrent Papers

Risk Manage for Fatigue - Not Rosters

Presenters: Naomi L. Rogers and Greg Dalliston

Authors: Naomi L. Rogers, Greg Dalliston, Stephen Woods and Jason Hill

Organisations: University of Sydney, CFMEU, Mining & Energy, Queensland Division

Fatigue is a complex issue, affecting shift workers, their families, employers, co-workers and the wider community. Despite this, fatigue is not necessarily well understood, accepted or managed.

Section 42 of the CMS&H Regulation states that employers have an obligation to ensure risks associated with fatigue are controlled for. In order to ensure these obligations are met the development and deployment of strong Fatigue Management policies, that are evidence-based, is essential.

In accordance with section 6 of the Regulation, fatigue risk assessments are done to identify and assess fatigue risks; analyse these hazards; and manage and control these hazards to lower the risk of fatigue-related incidents occurring. They are not and should not, be done to fit in with current or desired rosters.

Hazards to be addressed in a risk assessment for fatigue include, but are not limited to, number of consecutive shifts; shift type; shift duration; accumulated work hours; shift start times; commute times; individual factors; breaks during and between shifts; and task demands.

Once the fatigue risk assessment and policy are complete, then rosters may be assessed to determine which comply with the policy, and ensure all employees will be working under a system where the risk of an incident due to fatigue is as low as reasonably achievable.

Fatigue and Distraction: How to Assess the Invisible Threat

Presenter: Brett Haskins

Author: Brett Haskins

Organisation: Caterpillar Safety Services

Fatigue is a leading contributor to 35 – 40 percent of incidents and surveys of shift workers demonstrate that nearly half of the population nods off while working, at least once per week. Fatigue represents an invisible threat to business; capable of undermining productivity and performance targets, brutally impacting financial results and damaging business reputations. This stark reality accelerated the development of Fatigue Risk Management Systems that are able to deliver valuable information about the conditions under which employees operate.

These systems are designed to touch all the influencers of a safety culture to mitigate the fatigue and distraction risk, whilst equipping companies with metrics to drive safer working conditions and improved performance. However, few companies find themselves prepared to effectively capture and assess this wealth of data. Join Caterpillar Safety Services to explore the people, processes and technology you can use to effectively assess the extent of fatigue and distraction risks to your business and discover the opportunities to mitigate the invisible threat before it impacts you.



■ Concurrent Papers

Lessons from an In-field Fatigue Management Study

Presenter: Helen Wood

Author: Helen Wood

Organisation: TMS Consulting Pty Ltd

As an industry that predominantly operates in harsh, remote areas and is serviced by fly-in/fly-out workers, there is little doubt that the Australian

Pipeline Industry is one that is highly susceptible to fatigue and the risk that it brings.

In 2011, the Australian Pipeline Industry Association (APIA) commenced a journey to lead the industry to best practice in fatigue risk management. This began with a comprehensive, in-field Fatigue Management Study (FMS), conducted in partnership with TMS Consulting. The aim of the study was to quantify fatigue and its risk factors and to profile related general health and safety factors.

Detailed data was obtained from over 400 workers using surveys, reaction time devices, sleep measuring devices, urine hydration analyses, and body measurements. Biomathematical fatigue modelling software was also used to assess work rosters, incident data and in-vehicle monitoring systems data to reveal fatigue-related trends. This study resulted in recommendations and areas of focus to aid effective fatigue management.

This paper will provide a case study of TMS's work with APIA, detailing the findings of the study, the implications for work practices and safety management in Mining, and the subsequent development of comprehensive fatigue risk management guidelines for the Pipeline industry.

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Concurrent Papers

How Can We Improve Training to Reduce the Incidence of Contractor Injuries

Presenters: Rod Ramsay, Trevor Brown, Maryann Wipaki, Tim Magoffin

Authors: Rod Ramsay, Trevor Brown, Maryann Wipaki, Tim Magoffin

Organisations: RISA, Mines Inspectorate, Glencore Copper, Haynes Group

In 2013 – 2014 there were 2 deaths in Queensland, 339 lost time injuries, 38 permanent incapacity injuries or illnesses. As noted by Paul Harrison, Deputy Director-General Mine Safety and Health and Acting Commissioner for Mine Safety and Health, Queensland Mines and Quarries in the Safety Performance and Health Report 2013–14 there is a “disproportionate representation of contractors in fatal accident statistics.

Seven of the 16 fatalities in Australian mines this year (2013 -2014) were contractors; roughly two thirds of the fatalities at Queensland mines in the last thirteen years (since the new legislation was introduced) have been contractors.”

This session will explore training deficits identified as a contributing factor, what is currently being done by contractor companies and mining houses to address this issue and what else can be done.



■ Concurrent Papers

The Extent of Mental Health Problems in the Coal Mining Industry in Australia: Results of ACARP Funded Research in NSW and Queensland Coal Mines

Presenter: Brian Kelly

Authors: Robyn Considine, Ross Tynan and Jaelea Skehan

Organisation: University of Newcastle and Hunter Institute for Mental Health

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 paper will outline the results of the first stage of an ACARP funded research project which aimed to describe the extent of mental health problems in coal mining. The project was undertaken in the NSW and Queensland Coal mining industry. Data on the extent of common mental health problems and factors which are associated with these problems will be presented.

MATES in Construction a Model for Mining?

Presenter: Jorgen Gullestrup

Author: Jorgen Gullestrup

Organisation: MATES in Construction

MATES in Construction is a model of reducing suicide and improving mental health and wellbeing used across the Australian construction industry. Currently just over 80,000 construction workers participate and the organisation has a network of over 6,000 volunteer gatekeepers. The peer based model destigmatises mental health and focus on not only "help seeking" but more importantly "help offering" in a male dominated workforce.

The three level program provides 1 hour general awareness training to all workers on site, 4 hour training to volunteer "Connectors" and two days Applied Suicide Intervention Training to key safety connection points within each workplace. The program is supported by field officers and case managers. It works by providing a sense of campaigning across the workplace to fix a definable problem and thus tend to grow with local initiatives post introduction. The program focus on what each employee can do locally to make a difference.

Research in the construction industry has shown that suicide rates amongst Queensland construction workers fell by almost 8% compared to underlying male suicide rates in the first five year of the program.

The program has been tested in the Mining industry as part of a larger project funded by ACARP.



■ Concurrent Papers

How Well are You Managing Mental Health in Your Workplace?

Presenter: Naomi Armitage

Author: Naomi Armitage

Organisation: Gryphon Psychology

A systematic framework to assess the effectiveness of an organisation's effort to promote Mental Health in the workplace: A recent Queensland case study.

Mental Health is currently a topic of great concern to organisations in the resource and construction sections, particularly those operating in remote locations and/or with a FIFO workforce. This concern is reflected in the 2013 House of Representatives report and the current WA Legislative Assembly inquiry into this area.

The presentation will provide a comprehensive framework to understand the management of mental health in the workplace. Gryphon Psychology has used this framework to develop and implemented a protocol to systematically review an organisation's efforts to improve mental health outcomes in its workplace. This includes a thorough assessment of the major risk and protective factors along with recommendations as to how to strengthen the organisation's efforts in this area.

The presentation will draw upon Gryphon's recent experience in undertaking a large MH review of a complex FIFO operation in regional north Queensland. This resulted in both a deeper understanding of the organisation's risks and a detailed plan to strengthen its efforts to address them.

Participants will receive a paper outlining both the "Organisational Mental Health Assessment Tool" and the underlying model.

This tool reviews the:

- The relevant legal or regulatory requirements covering the operations.
 - The organisations' policies and procedures to promote a physically and psychologically safe workplace.
 - Any company or location specific factors that could increase the risks of mental health issues.
 - The workplace factors that increase the level of stress or mental health issues.
 - The workforce demographics to identify and plan for groups at higher risk of mental health and suicide.
 - Major work tasks and roles to determine those that may expose employees to greater risk of stress and mental health issues.
 - The effectiveness of the Employee Assistance Program in assisting both the organisation and employees address mental health issues.
 - The effort made to increase employee understanding of mental health and their willingness to access assistance.
 - The training provided to managers, supervisor and support staff to help recognise and manage individuals with mental health issues.
 - Specific issues that may cause increased stress and mental health issues such as:
 - Fatigue
 - Alcohol and drugs, and
 - Working in remote locations.
 - The support provided to assist employees with health issues to remain at or return to work.
 - Any company or location specific factors that could increase the risks of mental health issues.
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■ Concurrent Papers

Clothing for Improving Mine Worker Visibility

Presenter: Joanne Wood

Authors: Joanne Wood, David Cliff, Robin Burgess-Limerick

Organisations: Queensland University of Technology and University of Queensland

Collisions involving workers and drivers of mine vehicles and equipment are one of the main causes of fatal accidents in the mining industry. Improving the visibility of mine workers would potentially reduce the likelihood of these incidents. Road safety research has clearly demonstrated that clothing incorporating retroreflective markers on the movable joints ("biomotion" configuration) can provide significant improvements in pedestrian visibility under low light levels that are typical of mining operations. Given that the benefits of biomotion clothing are effective for both young and older drivers, reinforces their potential application in the mining industry which employs many workers in this age bracket.

We recently developed a video-based intervention that outlines the problems of the visibility of pedestrians and workers under low light levels and the value of biomotion clothing. There is potential application for effective and easily implementable interventions like this in the context of mining organisations.

This paper will summarise the visibility benefits of biomotion clothing and discuss custom-designed interventions, which have potential to change the knowledge and behaviour of workers with ultimate benefits for workplace safety. We highlight these as potential cost-effective and convenient ways to provide a sizeable safety benefit in the mining industry.

PPE – A Cautionary Tale

Presenter: Terry Gorman

Author: Terry Gorman

Organisation: 3M Australia

The use of personal protective equipment (PPE) is widespread throughout the mining industry. While PPE has the last position in the hierarchy of controls, the changing nature of mining operations means workers commonly need to use PPE to control exposures.

The use of PPE is inextricably connected with human behaviours and thus requires a comprehensive approach to consistently achieve the level of protection needed and expected.

PPE varies by type, application, fit and complexity. Some types can be relatively straightforward e.g. safety shoes, while others can be very technical and complex and should only be used by trained and experienced operators e.g. Self-Contained Breathing Apparatus (SCBA). Those charged with selection and assessment of PPE ideally should be familiar with the performance and limitations of these products. In reality, many involved do not understand the full spectrum of issues involved and do not always seek expert input.

In general, my experience is that more attention should be paid to the selection, use and maintenance of PPE – those responsible need a more complete understanding of the issues involved and the ongoing resources required to use these products safely and consistently and achieve the expected level of protection for the worker.



■ Concurrent Papers

Challenges in PPE from a Manufacturers Perspective

Presenter: Michael Riggall

Author: Michael Riggall

Organisation: uvex safety Australia Pty Ltd

This paper will examine the challenges and barriers a manufacturer faces in the design, performance and acceptance of PPE, particularly eye protectors, hearing protectors and hand protection.

It will discuss how historical design has resisted change; the limitations in performance standards when it comes to correct selection of PPE; and the expectations of the user.

We will briefly look at how ideas from the past have shaped our perceptions and expectations and still influence design today. It will also look at the negative impact overreliance on performance standards can cause.

The content will stress the importance of site risk assessments and developing safe work procedures which specify task specific PPE. This paper also covers the importance of the involvement of the PPE users, as well as safety and hygienist professionals, in the development of new PPE and related technology (i.e. coatings).

And finally touch on the future direction of development as PPE integrates “smart” technologies and moves from a passive item of Workwear into an interactive tool.

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■ Concurrent Papers

The AQF and Training in Mines, Quarries and Drilling

Presenter: Genevieve Hey

Author: Genevieve Hey

Organisation: Glencore Oaky Surface

The Australian Qualifications Framework (AQF) is a single national framework that regulates qualifications for all Australian education and training sectors – including mining, quarrying and drilling. It provides guidance on the levels of qualification recommended for each position within a site's hierarchy from entry level workers through to the most senior ranks of an organisation's management structure.

Alignment of site Management Structure documents to the AQF provides the opportunity for Site Senior Executives to identify the specific units of competency each senior position holder requires to competently manage principal hazards and day-to-day activities within their areas of responsibility. These units of competency can then be grouped together to provide senior position holders with formal, role specific qualifications that include legislative competency requirements and are recognised nationally.

The same principle can be applied to operational workers where units of competency are selected based on the work they undertake which are then grouped together to make up formal, transferrable qualifications.

This process is easier than it sounds, and this paper aims to provide practical guidance on how the framework provided by the AQF can be applied to a site's Training Scheme in a way that is cost effective and adds value to everyone.

Assessment Validation: Training Outcomes to Improve Workplace Safety

Presenter: Lynda Gale

Author: Lynda Gale

Organisation: Down Under Training

Validation of assessment drives continual improvement in training delivery and assessment. The validation process should be inclusive of a number of parties both internal and external and be driven by site and industry requirements.

Effective validation follows three distinctive phases; Before Assessment- this is the development phase, during assessment- this is the trial phase and post assessment- this is the feedback phase.

This session engages participants in looking at the three phases and the purpose of each and provides practical solutions for development of a systematic approach to site/organisations Assessment Validation processes.

To have a safer more effective workforce; it is important to look at what we are doing and how we are doing it and find ways to make it better- in the words of Albert Einstein; "Insanity is doing the same thing over and over again and expecting a different result"



Concurrent Papers

Awareness Training with Real Learning Outcomes

Presenter: Daniel Bermingham

Author: Francois Kirsten

Organisation: Croomo

Safety Case awareness training is a legal requirement from the oil and gas industry regulator, NOPSEMA, for Major Hazard Facilities. Awareness training is often considered only in terms of regulatory requirements, with real, practical learning outcomes only an afterthought. INPEX set out to create innovative training that didn't just satisfy the regulator, but gave INPEX employees a real sense of how a safety case affects every person at an operation.

The resulting interactive learning module combined proven adult-learning principles with realistic, work-related scenarios that challenged learners at INPEX to make key decisions that could affect the Ichthys Facility's Safety Case. Each scenario featured 'advisor' characters that would provide different viewpoints. Learners were then required to evaluate each response and make an informed decision based on the advice they received from virtual co-workers.

3D animated scenes were interspersed throughout the training to give learners insight into the consequences of their actions, encouraging users to learn from mistakes that would have devastating consequences if they were to occur in real life.

INPEX's Safety Case Awareness training has gone beyond the minimum training requirements by creating understanding and appreciation amongst personnel of the Major Hazards their organisation faces at the Ichthys Facility.

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■ Concurrent Papers

Sharing Safety Performance Improvement and Changing the Culture

Presenter: Ray Parkin

Author: Ray Parkin

Organisation: Student at the University of NSW

A PhD research programme at the School of Mining Engineering at the University of NSW is being conducted which aims to improve the safety performance on mine sites.

Although significant advances in safety have been made throughout the mining industry, people are still being killed and seriously injured on mine sites. The rapid expansion of the mining industry has required the growing use of contractors, hence creating a more inexperienced workforce. Fatigue and awareness issues are having an impact on safety at work, which is particularly evident when people are working 12 hour shift rosters which are associated with increasing fly in fly out operations together with the social impact that is involved. Further, in order to improve safety performance, this research will ascertain if the training regarding risk management and safety and health management is considered appropriate.

The current approach to prosecution has resulted in the common use of legal professional privilege which inhibits safety investigations and causes a defensive rather than a proactive safety culture. This impedes the timely sharing of information within industry to help prevent recurrence of incidents.

In order to address these issues a survey of the mining workforce in underground and open cut mines in Queensland and NSW has been undertaken. The author would like to share with industry the outcomes of this survey with the aim of improving safety performance.

Modelling of Plausible Underground Gas Explosions

Presenter: Greg Collecutt

Authors: Greg Collecutt, Andre De Kock and David Proud

Organisations: Simphysics Pty Ltd, Simtars and BMT WBM

Gas and coal dust explosions in underground coal mines present serious hazards. In respect of methane explosions, the likelihood of an explosion is reduced with correct ventilation practices and methane concentration monitoring, however the risk of an explosion is not reduced to zero. Within the oil and gas industry Computational Fluid Dynamics is commonly used to model possible gas explosion scenarios at process facilities for the purpose of assessing strength requirements for surrounding structures. However, within Australia the use of computer based simulations for the assessment of possible underground explosion scenarios remains in its infancy. We here discuss the utility of computer modelling for assessing the possible impacts of weak to moderate explosion scenarios.

We also review experimental work on underground gas and dust explosions that has been performed in experimental mines and also scaled test galleries. In particular we present test results from the Simtars' propagation tube incorporating turbulence generating features.

A plausible explosion scenario in an Australian underground coal mine is then presented along with simulation results. Implications for nearby assets and ventilation controls are discussed.

Use of Plastic Metal in Underground Coal Mines for Minor Repair of Flameproof Equipment

Organisation: Simtars

The study also demonstrated that some plastic metal products were either easier to apply on vertical surfaces or had superior adhesion properties. Hence plastic metal to be used for temporary repair must be assessed and tested to ensure integrity of the certified enclosure is not compromised.



■ Concurrent Papers

Relationship Based Safety RBS can Move Your Safety Program Beyond BBS

Presenter: Jim Whiting

Authors: Jim Whiting and Vanessa Elliott

Organisation: Soteris Pty Ltd

This paper addresses how Relationship Based Safety RBS is needed to move safety beyond traditional Behaviour Based Safety BBS principles. RBS provides the shift of focus from behaviors to relationships. Behaviours are NOT the causes of incidents and risks. They are the symptoms, consequences of deeper human and psychological factors.

RBS can move safety processes beyond BBS by developing risk based conversations RBCs in all workgroup interactions. Workgroup relationships are based on establishing and holding mutual trust, respect, care, credibility, encouragement, and appreciation of joint beliefs, values, shared solutions of challenges and issues. Relationships are in turn dependent on the nature and quality of the communication between the members of the group, and ultimately they depend on the nature and characteristics of the language used in that communication.

All informal, formal, day-to-day safety meetings, discussions, and personal behavioral choices need to benefit from incorporating clear, concise, accurate, defined, risk based language RBL into participative risk based conversations RBCs.

Real examples of practical RBL and a sample RBS Card used in effective RBCs are described. Risk based conversations and interactions are at the core of establishing and sustaining RBS. RBS is shown as the means of making evolutionary improvements to BBS programs.

Reducing Incidents by Improving Operator Abilities

Presenter: Denis Hazbic

Authors: Denis Hazbic, Robert Newman and Peter Cross

Organisations: Veedre Assessment and Development Centre, and Confiance

In a 2008 study of Queensland mining safety, operator error was identified to be a contributing factor in 95% of all incidents. The key safety critical human factors identified in the research were: attention lapses, memory slips, auto-piloting, lack of planning, application of knowledge, and loss of situational awareness. It would seem that identification and management of human factor deficits is a key target for plant and vehicle operator safety in mining.

However, even given the prevalence and criticality of human factors deficiencies, safety programs that diagnose and develop human factors in mining operators are few and far between. This is because such programs require significant expertise to (1) precisely measure human factors associated with safe operations, and (2) design tailored training that directly improves individual's abilities. This presentation describes a successful program employed with train drivers which uses psychometric tests to measure safety critical deficits, and cognitive training software to rehabilitate and enhance these within individual operators. Associated improvements in safety critical abilities and subsequent lowered incident rates will be discussed.



Overcoming Human Limitations in Managing Risk

Organisation: TMS Consulting Pty Ltd

As discussed at the 2014 Queensland Mining Industry Health and Safety Conference, there have been a number of recent incidents in Mining that indicate the need for a renewed focus on risk management. Certainly, a lot has been done to design and implement thorough, robust risk management systems in Mining, yet many risks are still not managed as effectively or successfully as they should be.

Examining incidents such as that of Pike River begs the question: “Why aren’t risks taken more seriously and carefully attended to, and what influences the decision making processes regarding risk at all organisational levels?”

Furthermore, when we examine catastrophic events, it seems that the same root causes are popping up time and time again. We need to better understand “why”. Are we spending too much time on high frequency, low consequence incidents? Do we need to better understand the reasons for human failures? This paper examines the human factors considerations in how individuals identify, assess and make decisions about risk and safety management. Practical suggestions will be made about how to more effectively engage employees, managers and other stakeholders in the risk management process, ensuring appropriate actions are taken regarding safety strategy and performance.



■ Concurrent Papers

The Next Phase in Managing Operational Risk: Critical Control Management (CCM)

Presenter: Jim Joy

Author: Jim Joy

Organisation: University of Queensland

Fatalities are still occurring in the Australian mining industry despite years of effort to reduce operational risks. A mid-2014 MCA executive workshop identified that managing critical controls is an important developing direction for improving mining health and safety. Recently the International Council of Mines and Metals (ICMM) published a practical guide to assist mining companies around the world with understanding and applying Critical Control Management (CCM).

Some mining companies and other high hazard industries see CCM as essential for eliminating major unwanted events. CCM focusses the business, the site, the leaders and all individuals on managing a few, well-selected critical controls; challenging whether they are right, in place and working. This presentation will overview the CCM process, suggest the main changes to current site risk management approaches and provide an image of the journey that may be required to adopt CCM in a business or at site.

How to Develop and Maintain a Management Structure at Queensland Coal Mines to Facilitate the Development and Implementation of the Safety and Health Management System

Presenters: Russell Albury and Kevin Poynter

Authors: Russell Albury and Kevin Poynter

Organisation: Department of Natural Resources and Mines Safety and Health Inspectorate

Purpose

The purpose of this paper is to provide Guidance to companies, employers and employees on how to develop and implement a management structure at Queensland Coal Mines to facilitate the development and implementation of the Safety and Health Management System (SHMS).

Scope

The paper applies to all Queensland coal mining operations as defined under the Coal Mining Safety and Health Act 1999. In addition it contains tables and notes designed to assist in the determination of the competency requirements for positions within the Management Structure.

While the guidance is specifically developed for coal mines, the principals and processes highlighted in the guidance note are relevant to all mines and quarries, establishing effective management structures for the development and implementation of Safety and Health Management System.

Synopsis

Both the Coal Mines Safety and Health Act (CMSHA) and the Mining and Quarrying Safety and Health Act (MQSHA) require mine operators to ensure the risk to workers is at an acceptable level. The Acts provide a framework of minimum requirements to enable the management of the risks, associated with a mining operation, to an acceptable level.

A key aspect to the management of risk in the workplace is the development and implementation of a SHMS. To ensure that the SHMS is effective it is important that the management of risk and the implementation and monitoring of controls is assigned to competent people within the Management Structure.



■ Concurrent Papers

Permanent Personal Damage from Queensland Mining: the Size and Nature of the Problem

Presenter: Roger Kahler

Author: Roger Kahler

Organisation: InterSafe

The pattern of permanent impairment and ≥ 60 Days Lost from Queensland Mining (surface and underground), Exploration, Quarrying and Petroleum activities will be presented for the years 2009-2013. The chances of any one person experiencing this level of damage will be described and set in the context of Australian All Industry data.

When one considers that 90% of the cost of work-related personal damage is associated with permanent impairment, a corporate Health and Safety activity should hopefully align with the pattern of what is actually occurring.

It is highly desirable that Health and Safety activity be data-driven versus intuition and feeling.

The paper will suggest that the pattern of permanent impairment and ≥ 60 Days Lost is not altering since it was first described in the 1980s. The likelihood of this level of damage to any one person is relatively constant and highly probable.

Several reasons will be suggested as to why the industry continues to fail to learn and focus on this very significant level of personal damage i.e. non-fatal permanent impairment.

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■ Concurrent Papers

Stopping Water Truck Related Uncontrolled Movements on Mine Haul Roads

Presenter: David Tulloch

Authors: Eric Tomicek and David Tulloch

Organisations: Australian Diversified Engineering and Road Safety Training Services

“Ground speed” water truck spray systems were introduced to curb the high number of uncontrolled movements occurring on mine haul roads. Serious concerns have been raised over the recent increase in such incidents suggesting that current spray system controls and practices are deficient.

Best practice for mine haul road watering should dictate that water trucks use a defined input value to achieve a quantitative water output and be used in conjunction with road profiling technology that can advise a safe level of water to apply to a haul road to maintain an adequate level of friction. As we move towards wirelessly connected water trucks, geo-fence automation will lead to hard engineering controls.

This presentation is based on the collective learnings and experience of a group pioneering mine haul road and dust management technologies.

The Pros and Cons of Vehicle Technology in the Resources Sector

Presenter: George Foessel

Author: George Foessel

Organisation: Motor School

Going back some 10 years ago a vehicle was considered state of the art if it was equipped with either ABS brakes or an Airbag (you could purchase a car with one or the other). However today's vehicles offer passive safety features that most people do not truly understand.

As an example the new Mazda BT50 4wd has the following features?

Anti-Block Braking System (Dual Mode); Roll Stability Control;

Trailer anti sway; Traction Control; Stability Control Systems;

Read and Central Differential locks; Hill Launch Assist;

8 airbags; Cruise Control; Adaptive Cruise Control and

Lane change technology etc.

But what are they and what do they do?

The topic of conversation here is what technology is beneficial to a field based driver and which technology can cause significant harm if not used correctly.

The presentation will include the pros and cons of this particular technology to improve driver safety on the workplace. Apart from understanding the technology, drivers need a clear understanding of what they can do as a driver that will increase their risk of a loss of control or personal injury.

I will speak specifically of my tests regarding ABS brakes on a variety of surfaces, and how to shorten the stopping distance of an ABS vehicle.

The paper is prepared based on knowledge and experience of the presenter with over 20 years of Advanced Driver Training combined with International Crash Investigation qualifications.



Concurrent Papers

Avoiding Collisions and False Alarms in the Mine

Presenter: Edward Bardo

Author: Edward Bardo

Organisation: Modular Mining Systems Inc

The growth and availability of technologies to assist in the decision making process for avoiding collisions involving vehicles in the mining environment has led to a level of confusion as to what different technologies will actually do. One aspect in common with each of these technologies is their susceptibility to false alarming (alarming when a collision danger does not exist). Several different methodologies have evolved in an attempt to reduce the number of incidences of false alarm while maintaining a vigilant eye out for danger. Examples include variable sized buffers or bubbles around vehicles, complex path prediction algorithms, and a combination of technologies to give independent confirmation of the danger.

This paper will introduce the different technologies commonly used in “collision avoidance” systems and discuss the advantages and disadvantages of each with a focus on susceptibility to false alarming. It will be shown how each technology works in proximity detection (PD), collision awareness/warning (CW), or collision avoidance (CA). Then a practical methodology will be described that helps dramatically reduce the false alarm incidences for CW/CA systems by using a scenario based approach with path prediction.

49" EV Rim Safety: An Analysis of Potential Failure Modes

Presenter: David Bond

Author: David Bond

Organisation: Thiess Pty Ltd

Abstract will be posted on the Conference website.

[illegible]

■ Concurrent Papers

Building a Health Culture in Mining – How it Became ‘Cool to be Healthy’ at New Acland Coal

Presenters: Stewart Sherrington and Gordon Evans

Authors: Stewart Sherrington, Gordon Evans and Bella Reynolds

Organisations: New Hope Group – New Acland Coal and LiveWell Australia

2014-15 was a milestone year for NAC staff and their families; where a successful “LiveWell, Work Well” health program has demonstrated it is ‘cool to be healthy’.

A survey of 200 employees has delivered amazing results -

- 50% - stretch regularly at home/ work
- 44% - health better than 12 months ago
- 35% - started running/ walking regularly
- 52% - engaged in healthy food swaps
- 76% - the program has made positive changes to their health.

The shift in health culture is no accident, these statistics show:

- 42.5% participated in the Inaugural Site-Wide Weight Challenge; 241kgs was shed over 8 weeks, some people losing over 10% of their original bodyweight.
- 35.7% underwent free skin cancer checks; four potentially life-threatening conditions were identified and averted.
- 103 employees and their families participated in Toowoomba’s annual Peak2Park fun run/walk event.

The multi-faceted health program has centred on a strategic approach of:

1. Strategic Ergonomics
2. Strategic Movement
3. Strategic Intervention (Strengthening)
4. Strategic Eating
5. Strategic Living

This has been provided through, education, one-on-one support and personal challenges for its employees developed by allied health professionals.

The ownership and enthusiasm of the Site Health and Wellness Committee has been an overwhelming critical success factor.

Healthy Eating Guidelines for Shift Workers

Presenter: Kristen Clark

Authors: Rachel Latimore, Elizabeth Harburg, Michelle Trute

Organisation: Diabetes Queensland

Shift work is associated with many chronic diseases including obesity, diabetes, some cancers and heart disease. The impact of shift work on eating patterns, diet quality and intake of some vitamins and minerals alongside the metabolic impact of disrupted circadian rhythms are some of the factors contributing to increased chronic disease risk among shift workers.

Comprehensive but practical information from a reputable source on how to eat well when working shifts is not freely available. Reflecting demand, Diabetes Queensland partnered with Pacific National, a rail freight company, to develop evidenced based guidelines for healthy eating on shift. A literature review assessing the metabolic impact of shift work was conducted alongside consultation with Pacific National staff that captured the social impact of shift work on food choices. The resulting guidelines were tested with staff across Pacific National Queensland worksites before implementation and then proceeded through a robust consultative process with industry professionals to make them applicable to all shift workers.

This presentation will showcase the first guidelines for healthy eating and shift work and discuss the importance and application of these guidelines for the mining industry.

Funding acknowledgement: Department of Justice and Attorney General, Queensland Government.

Can we Learn from our Experiences with Pre-employment and Fitness for Duty Testing?

Organisations: JobFit Systems International and Resile

By the end of this session participants will:

- Have a practical tool for evaluating the suitability of work-related assessment methods
- Be aware of the limitations and conflicts between Privacy, OHS and IR legislation when it comes to pre-employment testing
- Appreciate the complex interaction between the body, mind and relationships (biopsychosocial model) and their influence on injuries and illness
- Be familiar with the scientific evidence underpinning an effective testing program
- Recognise the merit of applying risk management principles to health and not just safety
- See the benefits of adding value to all stakeholders and making a positive contribution to individual and public health

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