



The Centre for Excellence in Mining Innovation
(CEMI)
is proud to sponsor

Fault Slip Workshop
May 14 & 15, 2009
at the
Fairmont Royal York Hotel
Salon 1 (19th Floor)
Toronto, ON

In a recent bow-tie risk analysis, Vale Inco concluded that, while significant advances have been made in seismic monitoring, data interpretation, hazard mapping, reentry protocols and support design, there are insufficient controls to mitigate risk associated with fault slip events. CEMI's research management team therefore wishes to bring together a group of experts that could think out of the box and identify potential areas for innovation in the field of fault slip controls (from structural geology to fault behaviour characterization, to mining method selection in order to control energy release, to monitoring data utilization, to numerical modeling, and much more.

CEMI Contact:
Damien Duff
dduff@miningexcellence.ca
705-675-1151 x 1210
www.miningexcellence.ca

| Participants | Info |
|---------------------|-----------------------------|
| Andrew Wilson | CEMI |
| Benoit Valley | CEMI |
| Brad Simser | Xstrata Nickel |
| Cezar Trifu | ESG Solutions |
| Claire Samson | Carleton University |
| Damien Duff | CEMI |
| Dave Beck | Beck Arndt |
| Dave Counter | Kidd Creep Timmins -XC |
| David Collins | ESG Solutions |
| Denis Thibodeau | Vale Inco |
| Doug Morrison | Golder Associates Ltd. |
| Eric Westman | Virginia Tech. |
| Gerhard van Aswegen | ISSI |
| Glenn McDowell | Vale Inco |
| Jerry Ran | Barrick Gold |
| John Fedorowich | Itasca |
| John Hadjigeorgiou | University of Toronto |
| John Henning | goldcorp |
| John McGaughey | Mira geo science |
| Kevin Fenlon | Vale Inco |
| Larry Cochrane | VI Innov. Ctr. Mem. Univ. |
| Mark Board | Itasca |
| Matt Purvance | U of Nevada /Itasca |
| Pavel Vasak | Mirarco |
| Peter Kaiser | CEMI |
| Richard Lynch | ISSI |
| Richard Smith | Laurentian Univ. |
| Rob Mercer | Knight Piesold |
| Scott Carlisle | Xstrata Nickel |
| Sean Maloney | MIRARCO |
| Stephen Falconer | Xstrata Nickel |
| Steve McKinnon | Queen's University |
| Trevor Carter | Golder Associates Ltd. |
| Veronique Falmagne | Golder Associates Ltd. |
| Vladimir Shumila | ESG Solutions |
| Wouter Bleeker | Natural Resources Canada |

CEMI FAULT SLIP WORKSHOP- ROYAL YORK HOTEL, MAY 14-15TH, 2009
Salon 1 (19th Floor)
Preliminary Agenda

| THURSDAY, MAY 14TH | | | | |
|--|--|--|---|---|
| BREAKFAST (PROVIDED) 0800-0830 | | | | |
| SESSION | TOPIC | TIME | PRESENTER | COMMENTS |
| INTRODUCTION AND OVERVIEW | 1. Welcome and purpose of workshop/Intro. of Co-facilitator | 0830-0850 | Damien Duff | Each participant will briefly introduce him/herself |
| CASE HISTORIES AND PROBLEM DEFINITION | 1. Definition of Problem 2. Kidd Creek 3. Xstrata Sudbury 4. VI Sudbury | 0850-0900 0900-0920 0920-0940 0940-1000 | Denis Thibodeau Dave Counter Brad Simser Denis Thibodeau | Present examples that demonstrate success/failures in how we have dealt with controlling geological structures (Don't limit to Sudbury) |
| COFFEE BREAK | | | | |
| STRUCTURAL GEOLOGY/ROCK MASS CHARACTERIZATION | 1. The structural geology and tectonic environment associated with rock mass failures in Sudbury mines and implications for the assessment of fault slip events 2. What are the important characteristics of faults and how do we identify them? How can we anticipate the unexpected? | 1020-1040 1040-1120 | Larry Cochrane Mark Board John Fedorowich | In areas where too little geological information exists is it possible to scenarioize the potential structure so as to optimize the chances of managing energy release more effectively during mine design and operation? Can the possible geological architecture of an area be postulated so as to potentially anticipate a chain link reaction of ground failure? |
| WHAT WE'VE HEARD - DISCUSSION | | 1120-1200 | All | |
| LUNCH (PROVIDED) 1200-1300 | | | | |
| SEISMOLOGY AND MINE SEISMICITY | 1. Large Scale Fault Slippage- what we know and can learn from large systems? 2. Instability Indicators and detection of faults using microseismic data 3. Assessing Seismic Hazard in Mines 4. Lessons learned about fault stability assessment in S.A. mines | 1300-1320 1320-1340 1340-1400 1400-1420 | Matt Purvance Richard Lynch Cezar Trifu Gerrie van Aswegen | What are the fundamental mechanisms of fault slip? |
| ENERGY RELEASE CONTROL | 1. The state of the art in energy release control 2. Can we define if and when a fault becomes critical? | 1420-1440 1440-1500 | Mark Board Steve McKinnon | "We don't know how to manage the energy release associated with Fault Slip" |
| COFFEE BREAK | | | | |
| GEOPHYSICS & OTHER POTENTIAL TOOLS | 1. Probabilistic Estimates of excavation performance in mines with fault slip 2. The state of the art in geophysical instrumentation as a means to map structural and other rock mass characteristics 3. Use of Seismic Tomography for inference of stress redistribution in rock 4. Data Integration as a tool to identify risk associated with fault slip | 1520-1540 1540-1600 1600-1620 1620-1640 | Dave Beck Claire Samson Erik Westman John McGaughey | - The need for better instrumentation and monitoring In conjunction with Richard Smith and Steve McKinnon |
| WHAT WE'VE HEARD - DISCUSSION | | 1640-1715 | All | |
| DINNER (PROVIDED- MANITOBA ROOM) 1830 | | | | |

CEMI FAULT SLIP WORKSHOP- ROYAL YORK HOTEL, MAY 14-15TH, 2009
Salon 1 (19th Floor)
Preliminary Agenda

| FRIDAY, MAY 15TH | | | | |
|---|--|-------------|-----------------------------------|--|
| BREAKFAST (PROVIDED) 0800-0830 | | | | |
| SESSION | TOPIC | TIME | PRESENTER | COMMENTS |
| FRIDAY MORNING KEYNOTE ADDRESS | 1. Rock Mechanics Challenges in mining | 0830-0910 | Peter Kaiser | |
| RE-CAP OF THURSDAY'S PROCEEDINGS | 1. What we heard you tell us yesterday- | 0910-0930 | Cochrane/Duff | the takeaways from our presentations and discussions |
| BREAK-OUT SESSIONS | 1. Selection of Break Out Topics and group assignments | 0910-0920 | Facilitated by Duff & Cochrane | Identify what research gaps exist and what opportunities there are for CEMI to support research excellence |
| | 2. Break Out Sessions | 0920-1015 | | |
| | COFFEE BREAK | | | |
| | 3. Presentation of results from Break Out Sessions | 1030-1115 | To be assigned from within groups | |
| NEXT STEPS AND THANK YOU | 1. List of action items | 1120-1200 | Cochrane/Duff | |