

WORKPLACE SAFETY NORTH Mining 2017

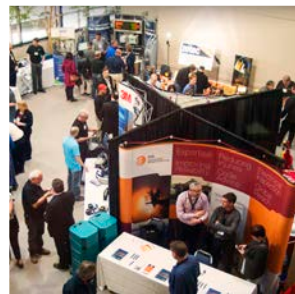
HEALTH AND SAFETY CONFERENCE

APRIL 18 - 20

HOLIDAY INN, SUDBURY, ON



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Life matters most.

At Vale, we value life above all else, which is why health and safety is the number one priority in our operations.

Vale is proud to sponsor the 19th annual Mining Health and Safety Conference. We look forward to the opportunity to learn and share experiences with our friends and colleagues.



For a world with new values.

MINING CONFERENCE 2017

Welcome back!

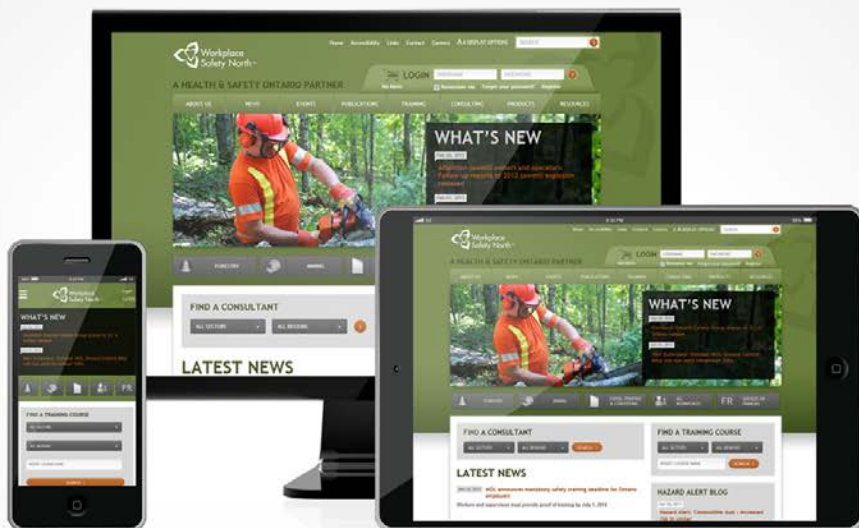
Thank you for joining the 19th annual Mining Health and Safety Conference. This year, the theme is *Innovations in mining safety* and features a variety of professional and community-based keynote speakers, as well as an Innovators Panel discussing mining safety.

Jody Urquhart, motivational speaker and former stand-up comedian, opens the conference with a humorous talk on facing the future and navigating change in the workplace. Alistair Ross, mining industry expert, discusses the role of leadership in achieving zero harm, and Dr. Michel Larivière focuses on research regarding mental health in mining.

Ontario Mine Rescue recaps the 2016 International Mine Rescue Competition, hosted in Canada for the first time. In addition, there is a special presentation from the McIntyre Powder Project on its work investigating the health effects of aluminum dust used in Ontario mines.

Thursday's technical sessions feature presentations on the topics of mining health and safety research and innovations, emergency preparedness and mine rescue, health and safety management systems, communication technology, and occupational hazards.

On Thursday afternoon, the innovation and safety awards luncheon recognizes achievements in mining health and safety, and keynote speaker Dr. Mark Devolder wraps-up the conference with a presentation about embracing change and innovation.



Visit workplacesafetynorth.ca for latest mining health and safety news

The Workplace Safety North (WSN) mobile-responsive website is your best source for the latest news about Ontario mining health and safety, including legislative changes, hazard alerts, resource material, and specialty services and training.

Stay connected on Twitter and LinkedIn.



workplacesafetynorth.ca



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WORKPLACE SAFETY NORTH

An independent, not-for-profit organization, Workplace Safety North (WSN) is one of Ontario's four sector-based health and safety associations. WSN is a leading provider of occupational health and safety training and services for mining, mine rescue, forest products, and northern Ontario businesses.

Training: Ontario Ministry-approved courses; Joint Health and Safety Committee Certification, Working at Heights Safety Training, Competent Supervisor, and Mining and Forestry Common Core Programs.

Services: Safe Workplace Ontario (SWO) business health and safety certification program, and Health and Safety Systems and Cultural Audit.

Workplace Safety North and its legacy organizations have been helping make Ontario workplaces safer for more than 100 years. For more information, visit workplacesafetynorth.ca.



CONFERENCE ADVISORY COMMITTEE

Workplace Safety North would like to thank the Mining Conference Advisory Committee for their guidance in developing this year's conference.

Darrell Gillis
Business Development Manager
Conspec Controls Limited

George Malciw
Health and Safety Superintendent
Kirkland Lake Gold Inc.

Kimm Dean
Mining/CSS Inspection Support Representative
Electrical Safety Authority

Michelle Lastoria
Supervisor – Health Promotion, Claims and Environment
J.S. Redpath Limited

Tony Lelievre
Joint Health and Safety Committee Worker Representative
Kirkland Lake Gold Inc.

If you would like to join the Conference Advisory Committee, please contact Gabrielle MacFarlane at (705) 474-7233 ext. 310 or gabriellemacfarlane@workplacesafetynorth.ca.

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TUESDAY OPENING RECEPTION

Opening Reception sponsored by:



4:30 - 7:00 Opening reception - everyone welcome

Join us in the Solarium for the conference kick-off. Check in early to beat the Wednesday morning rush. There will be appetizers, bar service, and live music.

5:30 - 6:30 Internal Responsibility System Climate Assessment and Audit Tool Update

Join us for a special presentation about the Internal Responsibility System Climate Assessment and Audit Tool (IRS CAAT), as part of the 2017 Mining Health and Safety Conference reception. The IRS CAAT is a new way to measure workplace health and safety systems and culture. The tool is being piloted in Ontario to provide mining operations with a snapshot of how their internal responsibility system is working within their unique systemic and cultural ecosystem.

WEDNESDAY AT A GLANCE

	Georgian D and E
7:00 - 8:30	Breakfast (Georgian ABC)
8:30 - 8:40	Conference Opening Rick Banting, Conference M.C. Electrical-Mechanical Specialist, Workplace Safety North
8:40 - 9:00	State of the Industry Candys Ballanger-Michaud President and CEO, Workplace Safety North Mike Parent Director of Mining, Workplace Safety North
9:00 - 10:00	This Would Be Funny... If It Wasn't Happening to Me! How to Navigate the Future with Enthusiasm and Vigor Jody Urquhart Keynote Speaker
10:00 - 10:25	Health Break (Solarium)
10:30 - 11:15	The Role of Energetic Leadership on the Road to Zero Harm Alistair Ross Director of Mining (Ontario Operations), Vale Canada Limited
11:15 - 12:00	Innovators Panel: Innovations in mining safety Don Duval, NORCAT, Tammy Eger, CROSH, Doug Morrison, CEMI, Marc Lauzier, Goldcorp
12:00 - 1:00	Lunch (Georgian ABC)
1:00 - 2:00	2016 International Mines Rescue Competition: Improving Global Best Practice Ted Hanley General Manager, Ontario Mine Rescue
2:00 - 3:00	Minds in Mines: On the Surface and Into Great Depths Dr. Michel Larivière Clinical Psychologist
3:15 - 4:00	McIntyre Powder Project Intake Clinics Janice Martell, Project Founder JP Mrochek, United Steelworkers Local 6500, Dave Wilken, Occupational Health Clinics for Ontario Workers, Carol Langevin Office of the Worker Adviser
10:00 - 6:00	Information Exchange Trade Show - Solarium

WEDNESDAY PLENARY SESSIONS

8:30 - 8:45

Conference Opening



Rick Banting
Master of Ceremonies
Electrical/Mechanical Specialist
Workplace Safety North

8:40 - 9:00

State of the Industry



Candys Ballanger-Michaud
President and CEO
Workplace Safety North



Mike Parent
Director of Mining
Workplace Safety North

9:00 - 10:00

This Would Be Funny... If It Wasn't Happening to Me! How to Navigate the Future with Enthusiasm and Vigor



Jody Urquhart
Keynote Speaker

Motivational speaker and former stand-up comedian, Jody Urquhart specializes in using humour to enhance wellness and perspective. She is the author of the “All Work & No Say,” a book designed to help people derive more meaning, fun, and satisfaction from their work. Known for her trademark funny motivational speeches, Urquhart has more than 16 years’ experience using humour to connect with audiences at more than 50 organizations and associations every year.

10:00 - 10:25

Health Break – Solarium

WEDNESDAY PLENARY SESSIONS

10:30 - 11:15

The Role of Energetic Leadership on the Road to Zero Harm



Alistair Ross
Director of Mining (Ontario Operations)
Vale Canada Limited

A leader in the mining industry, Alistair Ross, Director of Mining (Ontario Operations), Vale Canada Limited, is known for his passion for mentorship and for helping develop true leadership potential in both individuals and organizations. Before joining Vale in 2017, he provided leadership advice and coaching to Sudbury businesses experiencing rapid growth. Ross's mining career spans six countries across the globe. He was President of Lonmin's South Africa Operations, the world's third-largest platinum producer. Before joining Lonmin, he spent many years at Inco's Canadian Operations. His early career was spent in Africa working as Production Superintendent at BCL's Botswana smelter, and as Area Metallurgist for Rio Tinto Zimbabwe.

11:15 - 12:00

Innovators Panel: Innovations in mining safety

Don Duval
NORCAT

Doug Morrison
Centre for Excellence in Mining Innovation

Marc Lauzier
Goldcorp

Tammy Eger
Centre for Research in Occupational Health and Safety

Influential industry leaders discuss innovations in mining safety. Your participation is encouraged in the question and answer session, as well as in the general discussion between the panel and the audience.

12:00 - 1:00

Lunch - Georgian ABC

WEDNESDAY PLENARY SESSIONS

1:00 - 2:00

2016 International Mines Rescue Competition: Improving Global Best Practice



Ted Hanley
General Manager
Ontario Mine Rescue

In 2014 Ted Hanley joined Workplace Safety North as the General Manager of Ontario Mine Rescue. Prior to his role with Ontario Mine Rescue, Ted held various licenced mining engineering roles in the underground base metal sector. Ted was certified as an Ontario Mine Rescue emergency responder in 2008 and served as an active volunteer in the Timmins District until his departure in 2014. In August 2016, Workplace Safety North hosted the International Mines Rescue Competition, welcoming 27 teams from 13 nations for the first international competition in Canada, and the first in North America since 2008.

2:00 - 3:00

Minds in Mines: On the Surface and Into Great Depths



Dr. Michel Larivière
Clinical Psychologist

Dr. Michel Larivière is a clinical psychologist, professor, and researcher at Laurentian University. He is Associate Director at the Centre for Research in Occupational Safety and Health (CROSH), and holds appointments in the Psychology Department and the Northern Ontario School of Medicine in clinical education. Dr. Larivière studies the mental health of populations. He has been involved in national studies on the mental health of miners, federal inmates, high-risk health behaviour, and employee wellbeing, attracting almost \$2 million in research funding for these issues.

3:15 - 4:00

McIntyre Powder Project Intake Clinics

Janice Martell
Project Founder

JP Mrochek
United Steelworkers Local 6500

Dave Wilken
Occupational Health Clinics for Ontario Workers

Carol Langevin
Office of the Worker Adviser

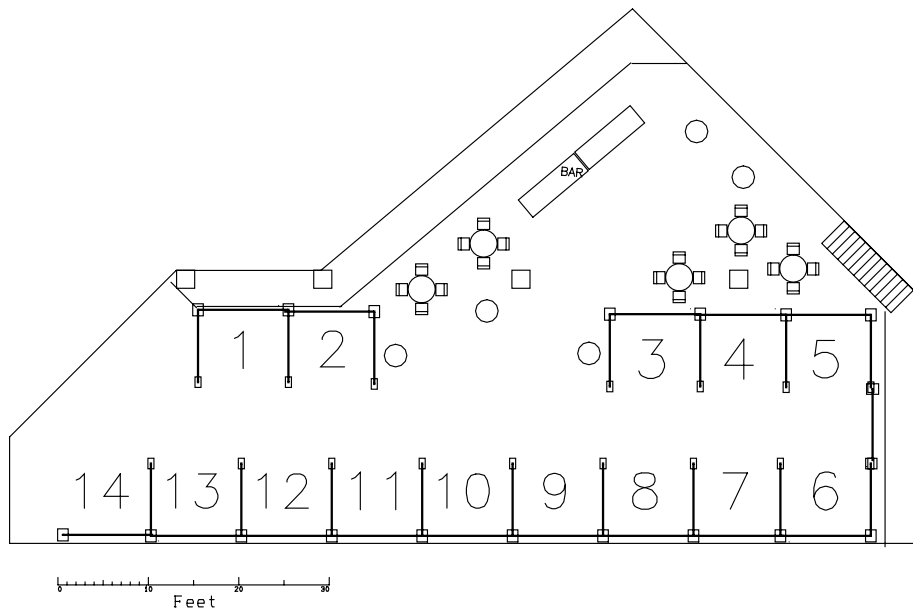
Determining the health impacts of occupational exposures on mine workers is challenging due to factors like multiple exposures, lifestyle and genetics, as well as the latency period between exposure and illness. In a collaborative effort, the McIntyre Powder Project intake clinics gathered health information from Ontario mine workers who were exposed to aluminum dust, known as McIntyre Powder, between 1943 and 1980. The goal of the clinics is to advance research on the long-term health risks associated with the powder.

3:00 - 6:00

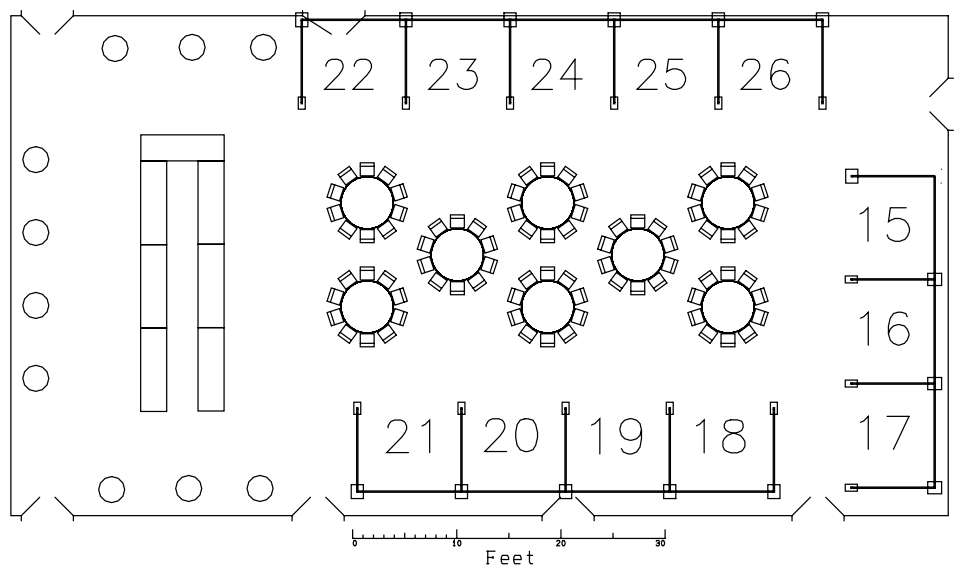
Information Exchange Trade Show continues in Solarium

TRADE SHOW MAP

Trade Show Map Solarium



Trade Show Map Georgian A, B, and C



TRADE SHOW EXHIBITORS

WSN is pleased to welcome the following exhibitors to its 2017 Information Exchange Trade Show from 10:00 am to 6:00 p.m. on Wednesday, April 19 in the Solarium.

Interior – Solarium

1. Becker Varis – varismine.com
2. Electrical Safety Authority – esasafe.com
3. Provix – provix.net
4. STC Footwear – stcfootwear.com
5. Honeywell Industrial Safety – honeywellsafety.com
6. Board of Canadian Registered Safety Professionals – bcrsp.ca
7. Vallen – vallen.ca
8. Lifemark Health – lifemark.ca
9. National Mine Safety Training Centre – nmstc.biz
10. Canadian Injury Management Services – canadianinjury.com
11. Pneuma-Tool – pneuma-tool.com
12. Soucie Salo Safety Inc. – souciesalosafety.com
13. Conspec Controls – conspec.ca
14. Occupational Health Works Inc. – ohclinic.ca

Interior – Georgian A-B-C

15. Draeger Safety Canada Ltd. – draeger.ca
16. BluMetric Environmental Inc. – blumetric.ca
17. Levitt Safety – levitt-safety.com
18. OCP Construction Supplies Inc. – ocp.ca
19. ZETEC Technologie International – zetec.ca
20. Laurentide Gloves and Projob Workwear – projob-workwear.com
21. Cooper Equipment Rentals – cooperequipment.ca
22. Hazmasters Inc. – hazmaters.com
23. Belt Conveyor Guarding – conveyorguarding.com
24. James Hodgins Photography – hodginsphotography.com
25. Balanced Living, Critical Incident Stress Management – cismtraining.ca
26. SPI Health and Safety – spi-s.com

TRADE SHOW EXHIBITORS

Interior – Hallway

27. Workplace Safety North – workplacesafety.ca
28. Employee Wellness Group – sudburypsychology.ca
29. Occupational Health Clinics for Ontario Workers – ohcow.ca
30. NORCAT – norcat.org
31. Canadian Society of Safety Engineering – mnontariocsse.nationbuilder.com

Exterior – Tent adjacent to Solarium

1. EPC Nordex – epc-nordex.com
2. Greenlee – greenlee.com
3. TSI Inc. – tsi.com
4. A.J. Stone Company – ajstone.com
5. Custom Protect Ear – protectear.com
6. Testmark Laboratories. Ltd – testmark.ca
7. Lineman's Testing Laboratories of Canada - ltlutilitysupply.com
8. CROSH – crosh.ca
9. New Day Wellness – newdaywellness.ca
10. eCompliance - eCompliance.com
11. Draeger Safety Canada Ltd. – draeger.ca
12. Ontario Mine Rescue – workplacesafetynorth.ca/subsite/ontario-mine-rescue
13. Power Pusher Canada – pushorpull.com
14. Univet OTNA – univetoptics.com
15. Cmac-Thyssen – cmac-thyssen.com
16. Industrial Fabrication – minecat.com

THURSDAY AT A GLANCE

Georgian A		Georgian B		Georgian C		Solarium	
7:00-8:30	Breakfast – Georgian D/E						
8:30-9:10	Diesel Exhaust - Need to monitor exposure and further reduce occupational exposure limit Kevin Hedges, Occupational Health Clinics for Ontario Workers	8:30-8:55	Static and Dynamic Behaviour of the VersaBolt Denis Champagne, Mansour Mining	8:30-8:55	Developing a 5-year strategic safety plan Steve Wrixon, Cementation Canada	8:30-9:10	CROSH Panel: Fatigue in the Workplace: Innovation in Technology to Help Measure, Monitor and Mitigate Injury Risk Sandra Dorman, Dominique Gagnon, and Glenn Legault, CROSH
		9:00-9:25	A burst-prone ground support study at KGHM's Morrison Mine Siavash Taghipoor, Dan Laing, Serge Tousignant and Dean Switzer, KGHM Sudbury	9:00-9:25	To the point without the pinch: The right way to guard Chris Allen, Belt Conveyor Guarding		
9:15-9:55	Ontario Ministry of Labour Diesel Survey of Mines and Mine Contractors Glenn Staskus, Ministry of Labour	9:30-9:55	Introduction of MD bolts as part of dynamic support system in rock-burst damaged areas at Copper Cliff Mine - A case study D.R. Chinnasane, A. Forsythe, and M. Yao, Vale Sudbury	9:30-9:55	Unmanned Aerial Vehicle (UAV) Applications in Mining Pierre Filiatreault, HATCH	9:15-9:55	NORCAT Panel: - The Future of Mine Skills Training and Development Jason Bubba, NORCAT - Starting to Remove the Miner From the Proximity of the Face Rod Steel, Tesman - The technology of workplace safety Gabriel Janakaraj, Hard-Line
10:00-10:30	Coffee Break – Solarium						
10:30-10:55	Cyanide code for gold and silver mining (aka Cyanide Code - Cyanide Queen) Lydia Renton, Blue Metric Environmental Inc.	10:30-10:55	CanmetMINING's recent developments on ground support techniques for improving mine safety Kristie Tarr, CanmetMINING	10:30-10:55	Mine Rescue 2.0: Strengthening mine rescue communications Jeff Brown, Focus FS	10:30-10:55	Predictive fatigue risk management in mining Sean Kerklaan, Fatigue Science
11:00-11:25	Leading indicators in industrial hygiene Farah Kassam and James Crichton, AECOM	11:00-11:25	Innovation in mining at Borden Gold JY Young and Peter Calnan, Goldcorp Porcupine Gold Mines	11:00-11:25	Emergency preparedness Shawn Rideout, Ontario Mine Rescue	11:00-11:25	20/20 Hindsight of Health Lisa Lounsbury, New Day Wellness

THURSDAY AT A GLANCE

Georgian A		Georgian B		Georgian C		Solarium
11:30-11:55	Occupation Safety and Health Certification Demystified Tom Welton, Workplace Safety North	11:30-11:55	The safety benefits of new technology at Kidd Creek Mine Zachary Mayer, Glencore Kidd Operations	11:30-11:55	Ontario Mine Rescue Training Module of Front Line Mine Supervisors Dan Taillefer, Ontario Mine Rescue	11:30-11:55 Critical incidents in the workplace - mitigating effects on staff to manage financial risk Steven Horner, CounterStress Solutions
12:00-2:30	Awards Luncheon - Georgian D/E 12:00 – 12:45 Awards Luncheon 12:45 – 1:00 Ontario Mining Contractors Safety Association Innovation Awards 1:00 – 1:15 WSN Ontario Workplace Excellence Awards 1:15-2:15 Harness the Hurricane: Adapt Boldly, Nimbly, Quickly to Extreme Change Dr. Mark DeVolder Keynote Speaker 2:15-2:30 Closing Remarks Paul Andre Vice-President Prevention Services Workplace Safety North					

THURSDAY TECHNICAL SESSIONS

GEORGIAN A

8:30 – 9:10

Diesel Exhaust - Need to monitor exposure and further reduce occupational exposure limit

Kevin Hedges

Occupational Health Clinics for Ontario Workers Inc.

Session Chair – Lise Sauve-Gingras, Glencore Sudbury Integrated Nickel Operations

The use of diesel powered plant in underground mining has steadily increased since the 1960s. Diesel emissions pose both short-term and long-term risks to health, ranging from headaches, irritation and nausea to respiratory diseases like lung cancer. Irritation and the aggravation of asthma can occur from short term exposures. Longer term-cumulative exposure will increase the risk of lung cancer and urinary bladder cancer (IARC, 2013). This presentation will discuss what is in diesel emission, the increased level of concern to exposure to diesel particulate matter (DPM), the risk of exposure and outline what we can do to reduce exposure. In addition, the presentation will discuss the occupational exposure limits for DPM in Canada.

9:15-9:55

Ontario Ministry of Labour Diesel Survey of Mines and Mine Contractors

Glenn Staskus

Ministry of Labour

Session Chair – Lise Sauve-Gingras, Glencore Sudbury Integrated Nickel Operations

The Ministry of Labour's (MOL) mandate includes setting, communicating and enforcing the Occupational Health and Safety Act (OHSA) and its regulations with respect to Ontario workplaces, including mines and mining plants in the province. The MOL relies in part on a number of advisory committees that have been appointed by the Minister of Labour under section 21 of the OHSA to provide assistance and advice on occupational health and safety matters, including the Mining Legislation Review Committee (MLRC). The MLRC, which is comprised of representatives from labour and management in the mining sector, endorsed the creation of a survey that was sent out in 2014 through the MOL to 40 underground mines and mining contractors that are operating diesel equipment fleets in the province. The survey requested information including the size and makeup of the diesel fleet, engine specifications and maintenance practices of equipment operated by mines and mining contractors. The questions contained in the survey were developed with the assistance of the members of the Diesel Subcommittee, which was at the time one of the MLRC's standing subcommittees, technical support was provided by MOL staff. The presentation will include the outcomes of the 2014 diesel survey that will provide information to the MLRC to assist the committee in the process of making recommendations for possible amendments to diesel related requirements set out in Regulation 854 (Mines and Mining Plants) under the OHSA.

THURSDAY TECHNICAL SESSIONS

10:30-10:55

Cyanide code for gold and silver mining (aka Cyanide Code - Cyanide Queen)

Lydia Renton
Blue Metric Environmental Inc.

Session Chair – Don Audette, Vale

As safety professionals, expertise in specific hazardous materials or processes happens over a career. The Cyanide Code focuses exclusively on safe management of cyanide produced, transported and used for the recovery of gold and/or silver and on mill tailings and leach solutions. The Cyanide Code was developed for gold mining operations, and addresses production, transport, storage, and use of cyanide and the decommissioning of cyanide facilities. Using the nine principles of the “Code”, this session provides an overview of the pathway for ‘cradle-to-grave’ use of cyanide in gold and silver mining and practical experiences of an approved ICMI (International Cyanide Management Institute) auditor as she navigates the Code and conducts audits globally.

11:00-11:25

Leading indicators in industrial hygiene

Farah Kassam and James Crichton
AECOM

Session Chair – Don Audette, Vale

Leading indicators create a platform for mining companies to track change, progress and measure performance. In recent years the mining industry has started to define and measure high potential incidents and near misses to learn from these incidents and share them. It was a matter of an inch or a second that someone was not fatally injured. There are many congruencies with industrial hygiene; whilst industrial hygiene seems complex, this presentation will provide a step by step process to be able to stay ahead of the curve. With the recent changes to regulations and the emphasis on lowering limits to protect the safety and health of our workers, it is increasingly important to be able to quantify progress and understand your challenges. Comprehensive industrial hygiene programs are challenging to develop and can become increasingly difficult to manage across multiple sites where varying degrees of knowledge are available. Through a case study, this presentation will show the mining sector what has been done and how to develop and measure leading indicators for health and hygiene.

THURSDAY TECHNICAL SESSIONS

11:30-11:55

Occupational Safety and Health Demystified

Tom Welton
Workplace Safety North

Session Chair – Don Audette, Vale

Many occupational health and safety (OHS) practitioners know very little about the inner workings of certification bodies, and as a result, may be overwhelmed by the process, and the pathways available to them. This session will provide an opportunity for OHS professionals to learn about accredited certification processes, the value of certification, and the impact certification can have on an individual's career and personal growth. Upcoming changes to the CRSP certification process will also be addressed.

GEORGIAN B

8:30-8:55

Static and Dynamic Behaviour of the VersaBolt

Denis Champagne, Mansour Mining

Session Chair – Alun Price Jones, Cementation

The VersaBolt is designed for both static and dynamic support. It is important to understand the influence that the grout, resin encapsulation or the annulus round the bolt has on the overall performance. Based on this knowledge the static behaviour can be modified by varying the anchor design to suite the conditions. The dynamic stiffness can also be modified in the same way. Dynamic stiffness can potentially have an impact on bolt spacing and surface support choices.

9:00-9:25

A burst-prone ground support study at KGHM Morrison Mine

Siavash Taghipoor, Dan Laing, Serge Tousignant, and Dean Switzer
KGHM Sudbury

Session Chair – Alun Price Jones, Cementation

A dynamic ground reinforcement system is one of the techniques that have been used at KGHM Morrison Mine to mitigate micro seismic risk. Independent of depth, the intensity of mining as well as geological structures has resulted in micro seismic activities at Morrison Mine, which has exposed personnel, equipment and production to micro seismic risk. As a part of a cost-saving initiative, alternative ground support systems were investigated. This included an extensive number of short-embedment pull tests conducted on two different types of ground support used in burst-prone environment; the VersaBolt and Super Swellex bolt. Most of the pull tests were focused on the VersaBolt to better understand the required anchorage length and the impact of related parameters such as rock type, hole size and resin

THURSDAY TECHNICAL SESSIONS

cartridge diameter. The results indicate that Super Swellex bolts require longer embedment depth while providing less rigid anchorage. Conversely, VersaBolts require shorter embedment length but are more rigid. A more deformable bond system provides better efficiency to dissipate rockburst energy while a shorter bolt embedment length provides more cost-efficient operation. Two burst-prone ground support standards were designed based on these bolts depending on the size of excavations; VersaBolts for smaller span excavations and Super Swellex bolts for larger spans.

9:30-9:55

Introduction of MD bolts as part of dynamic support system in rock-burst damaged areas at Copper Cliff Mine - A case study

D.R. Chinnasane, A. Forsythe, and M. Yao
Vale Sudbury

Session Chair – Alun Price Jones, Cementation

This is a presentation about a case study which outlines the performance of the MD Bolt installed in the damaged areas while mining the stopes that were located in the vicinity of seismically active ground conditions. Mining under the sill pillar region in the 100/900 ore bodies at Copper Cliff Mine has always been associated with significant seismic activity. A seismic event that occurred following a crown blast in a vertical retreat mining (VRM) stope on the 3710 Level had caused considerable damage to the walls/shoulders of adjacent top sills (9550 and 9510 Sills), even though these sills were supported with the current dynamic ground support system. There were no problems encountered when installing the Split Set bolts, but installation of the D-Bolts was unsuccessful due to the heavily fractured and damaged ground. Since the primary support system alone was considered to be inadequate to withstand the seismicity associated with the future mining in the area, the Mechanical Dynamic (MD) Bolt from Sandvik was introduced as a substitute for D-Bolt to complete the dynamic ground support system. The bolts were installed in conjunction with #0 gauge mesh straps without any major installation issues in the damaged areas. The MD-Bolt is essentially a 47 mm friction stabilizer bolt reinforced with a 20 mm bar with a wedge arrangement at the toe of the bolt. Once the bolt is fully driven into the hole (similar to a friction bolt), the bolt nut at the collar is rotated to activate the wedge to firmly anchor the bolt into the drift walls.

THURSDAY TECHNICAL SESSIONS

10:30-10:55

CanmetMINING's recent developments on ground support techniques for improving mine safety

Kristie Tarr
CanmetMINING

Session Chair – Alun Price Jones, Cementation

Extending the life of existing mines by developing mineral resources at greater depths presents a number of technological challenges, the most significant of which is the major health and safety issue of ground stability. Under this field of research, CanmetMINING is developing technologies to monitor stress and ground pressure variation, as well as technologies to instrument rock bolts for live monitoring of rock bolt integrity. Since mining companies and suppliers of ground support require standardized methods to properly evaluate new types of support, CanmetMINING has developed static and dynamic test systems to meet this requirement. The presentation will review these new developments and test systems.

11:00-11:25

Innovation in mining at Borden Gold

John Y. Young and Peter Calnan
Goldcorp Porcupine Gold Mines

Session Chair – Alun Price Jones, Cementation

The Goldcorp Borden Gold project is situated approximately 15 kilometers northeast of Chapleau at the northern end of Borden Lake and approximately 160 kilometers west of Timmins, Ontario. Goldcorp is currently planning to move the Borden project into advanced exploration, with an underground portal designed to retrieve a batch sample for processing in Timmins. The vision for the project includes an incorporation of safety, technology and innovation in the design. The mine will be developed with a low carbon footprint and stakeholder inclusion. It will ultimately be an “all-electric” mine with diesel equipment eliminated from the underground fleet. This will be a quantum leap for mining as we know it in Ontario. Consultation and collaboration with manufacturers over the past year has led to development of electric equipment that will be used from day 1 at Borden. In addition to the plan to reduce requirements for diesel use, compressors or compressed air will not be used underground. There are positive points from a hazard perspective and alternate plans required to compensate for this, and accommodate worker safety from typical Ontario underground mine operations with compressed air system. The mine intends to have breathing protection available to every person underground, within moments of an underground event. Personnel underground will have immediate access to Self-Contained Breathing Apparatus. Borden will be “Safe-Simple-Green-Silent-Invisible” operation.

THURSDAY TECHNICAL SESSIONS

11:30-11:55

The safety benefits of new technology at Kidd Creek Mine

Zachary Mayer
Glencore Kidd Operations

Session Chair – Alun Price Jones, Cementation

Operating the deepest base metal mine in the world comes with its share of technical and operational challenges. Since 2013, Glencore's Kidd Creek Mine Operations in Timmins has strategically implemented new technology as a means of ensuring safe and cost effective production from a depth of 3kilometers below surface. This has included the implementation of automated loaders, ventilation-on-demand, employee and equipment tracking, equipment telemetry, proximity warning, gas monitoring, predictive geotechnical modelling, and improved communication infrastructure. With it, the new technology has also brought about many safety benefits. This presentation will describe the original benefits intended to be achieved by the technology, with a specific focus on the additional safety enhancements and risk mitigation these systems have provided. In addition, the presentation will outline the next steps the mine is planning to take to further enhance safety via improved use of this technology.

GEORGIAN C

8:30-8:55

Developing a 5-year strategic safety plan

Steve Wrixon, Cementation Canada

Session Chair - Alain Landry, Glencore Sudbury Integrated Nickel Operations

In order to pursue the continuous improvement of its operational safety program, Cementation Canada embarked on a one year planning process to develop a new 5 Year Strategic Safety Plan. This was seen as an inspirational goal set forth in July 2015 by the operations department. As the Safety Management System develops and employees become familiar and more comfortable with its elements, one would naturally expect the total recordable injury frequencies to keep declining, as has been the industry trend over the last fifteen years. However, in recent years the reduction in Cementation's injury frequencies had levelled out. It became evident that there is a need to do things better or differently in order to further improve safety performance. This presentation describes the process applied in the development and implementation of the 5 Year Strategic Safety Plan. The process began with a thorough internal analysis of the existing Safety Management System, looking both at i) what is being done well and ii) opportunities for improvement. This was followed by an external review of safety best practices involving a collaborative approach with clients, competitors and other businesses viewed as safety leaders. These findings and observations were documented and incorporated into the final strategy document, and this has been presented to management and senior operations personnel for company-wide implementation.

THURSDAY TECHNICAL SESSIONS

9:00-9:25

To the point without the pinch: The right way to guard

Chris Allen
Belt Conveyor Guarding

Session Chair - Alain Landry, Glencore Sudbury Integrated Nickel Operations

Belt Conveyor Guarding is an industry leader in providing sustainable guarding solutions for equipment and conveyor applications. We provide safe, affordable solutions that ensure equipment is compliant with health and safety regulations and protect the worker from exposure to danger zones. The presentation will consist of an overview of equipment and conveyor guarding applications. The dangers of improperly guarded equipment and the hazards involved will be reviewed. We will go over different methods of guarding which can be used in these areas, as one guarding style does not work for all applications. It will also explore regulatory standards and how to ensure your guarding solutions are compliant. Equipment that will be discussed includes; couplings, pumps, belt drives, bearings and exposed rotating shafts. The presentation will also cover the dangers of conveyor components, including head/tail sections and return idlers.

9:30-9:55

Unmanned Aerial Vehicle (UAV) Applications in Mining

Pierre Filiatreault
HATCH

Session Chair - Alain Landry, Glencore Sudbury Integrated Nickel Operations

Unmanned aerial vehicles (UAV), or drones, are a disruptive technology which can provide substantial improvements across a wide range of industries and mining is no exception. The use of drones can provide cost savings and more importantly improving personal safety. In this presentation, the current application of drones within the mining industry will be discussed along with Hatch's water sample collection drone. Hatch has developed a novel device for aerial drones which currently enables the collection of water samples from depths. This system only requires a pilot, a sample technician, and a safe operations point overlooking the water body.

THURSDAY TECHNICAL SESSIONS

10:30-10:55

Mine rescue 2.0: Strengthening mine rescue communications

Jeff Brown
Focus FS

Session Chair – Jim Lundrigan, Glencore Sudbury Integrated Nickel Operations

In 2015, Ontario Mine Rescue partnered with industrial-technology company Focus FS to develop an under-oxygen, digital mine rescue system that fully digitizes incident information collected during Mine Rescue events. Operating on ruggedized tablets, the system replaces paper-based maps, equipment and oxygen checks, and general note taking while enhancing underground to surface communication among Briefing Officers, Captains, and Mine Rescue Officers. The system was launched in 2016 at the International Mines Rescue Competition with one of the Team Captains referring to the system as a “game changer in mine rescue”. The presentation will provide an overview of the system, key findings from mine rescue system deployments to-date, and the steps necessary to launch a digital mine rescue initiative. Focus FS will be joined by personnel from Ontario Mine Rescue for the presentation.

11:00-11:25

Emergency Preparedness

Shawn Rideout
Workplace Safety North

Session Chair – Jim Lundrigan, Glencore Sudbury Integrated Nickel Operations

Being prepared for an underground emergency is vital to sustaining a safe and profitable mine. Ontario Mine Rescue is dedicated to providing support to mine operators to ensure they have a sound Emergency Response Plan and that mines are properly prepared for an underground emergency. This presentation will provide an overview of the capabilities of mine rescue teams and the equipment they use during an emergency. The value of performing in-depth ‘Point-in-Time’ evaluations, realistic mock emergency scenarios and full debriefings to identify gaps and apply corrective actions, as well as benchmarks that the Ontario Mine Rescue program measures to ensure that our mine rescue volunteers are prepared for any potential underground emergency situations that may arise.

11:30-11:55

Ontario Mine Rescue Training Module for Front Line Mine Supervisors

Danny Taillefer
Workplace Safety North

Session Chair – Jim Lundrigan, Glencore Sudbury Integrated Nickel Operations

Historically, Ontario Mine Rescue training was available exclusively for underground first responders and mine rescue team members. As part of the growing shift towards holistic mine emergency preparedness, Ontario Mine Rescue believes a more efficient and

THURSDAY TECHNICAL SESSIONS

effective Emergency Response Plan can be established when mine operators, managers and supervisors are trained in the practical planning and administration of underground mine rescue operations, including the uses and limitations of personnel, apparatus and equipment. Training provided by Ontario Mine Rescue can be categorized into three distinct groups: mine rescue teams, front line mine supervisors, and mine emergency management personnel. This presentation will provide an overview of what can be expected during the Ontario Mine Rescue Training Module for Front Line Mine Supervisors and the added value of having properly informed frontline staff in preparation for and during mine emergencies.

SOLARIUM

8:30-9:10

Centre for Research in Occupational Health and Safety (CROSH) Panel

Sandra Dorman, Dominique Gagnon, and Glenn Legault

Session Chair – Céline Larivière, Centre for Research in Occupational Health and Safety

Fatigue in the Workplace: Innovation Technology to Help Measure, Monitor and Mitigate Injury Risk

Miners can be impacted by fatigue, whether it is from poor sleep, over exertion, heat stress, or inadequate food choices. The panelists will speak about fitness, sleep, heat stress, and nutrition in the context of fatigue and profile innovative technologies that can be used to measure, monitor and mitigate fatigue in the workplace. After a short presentation by each panelist the floor will be opened up for an interactive discussion.

9:15-9:55

NORCAT Panel

Jason Bubba
NORCAT

Gabriel Janakaraj
Hard-Line

Rod Steel
TesMan

Session Chair - Trina Pharand, NORCAT

The Future of Mine Skills Training and Development

Jason Bubba
NORCAT

The use of technology in mine skills training is transforming the way mining companies train new and existing workers around the world. Learn how mines are utilizing and integrating leading edge technology such as equipment simulation, virtual reality (VR), augmented

THURSDAY TECHNICAL SESSIONS

reality (AR) and smartphone technology to bring new and meaningful learning experiences to ensure workers are both productive and safe while on the job.

Starting to Remove the Miner from the Proximity of the Face

Rod Steel
TesMan

Underground miners for the large part are still working in proximity to the mine tunnel face during various stages of the tunneling process, also known as development cycle. Depending on depth and company ground control standards the tunnel face itself is partly or entirely unsupported. When compared to other risks to the miners in this crucial mine creation process, for example rotating and moving parts of equipment, the risks generated by the tunnel face still ranked as one of the highest. In 2012, a project was initiated by a mine manager to create a strategy to find or create a new technology that would enable the miner to complete the tunnel cleaning and loading from a safe distance. TesMan demonstrated a working prototype in 2015, and in 2017 the Robust Commercial Version is being rolled out onto the market. Now the process of including this solution in regular mining operations begins in earnest.

The technology of workplace safety

Gabriel Janakaraj
Hard-Line

Hard-Line is the global leader in the design and manufacturing of remote control and automation of heavy machinery. Operator safety is at the forefront of all of Hard-Line's products and services.

10:30-10:55

Predictive Fatigue Risk Management in Mining

Sean Kerklaan
Fatigue Science

Session Chair - Sandra Dorman, Centre for Research in Occupational Health and Safety

According to Caterpillar Global Mining, up to 65 per cent of surface mining haul truck accidents are caused by operator fatigue. This presentation covers the science and technology available for workforce fatigue risk management in mine environments, with data from some of our latest mine and heavy construction deployments.

THURSDAY TECHNICAL SESSIONS

11:00-11:25

20/20 Hindsight of Health

Lisa Lounsbury
New Day Wellness

Session Chair - Sandra Dorman, Centre for Research in Occupational Health and Safety

By 2020, the leading cause of disability will be mental health-related illnesses. Ignoring the signs and symptoms of mental health will not only cost you money but could cost you your life. “Don’t put your health in hindsight.” The audience will learn about the devastating truth of the epidemic of mental illness in our society. It’s time to stop the silence on the topic of workplace health...especially mental health. This presentation will help provide those connected to the mining industry with a new comprehension of health.

11:30-11:55

Critical Incidents in the Workplace - Mitigating Effects on Staff to Manage Financial Risk

CounterStress Solutions

Session Chair - Sandra Dorman, Centre for Research in Occupational Health and Safety

This presentation will provide an overview of what a critical incident in the workplace is from an Occupational Stress Injury (OSI) perspective. The International Critical Incident Stress Foundation (ICISF) model for critical incident stress management and peer support programs will be highlighted. The goal of this model is to return exposed individuals to healthy, adaptive and functional environments at home and work. The presentation will also explore costs associated with stress injuries. Features of the ICISF model that will be outlined include: psychological crisis and psychological crisis intervention, resistance, resiliency, recovery continuum, critical incident stress management, evidence-based practice, basic crisis communication techniques, common psychological and behavioral crisis reactions, healthy coping mechanisms, and the SAFER-Revised model for suicide intervention. Attendees will learn: the normal reactions for an abnormal event, signs and symptoms of critical incident stress, tactics to help staff process and move on from the event, strategies for healthy coping, and how to establish a proactive peer support strategy.

THURSDAY AWARDS AND CLOSING LUNCHEON

Georgian D/E

12:00 – 12:45 Awards Luncheon

**12:45 – 1:00 Ontario Mining Contractors Safety Association
Innovation Awards**

1:00 – 1:15 WSN Ontario Workplace Excellence Awards

**1:15-2:15 Harness the Hurricane: Adapt Boldly, Nimbly, Quickly to
Extreme Change**



Dr. Mark DeVolder
Keynote Speaker

Dr. Mark DeVolder is recognized as an original thinker and motivator on transitions. His humourous high-energy presentation teaches people how to be bold, flexible and innovative in the face of constant change. Known as a Change Specialist, Dr. DeVolder draws on a wealth of business expertise as an author, successful mediator of high-profile multi-party disputes, corporate consultant of multi-billion dollar mergers and acquisitions and as a cross-cultural coach to business leaders in preparation for free trade agreements.

2:15-2:30 Closing Remarks



Paul Andre
Vice President Prevention Services
Workplace Safety North

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