Ground Breaking News

CEMI Centre for Excellence in Mining Innovation

December 2010 Issue 6 vol. 3 www.miningexcellence.ca

Rio Tinto creates a new $10 million centre at CEMI

On November 25th, 2010, Rio Tinto announced the establishment of the Rio Tinto Centre for Underground Mine Construction (RTC-UMC) at the Centre for Excellence in Mining Innovation (CEMI) located in Sudbury, Ontario, Canada. Rio Tinto will be investing $10 million dollars over five years to undertake research at the centre.

(Left the Right) Dominic Giroux, Laurentian University; Fred Delabbio, Rio Tinto; Peter Kaiser, CEMI; MPP Rick Bartolucci; and Mayor John Rodriguez

On December 6th, 2010, new partners Rio Tinto and the Centre for Excellence in Mining Innovation (CEMI) celebrated the official signing of an agreement that will showcase CEMI's capabilities to the world.

(Left to right) John McGagh, Rio Tinto; MPP Rick Bartolucci; MPP Michael Gravelle; Peter Kaiser, CEMI

Rio Tinto is focusing on mechanized excavation including a shaft boring system (SBS) and tunnel boring systems (TBS). Rio Tinto has selected CEMI as the agent for collaborative research leadership in support of high speed construction associated with underground mine construction. For Rio Tinto, this investment reflects the company's long term commitment to science, engineering and innovation, and is central to its approach to research partnerships. This is the fifth global long-term research centre to be established by Rio Tinto.

The Rio Tinto Centre for Underground Mine Construction at CEMI will undertake research with respect to ground and machine performance. For this purpose, prototype test sites will be instrumented to improve ground characterization techniques and to develop innovative support systems to facilitate high speed, mechanized tunnel and shaft development technologies for underground mines in highly stressed ground and at depth.

Fred Delabbio, Rio Tinto announces the $10 million research centre

With the support of Rio Tinto, CEMI will be collaborating with recognized researchers to address ground control and machine performance issues. With eventual test sites, possibly on three continents, CEMI has matured to handle industry's most strategic problems and to strengthen collaborations with expertise beyond our immediate boundaries. This program will utilize homegrown expertise and benefit Ontario universities and small-medium enterprises alike. The program will also help develop highly qualified personnel for the mining sector.

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Growing Leadership at CEMI

On September 8, 2010, the Centre for Excellence in Mining Innovation (CEMI), held its third Annual General Meeting (AGM) which highlighted the significant progress made by the organization in advancing mineral exploration and mining-related research during the past year. CEMI proudly announced that mining veteran, Douglas Morrison has joined the CEMI team as the Deputy Director.

Peter Kaiser, President/CEO, CEMI and Douglas Morrison, Deputy Director, CEMI

In this leadership role, Mr. Morrison will work directly with the President and R&D Program Directors to continue to grow and develop global recognition of Canada's innovative research capacity; engage high quality research collaborators to establish linkages through joint projects; work with industry, academic institutions, and government on developing cohesive partnerships; and aid in establishing strong linkages in support of the commercialization of innovation in Northern Ontario and beyond.

Visit our website to review our 2010 Annual Report and our 2010 Innovator Showcase.

Research in exploration geophysics

Dr. Richard Smith, the CEMI supported chair in Exploration Geophysics has initiated the research program. Two Master of Science students started in September. One student, Devon Parry, will be acquiring and analyzing physical properties measurements in acquired in boreholes. He will be using the EM39 to measure the conductivity and comparing these measurements with others, either acquired in the borehole, in hand sample, or measured on outcrop. The second student who started in September will be looking at developing the methodologies to acquire electromagnetic data in such a way as to look deeper and resolve smaller conductive features in the ground.

A third student Michal Kolaj started his Master of Science program in May. He has been working on a method to measure how the conductivity varies laterally as a function of distance. In order to test the equipment, it is necessary to find a suitable site. In November, he just completed a survey to investigate whether there is a measureable change in conductivity on one of the Vale tailings dams in Sudbury. The equipment used was the Geonics EM34-3 ground conductivity meter. The picture below shows him taking a reading with the receiver loop in the background.

A fourth student will be starting in the new year.

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Research Highlights

Baffin Island Intelligent Monitoring Project

In this second phase of the Baffin Island Monitoring Project, a new stakeholder, Peregrine Diamonds Limited, has joined Baffinland Iron Mines, CEMI and Laurentian University. The focus this year was on improving the technology at existing sites and also establishing a completely new weather monitoring station for Peregrine Diamonds Limited in South Baffin Island.

The SymBot is a modular device for data collection, analysis and management—powerful enough for intelligent embedded applications. It replaces the previous generation SymSat units. This represents a significant push forward in terms of processing power, sensor interfacing capabilities and data management features.

All existing sites, Mary River, Milne Inlet and Steensby Inlet, were upgraded and are currently equipped with bidirectional technology provided by the SymBot. This allows for many additional configuration features such as remote reset, remote scheduling and data-on-demand. Other technology upgrades include wireless sensors, and an embedded weather-proof camera added to the Mary River site. The power system has been upgraded to high-wattage solar panels and a wind turbine. This hybrid power system is supported by a larger battery bank.

Fugitive Dust Best Practices Manual

CEMI and the Ontario Mining Assoication (OMA) identified the need to better understand fugitive dust emissions.The purpose of the document is to aid the Ontario mining community in the preparation of a Best Management Practices Plan for the Control of Fugitive Dust (BMPP or the Plan). This document is designed as a guide and step-by-step tool to document the decision making process through the development of the Plan.

CEMI retained Natalie Hamilton of Golder Associates to develop these best management practice guidance documents. Ms. Hamilton and her colleague Sean Capstick did much of the work on the project.

The fugitive dust best practices manual guidance documents have been completed and tested and they are now available on the CEMI website. The five publications are the Fugitive Dust BMPP Guidance Document, Fugitive Dust Risk Management Tool, Fugitive Dust BMPP Template, ACME Mining Example Fugitive Dust BMPP and the Literature Review of Current Fugitive Dust Control Practices in the Mining Industry.

For technical inquires or to send feedback regarding these documents, contact Natalie Hamilton and/or Sean Capstick.

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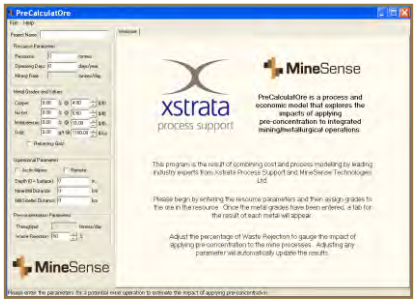
PreCalculatOre Tool

PreCalculatOre is a combined process and cost modelling tool to assess the potential economic benefits of applying surface-based ore pre-concentration techniques at a mine or deposit.



The process model is founded on proprietary mass/metal balances for mineral processing, smelting and refining steps developed by Xstrata Process Support, and coupled with proprietary capacity/cost models developed by MineSense Technologies Ltd. The tool estimates the impacts on metal recovery and process cost for the base and pre-concentration case scenarios. PreCalculatOre Package & Video

For technical inquires or to send feedback regarding these documents, contact Andrew Bamber from MineSense Technologies Ltd and/or Arthur Barnes from Xstrata Process Support.

Coming soon…

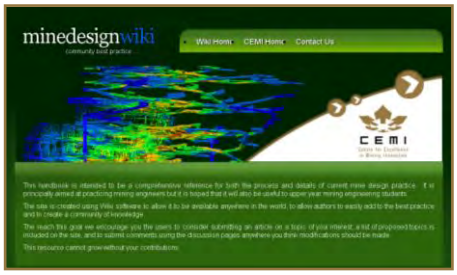
CEMI is currently working with **Dr. Andrew Bamber** to present a one day short course on Pre-concentration to be held on April 26th, 2011 in Sudbury,Ontario.

Stay tuned for registration details!

Mine Design Handbook - Wiki

A team of collaborators are working with CEMI to create a value driven best practice handbook for underground hardrock mine design. This wiki handbook is changing how we communicate information and knowledge.

Using the same community model that has allowed Wikipedia to become one of the most successful and valued general information sources, the Mine Design Handbook – Wiki Edition is bringing together the industry's thought leaders to improve the sharing of mine design expertise.



The Mine Design Handbook format has been established, editions assigned, and articles written by consultants, members of academia and industry, and other highly respected mine professionals. Additional articles are being prepared assuming a comprehensive overview of the essential aspects of mine design. The site will be continually updated to ensure relevance. Mine professionals are invited to join the community and comment on existing articles to contribute to the robustness of mine design practice.

To learn more visit www.minedesignwiki.org