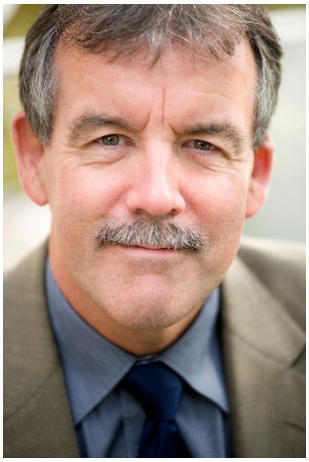
ISMS 2016

Plenary Session "Innovations in Mine Safety"

Tuesday August 16, 2016

8:30 am **Safety share and welcome**



Chair: **Damien Duff**
Vice President Geoscience and Geotechnical R&D
Centre for Excellence in Mining Innovation (CEMI)
Sudbury, Ontario, Canada

8:40 am **Canopy for Safety and Productivity**

Speaker: **Douglas Morrison,**
President & CEO
Centre for Excellence in Mining Innovation (CEMI)
Sudbury, Ontario, Canada

Safety is the primary care in all underground operations and especially important in new development headings in high-stress conditions. New bolting systems and in-cycle shotcrete have made things safer under conditions of surface strain-bursting, but they have also contributed to the decline of advance rates. As some mines began to experience bursting from the face, CEMI decided to develop the long-discussed canopy option that would provide a physical barrier to the hazards at the face and make it possible to increase advances rates significantly. The first operational version is now ready for use and the various applications of an individual canopy or a combination of three canopies will be described. Event simulation results show the current productivity gains as well as the possible gains with additional technologies.

9:05 am **Hydraulic Pre-conditioning of Highly Stressed Rock Masses**

Speaker: Pierrick Altwegg

Senior Researcher in Geomechanics
Mirarco, Mining innovation
Laurentian University, Sudbury, Ontario, Canada

Nowadays, ore extraction is carried out at increasingly greater depths below surface, thus posing the challenge of mining in highly stressed rock masses. This significantly increases the geotechnical hazard associated with seismicity and rockbursts, resulting potentially in equipment damage, injuries and even fatalities. This is especially true for ultra-deep mines, i.e., greater than 2500 m in depth. Thus, there is a pressing need to develop safe and cost-effective solutions to deal with highly stressed rock masses in order to mitigate such risks. This project aims to assess if one can effectively fracture the rock mass by means of hydraulic preconditioning, in an effort to reduce mining-induced seismicity, thus resulting in a safer and more productive workplace. Studies are underway to examine the possibility of integrating hydraulic preconditioning with the planned mining sequence. This project is funded under one of the strategic themes of the Ultra-Deep Mining Network (UDMN) in Canada.

9:30 am **Underground Mine Location Intelligence System - A tool for mine safety**

Speaker: Michel Serres

Manager, Mining Solutions ABB North America
Montreal, Quebec, Canada

The Underground Mine Location Intelligence System by ABB has been developed to combine 3D representation of data down into the mine and to correlate information available within the overall mine automation system. Over the past years, wireless communication development gave opportunities to bring information from underground to surface and vice versa, with people and machines. The correlation and usage of data remain a challenge for mining companies. A focus of the Mine Location Intelligence System is mine safety. If communication from surface into the mine is now possible, the treatment of real time information is capitals for safety aspects. As tracking of people and mobile equipment is possible, other aspects like air quality, blasting schedule, geo-fencing, traffic management, and critical situations like fire alarms can be controlled by where people and mobile equipment are located.