Collision Avoidance in Mining

8–9 March 2011 | Novotel, Brisbane

Changing course in mine site safety – moving towards a paradigm of zero harm

FEATURING EXPERT INSIGHTS FROM:

- Roy Murley, Engineering Manager, Xstrata Chrome Division and Mototolo Platinum Mine, South Africa
- Dave Goddard, Global Director Operations Solutions, Newmont Mining Co
- Matthew Watson, Superintendent, Fleet Projects Asset Management, Iron Ore, Rio Tinto
- Kim Scott, Graduate Electrical Engineer, Hail Creek Mine, Rio Tinto
- Tilman Rasche, Senior Inspector of Mines, Mines and Energy, Department of Employment, Economic Development and Innovation, QLD
- Patrick Glynn, Research Engineer, Earth Science and Research Engineering, CSIRO
- Dr Mark Hedley, Principal Research Scientist, ICT Centre, CSIRO
- Gul Kizil, Researcher, Minerals Industry Safety and Health Institute, University of Queensland
- John Dudley, Automation Engineer, University of Queensland
- Robin Burgess-Limerick PhD, Ergonomist, Burgess-Limerick and Associates

Image courtesy of the Mine Safety and Health Administration, US Department of Labor

TO REGISTER CALL NOW!
Dear Delegate,

There’s an ever mounting dependence on vehicles and automated equipment in open cut and underground mining. Increasing numbers, size, speed and tonnes of kinetic energy mean that this machinery poses a real risk to life through collisions.

From 2004 to May 2009, 6 out of 17 mine fatalities in Queensland were caused by vehicle on vehicle interactions while another 9 of the 17 fatalities were vehicle and pedestrian incidents (statistics from the Queensland Department of Employment, Economic Development and Innovation).

Proximity detection and collision avoidance technologies provide potential to reduce the rates of machine related injury and death. WiFi tagging, RFID, GPS, radar and camera based systems have been developed and are being implemented in mines worldwide.

IIR’s second annual Collision Avoidance in Mining conference will set out to examine the range and applicability of these systems for use with different types of equipment and mine environments and how these partner with operational strategies promoting collision avoidance.

Technology is facilitating huge gains in this space, reducing lost time to injury rates, shut downs, equipment damage and, most importantly, preventing harm and loss of life. However, they can’t be seen as a silver bullet and this forum will discuss the ways in which these advances can be incorporated into an overall organisational approach towards ensuring safety in a dangerous and unpredictable environment.

I hope you’ll be able to join us to learn and benchmark strategies for staying collision safe and moving towards a mining culture of zero harm.

Warm regards,

Alicia Boyd
Conference Manager

P.S. We’re holding 3 hands-on pre-conference workshops on collision risk assessment, maintenance and operational safeguards and ensuring collision avoidance control effectiveness. These sessions will give participants the opportunity to enter into role-playing and more detailed workshoping – really running through the nuts and bolts of collision avoidance. Delegate numbers are limited for these sessions so register early if you don’t want to miss out!
8.30 Registration and coffee
8.50 Welcome from the Chair

REGULATORY PERSPECTIVES ON MINE SAFETY AND COLLISION AVOIDANCE

9.00 OPENING KEYNOTE ADDRESS: Creating a culture of collision avoidance in Queensland’s mining industry
Stewart Bell, Queensland Mine Safety and Health Commissioner, Department of Employment, Economic Development and Innovation, QLD

COMMISSIONING, INSTALLATION AND MAINTENANCE

9.40 Commissioning and installation of collision avoidance technologies
- Identifying high collision risk areas and activities
- Adapting the system to address the mine risks
- Assessing the range of available technologies
- Ensuring fit for purpose, users and environment
- Incorporating fail safe provisions
- Operator training and system monitoring
Professor Eduardo Nebot, Director, Australian Centre for Automation and Field Robotics, University of Sydney

10.20 Selecting a collision avoidance system – examining the processes involved in choosing Rio Tinto’s pilot system
- Carrying out an user requirements survey
- Analysing incidents
- Gathering information on what is available
- Examining responses from potential suppliers
Matthew Watson, Superintendent, Fleet Projects Asset Management, Iron Ore, Rio Tinto

11.00 Morning refreshments and networking break

11.30 Collision avoidance technology on the Hail Creek Mine site
- Technologies and techniques applied
- Improvements made to safety and productivity
Kim Scott, Graduate Electrical Engineer, Hail Creek Mine, Rio Tinto

12.10 Newmont’s approaches to collision avoidance
- Examining traditional soft controls such as procedures, training, lighting and barricades
- Moves towards hard systems of control such as detected personnel no go zones and proximity detection and shut down technology
- Challenges faced in systems integration and user uptake
- Lessons learned and progress to date
Dave Goddard, Global Director Operations Solutions, Newmont Mining Co

12.50 Luncheon

CHALLENGES FACED IN UNDERGROUND MINE SITES

1.50 Making headway on collision avoidance underground
- Unique challenges faced underground in contrast to surface mines
- Addressing underlying causes of collisions: Such as impaired awareness, human factors and equipment failures
- Moving from proximity detection to a model of “situational awareness”
- Facing the challenge of locating people in a mine site in collision avoidance system development
John Dudley, Automation Engineer, University of Queensland

2.30 INTERNATIONAL KEYNOTE ADDRESS:
Use of high frequency RFID system: Collision Avoidance System (CAS) and Personal Detection Systems (PDS) in underground mining
Roy Murley, Engineering Manager, Xstrata Chrome Division and Motototo Platinum Mine, South Africa

MINE SITE AND OPERATION DESIGN AND SCHEDULING

3.10 Afternoon refreshments and networking break

3.40 Solving operator visibility issues on large mining and earthmoving vehicles
- Examining the significant causes of V2P (vehicle to person), V2V (vehicle to vehicle), V2I (vehicle to infrastructure) interactions
- First line of defence – examining ISO 5006 standards for operator visibility mandates for 360 visibility/blind-spot elimination around vehicles
- ISO 16001 test procedures and criteria for the development of Visual Aids (VA) for detecting people and Hazard Detection systems (HDS) for detecting objects
- Combining technologies for operator visibility + proximity detection + collision avoidance – do they help or hinder safety?
Peter Woodford, Owner, LSM Technologies Pty Ltd

4.20 Exploring the role of road safety in collision avoidance
- Road safety auditing and traffic management
- Examining the Safe Systems approach to road safety:
  - Promoting alert and compliant road users
  - Ensuring road safety
  - Designing safer roads
  - Managing road speeds
Damir Vagaja, Manager Mining and Resources, Safe Systems, ARRB Group Ltd

5.00 Closing remarks from the Chair and end conference networking drinks
Changing course in mine site safety – moving towards a paradigm of zero harm

CONFERENCE DAY TWO: WEDNESDAY 9 MARCH

8.30 Registration and coffee
9.00 Welcome from the Chair

TECHNOLOGY SELECTION AND RISK ANALYSIS

9.10 Understanding the matrix of collision avoidance technologies
- Addressing human factors leading to collision risk, such as reaction speed
- Exploring the range of available platforms, including WiFi tagging, RFID, GPS, radar, cameras
- Examining the range and applicability of these systems for use with different types of equipment and mine environments

Patrick Glynn, Research Engineer, Earth Science and Research Engineering, CSIRO

9.50 QUICK FIRE SHOWCASE:
Original Equipment Manufacturers present the latest in collision avoidance and proximity detection technology

10.30 Morning refreshments and networking break

11.00 CSIRO’s Wireless Ad Hoc System for Positioning (WASP) and its application in a systems integration approach to collision avoidance

Dr Mark Hedley, Principal Research Scientist, ICT Centre, CSIRO

11.40 Developing decision support portals for incident analysis – the COLLISIONgate system and implications for collision avoidance
- Examining the use of ISOLgate and TYREgate in generating information on incidents and accidents related to isolation of energies and tyres and rims
- The COLLISIONgate project – extending this paradigm to recording collision incidents
- Facilitating informed decision making through lessons learned

Tilman Rasche, Senior Inspector of Mines, Mines and Energy, Department of Employment, Economic Development and Innovation, QLD

Gul Kizil, Researcher, Minerals Industry Safety and Health Institute, University of Queensland

12.20 Creating risk based collision avoidance strategies by collecting real time data in the field
This session will explore Industrea’s pilot program of using collision avoidance systems to record patterns of user interactions on mine sites, identifying nodes of high collision risk and the implications of this data for mine planning and decision making.

Dr Chris Doran, Chief Technology Officer, Industrea

2.00 Examining the ACARP developed Risk – Cost – Benefit (RCB) Decision Support Tool
Determining semi-quantitative to quantitative assessment of the complex risks, costs and benefits associated with safety interventions.

Gul Kizil, Researcher, Minerals Industry Safety and Health Institute, University of Queensland

2.40 Exploring the role of the Earth Moving Equipment Safety Round Table (EMESRT) in collision avoidance
- Accelerating development and adoption of leading practice designs to minimise the risk to Health and Safety through a process of consultation with Original Equipment Manufacturers (OEMs), contractors and user engagement
- Reducing fatalities, injuries and occupational illnesses associated with operating and maintaining exploration and mining equipment

Senior Representative, Earth Moving Equipment Safety Round Table (EMESRT)

HUMAN FACTORS IN COLLISION AVOIDANCE

3.20 Human factors in mine site collision incidents
- Human factor analysis – identifying high risk nodes
- The role of ergonomics in collision avoidance
- Directional control-response compatibility
- User training and simulation
- Eliminating sources of human error

Robin Burgess-Limerick PhD, Ergonomist, Burgess-Limerick and Associates

4.30 Embedding collision avoidance approaches in a work culture – facilitating change to safer practice
- Ensuring ownership by establishing project champions
- Promoting organisational uptake
- Striking a balance between shut down automation and user training

Julie Harrison, Director, Deloitte
Former Change Specialist, Rio Tinto Iron Ore

5.10 Closing remarks from the Chair and end of the conference

FOR SPEAKER INTERVIEWS: VISIT: www.youtube.com/iiraustralia
PRE-CONFERENCE WORKSHOPS: MONDAY 7 MARCH

PRE-CONFERENCE WORKSHOP A
9.00 Promoting collision avoidance through operational risk analysis
   This hands-on session will run through a practical overview of the stages of collision risk analysis in your operations, addressing:
   - Administrative procedures such as haulage road separation and park up areas
   - The challenge of ensuring operator visibility
   - Proximity detection technologies
   - Collision avoidance systems
   - Recording risk related data during operations for further analysis
   **Workshop facilitator:**
   Peter Woodford, *Owner*, LSM Technologies Pty Ltd

PRE-CONFERENCE WORKSHOP B
9.00 Maintenance and operational safeguards – ensuring the integrity of proximity detection and collision avoidance technologies
   Proximity detection technologies pose a risk of operator over-confidence when not in full working order. This session will examine key checks and balances and preventative maintenance approaches to ensuring the effectiveness of collision avoidance systems.
   **Workshop facilitator:**
   Craig Hoffmann, *Product Manager – Collision Avoidance Systems*, Advanced Mining Technologies, Industrea Ltd

12.30 Luncheon

PRE-CONFERENCE WORKSHOP C
1.30 Ensuring collision avoidance control effectiveness
   - Existing provisions in place and additional available technologies
   - Assessing reliability, resilience, effectiveness and usability
   - Fitting controls to equipment and operational design
   - Collision elimination or procedural controls
   - Ensuring compliance to regulation
   - Measuring control effectiveness through key performance indicators
   **Workshop facilitator:**
   Patrick Glynn, *Research Engineer*, Earth Science and Research Engineering, CSIRO

5.00 Close of workshops

WHO ATTENDS

DELEGATE JOB ROLE PROFILES

DELEGATE INDUSTRY PROFILES

SPONSORSHIP AND EXHIBITION OPPORTUNITIES
The Collision Avoidance in Mining conference will provide you with unrivalled exposure to the players most active in Australia’s booming resources sector. Our carefully constructed sponsorship solutions are priced competitively for today’s market conditions and will complement your marketing objectives.

Please contact Megan Rogulski on (+61 2) 9080 4030 or megan.rogulski@iir.com.au or David Lewis on (+61 2) 9080 4054 or david.lewis@iir.com.au

Use your QR Reader App on your smartphone and scan this code to take you directly to the website.

Conference Venue:
Novotel Brisbane
200 Creek Street
Brisbane QLD 4000
Phone (07) 3309 3309
Fax (07) 3309 3308
URL www.novotelbrisbane.com

Registration Fees Include:
Enterance to the relevant sessions that you have purchased; lunch and all available presentations in PDF; five working days after the event. They do not include airfares or hotel rooms.

Cancellation Policy & Substitutions:
Cancellations must be advised in writing at least 10 working days prior to the event. An administration fee of $440 (inc 10% GST) will be incurred for cancellations. A refund will not be given if a delegate fails to attend or cancels within 10 working days prior to the event. A password to download the conference presentations that are available will be sent to paid delegates who cancel in the non-refund penalty period. Substitutions can be made at any time before the event without penalty.

Accommodation & Travel:
For your convenience, please access this event via our website and click on the ‘Venue, Accommodation and Travel’ tab or call the Lido Group on 1800 817 339. Travel and accommodation fees are not included in the conference fees. We do not refund airfares or hotel expenses if the event is cancelled.

Dress Code:
Smart casual wear is suggested along with a sweater or jacket in case the conference room is cool.

Privacy Policy & Updating Your Details:
Please visit us online for a full privacy policy at www.iir.com.au/privacy. Database amendments can be sent to database@iir.com.au or by calling +61 2 9080 4090 asking for the database department.

Payment Terms:
Payment must be made prior to the event or admittance will not be permitted. A tax invoice and confirmation letter will be emailed to the attendee upon completion of a valid registration. Payment may be made by EFT, cheque or credit card.

Conference Papers
Papers will be available for download from our website five working days after the event. These are available for purchase online at: www.iir.com.au/collision/dm