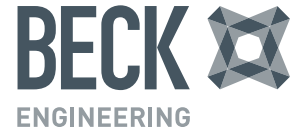


EAST MEETING ROOM 1-3

07:00	REGISTRATION OPEN
07:50	REGISTRATION CLOSE
08:00	Welcome and introduction and opening address <i>J Jakubec, SRK Consulting (Canada) Inc., Canada</i>

KEYNOTE ADDRESS AND SESSION 1: CASE STUDIES

Principal
& Session
Sponsor



08:30	KEYNOTE: Optimising for success at the Grasberg Block Cave <i>R Campbell, Freeport-McMoRan, USA; H Banda, J Fajar, PT Freeport Indonesia, Indonesia; C Brannon, Freeport-McMoRan, USA</i>
09:00	Safely re-opening a collapsed extraction level drive in a resource-limited environment <i>NA Shea, RW Sinclair, TM Welsh, Climax Molybdenum, USA</i>
09:30	Sublevel retreat mining in the subarctic: a case study of the Diavik Diamond Mine <i>PA Lewis, LM Clark, SJ Rowles, CP Auld, CM Petryshen, AP Elderkin, Rio Tinto, Canada</i>
09:45	Underground mining at Ekati and Diavik diamond mines <i>J Jakubec, D Lagacé, SRK Consulting (Canada) Inc., Canada; B Boggis, Dominion Diamond Mines, Canada; LM Clark, PA Lewis, Rio Tinto, Canada</i>

10:00 MORNING BREAK

SESSION 2: CAVING PRODUCTIVITY, GRADE AND VALUE

10:30	Palabora Lift 1 block cave: understanding the grade behaviour <i>T Diering, Dassault Systèmes, Canada; SN Ngidi, JJ Bezuidenhout, HD Paetzold, Palabora Mining Company, South Africa</i>
11:00	Increasing productive capacity in block caving mines <i>KJ Shelswell, PO Labrecque, Labrecque Technologies Inc., Canada; DM Morrison, Centre for Excellence in Mining Innovation, Canada</i>
11:30	Cave to mill: improving value of caving operations <i>A Moss, B Klein, S Nadolski, The University of British Columbia, Canada</i>
12:00	An approach to evaluating block and panel cave projects for sensor-based sorting applications <i>S Nadolski, B Klein, The University of British Columbia, Canada; CJR Hart, Mineral Deposit Research Unit, Canada; A Moss, D Elmo, The University of British Columbia, Canada</i>
12:15	Grade control and segregation at New Gold's New Afton block cave operation, Kamloops, British Columbia <i>MG Henning, New Gold Inc., Canada</i>

12:30 LUNCH

Lunch
Sponsor



SESSION 3: CAVE MECHANICS AND NUMERICAL MODELLING

13:30	Three-dimensional simulation of cave initiation, propagation and surface subsidence using a coupled finite difference – cellular automata solution <i>Y Hebert, G Sharrock, Itasca Australia Pty Ltd, Australia</i>
14:00	Back-analysis of PC1 cave propagation and subsidence behaviour at the Cadia East mine <i>B Sainsbury, Noma-Consulting and Deakin University, Australia; D Sainsbury, Noma-Consulting, Australia; D Carroll, Newcrest Mining Limited, Australia</i>
14:30	A re-evaluation of the conceptual model of caving mechanics <i>D Cumming-Potvin, J Wesseloo, Australian Centre for Geomechanics and The University of Western Australia, Australia; SW Jacobsz, E Kearsley, University of Pretoria, South Africa</i>
14:45	Numerical simulations of a centrifuge model of caving <i>D Cumming-Potvin, J Wesseloo, Australian Centre for Geomechanics and The University of Western Australia, Australia; M Pierce, Pierce Engineering, USA; T Garza-Cruz, L Bouzeran, Itasca Consulting Group, USA; SW Jacobsz, E Kearsley, University of Pretoria, South Africa</i>
15:00	Suggested methods for estimation of confined strength of heterogeneous (defected) rocks <i>N Bahrani, Dalhousie University, Canada; PK Kaiser, Laurentian University, Canada; A Corkum, Dalhousie University, Canada</i>
15:15	Review and simulation of passive seismic tomography in block cave mining <i>S Ghaychi Afrouz, EC Westman, Virginia Polytechnic Institute and State University, USA</i>

15:30 AFTERNOON BREAK

SESSION 4: DRAW CONTROL/FRAGMENTATION (1)

16:00	Hang-up analysis and modelling for Cadia East PC1-S1 and PC2-S1 <i>R Castro, University of Chile, Chile; D Cuello, Newcrest Mining Limited, Australia</i>
16:15	Simulating gravity flow in caving mines through FlowSim <i>R Castro, University of Chile, Chile; A Altamirano, D Guzman, BCTEC Engineering and Technology, Chile</i>
16:30	Presence of natural fractures as an indicator of operational difficulty for future cave operations <i>M Munkhchuluun, Oyu Tolgoi LLC, Mongolia; D Elmo, S Nadolski, NBK Institute of Mining Engineering, Canada; A Moss, Sonal Mining Technology, Canada; B Klein, NBK Institute of Mining Engineering, Canada</i>
16:45	Influence of rock mass veining and defects on secondary fragmentation during block caving <i>L Dorador, E Eberhardt, D Elmo, The University of British Columbia, Canada</i>

SESSION 5: MINE PLANNING (1)

17:00	Underground roadway design considerations for efficient autonomous hauling <i>RJ Thompson, Curtin University Western Australian School of Mines, Australia; H Malekzhehtab, Curtin University, Australia</i>
17:15	Developing projects using CaveLogic <i>M Arancibia, F Soto, Maptek, Chile</i>
17:30	Optimisation of the undercut level elevation in block caving mines using a mathematical programming framework <i>R Noriega, Y Pourrahimian, WL Victor, University of Alberta, Canada</i>
17:45	Principal sponsor presentation: Beck Engineering

17:55 DAY ONE CLOSE

EAST MEETING ROOM 1-3

KEYNOTE ADDRESS & SESSION 6: SUB LEVEL CAVING



08:00	KEYNOTE: Key geotechnical knowledge and practical mine planning guidelines in deep, high-stress, hard rock conditions for block and panel cave mining <i>D Cuello, G Newcombe, Newcrest Mining Limited, Australia</i>
08:30	Early cave management for the Carrapateena sublevel cave <i>R Hocking, G Balog, T Ormerod, H Pearce, OZ Minerals, Australia</i>
09:00	Design of a new layout for sublevel caving at depth <i>C Quinteiro, Luossavaara-Kiirunavaara Aktiebolag (LKAB), Sweden</i>
09:30	Full-scale experiments to measure the effect of crosscut height on recovery in sublevel cave mines <i>AD Campbell, The University of Queensland, Australia</i>
09:45	Effects of blast ring burden and explosive density on fragmentation and ore recovery in sublevel cave mines <i>AD Campbell, The University of Queensland, Australia</i>
10:00	MORNING BREAK

SESSION 7: RESEARCH AND INNOVATION



10:30	Benchmarking and its application for caving projects <i>IT Ross, CaveConsult Pty Ltd, Australia</i>
11:00	Automation in caving operations – the business case <i>J Mowen, M Allan, J Cronin, Resolute Mining Ltd, Australia</i>
11:30	Strategy for research and development in the cave mining industry <i>GA Ferguson, Seltrust Associates Ltd, UK; D Cuello, Newcrest Mining Limited, Australia; P Gandara, Codelco, Chile; Y Potvin, Australian Centre for Geomechanics and The University of Western Australia, Australia; E Rojas, Codelco, Chile</i>
12:00	The role of research in cave mining <i>SD McKinnon, Queen's University, Canada; GA Ferguson, Seltrust Associates Ltd, UK</i>
12:15	A systems approach to mining innovation <i>DM Morrison, V Drylie, Centre for Excellence in Mining Innovation, Canada; PO Labrecque, Labrecque Technologies Inc., Canada</i>
12:30	LUNCH – POSTER SESSIONS AT 12:45

SESSION 8: MINE PLANNING (2)

13:30	Grasberg Block Cave mine: cave planning and undercut sequencing <i>D Beard, C Brannon, Freeport-McMoRan Inc., USA</i>
14:00	Chuquicamata underground mine design: the simplification of the ore handling system of Lift 1 <i>P Paredes, T Leaño, L Jauriat, Codelco, Chile</i>
14:30	Maximising resource utilisation in scheduling of underground mining works with multiple faces <i>D Cortes, Y Martínez, Codelco, Chile; M Silva, Züblin, Chile</i>
14:45	Overview of mine scheduling for Oyu Tolgoi Underground project <i>S Fowke, B Groeneveld, Rio Tinto, Australia</i>
15:00	Development planning for the Oyu Tolgoi panel cave mine <i>K Crook, F Prince, Rio Tinto, Australia</i>
15:15	Influence of the undercut height on the behaviour of pillars at the extraction level in block/panel caving operations <i>E Hormazabal, R Alvarez, A Russo, D Acevedo, SRK Consulting, Chile</i>
15:30	AFTERNOON BREAK

SESSION 9: SEISMIC (1) TOOLS TO MANAGE SEISMIC RISK

16:00	Development and implementation of the Short Term Activity Tracker and Mine Control Trigger Response System <i>C Chester, D Cuello, Newcrest Mining Limited, Australia; G Basson, Institute of Mine Seismology, Australia</i>
16:15	Rapid assessment of the spatial extent of strong ground motion in mines – ShakeMap approach <i>S Meyer, Institute of Mine Seismology, Australia; J Doolan, C Chester, Newcrest Mining Limited, Australia; G Basson, Institute of Mine Seismology, Australia</i>
16:30	Physics-based hazard assessment tools for developing blanket re-entry rules <i>W de Beer, ESG Solutions, Australia; L Smith-Boughner, G Viegas, K Bosman, D Angus, ESG Solutions, Canada</i>

SESSION 10: SEISMIC (2) CAVE FRONT TRACKING

16:45	Tracking cave shape development with microseismic data <i>R Lynch, S Meyer, E Lötter, Institute of Mine Seismology, Australia; J Lett, Newcrest Mining Limited, Australia</i>
17:00	Application of sequential spatial clustering and fractal dimension to caving seismic event parameters of time, distance, and intensity <i>DM Cortolezzis, MR Hudyma, Laurentian University, Canada</i>
17:15	Identifying a migrating stress front using apparent stress for an unplanned rock mass cave <i>LG Brown, MR Hudyma, Laurentian University, Canada</i>
17:30	Mapping cave front growth utilising the collective behaviour of seismicity and velocity fields <i>G Viegas, K Bosman, D Angus, ESG Solutions, Canada; W de Beer, ESG Solutions, Australia; T Urbancic, ESG Solutions, Canada</i>
17:45	Major sponsor presentation: ESG Solutions
17:50	DAY TWO CLOSE

EAST MEETING ROOM 1-3

KEYNOTE ADDRESS & SESSION 11: DRAW CONTROL/FRAGMENTATION (2)

Session
Sponsor

BUILDING TRUST



- 08:00 KEYNOTE: TBA C Stegman, *Rio Tinto, Australia*
- 08:30 Footprint finder tool for sublevel caving T Diering, *Dassault Systèmes, Canada*; F Breed, *De Beers Group of Companies, South Africa*
- 09:00 REBOP-FLAC3D hybrid approach to cave modelling MA Fuenzalida, *Itasca Consulting Group, USA*; ME Pierce, *Pierce Engineering, USA*; T Katsaga, *Itasca Consulting Canada, Canada*
- 09:30 Integrated simulation and optimisation tools for production scheduling using finite element analysis caving geomechanics simulation coupled with 3D cellular automata S Arndt, *Monash University, Australia*; T Bui, *T Diering, Dassault Systèmes, Canada*; I Austen, *Newcrest Mining Limited, Australia*; R Hocking, *Oz Minerals, Australia*
- 09:45 Non-vertical cave and dilution modelling at New Gold's New Afton Mine J Parsons, *D Hamilton, New Gold, Canada*; C Ludwicki, *Dassault Systèmes, Canada*

10:00 MORNING BREAK

SESSION 12: SEISMIC (3) SEISMIC HAZARD CASE STUDIES

- 10:30 Leinster cave seismic risk management: a block cave solution M Hopkins, *R Rimmelin, A Landon, BHP, Australia*
- 11:00 The influence of stress and seismicity on the performance of a sublevel caving operation HCJ Esterhuizen, *Ernest Henry Mining, Australia*
- 11:30 Progression and management of seismic hazard through the life of Telfer sublevel cave MJ Woods, *ME Poulter, RG King, Newcrest Mining Limited, Australia*
- 12:00 Analysis of a damaging seismic event on 24 December 2011 in the Pilar Norte sector of El Teniente mine D Malovichko, *Institute of Mine Seismology, Australia*; D Cuello, *Newcrest Mining Limited, Australia*; E Rojas, *Codelco, Chile*
- 12:15 Evaluating the effect on seismicity of a hydraulic fracturing trial using Bayesian data analysis K Jonsson, *Luossavaara-Kiirunavaara Aktiebolag (LKAB), Sweden*; J Martinsson, *Luleå University of Technology, Luossavaara-Kiirunavaara Aktiebolag (LKAB), Sweden*

12:30 LUNCH

SESSION 13: SUBSIDENCE AND MONITORING

- 13:30 InSAR as a practical tool to monitor and understand large-scale mining-induced ground deformations in a caving environment K Mäkitaavola, *BM Stöckel, T Savilahti, Luossavaara-Kiirunavaara Aktiebolag (LKAB), Sweden*; J Sjöberg, *Itasca Consultants AB, Sweden*; J Dudley, *MA McParland, R Morin, MDA Geospatial Services, Canada*
- 14:00 Understanding and managing surface subsidence at New Gold's New Afton block cave operation AGL Davies, *DB Hamilton, New Gold Inc., Canada*; MA Clayton, *BGC Engineering, Canada*
- 14:30 Development of a monitoring network for surface subsidence at New Gold's New Afton block cave operation MA Clayton, *M Dugie, A LeRiche, C McKane, BGC Engineering Inc., Canada*; A Davies, *New Gold Inc., Canada*
- 14:45 InSAR monitoring of subsidence induced by underground mining operations G Falorni, *S Del Conte, TRE ALTAMIRA Inc., Canada*; F Bellotti, *D Colombo, TRE ALTAMIRA s.r.l., Italy*
- 15:00 Testing the suitability of radio frequency identification cattle tags for tracking block cave progression ML Wilson, *GJ Van Hout, FF Dean, Rio Tinto, Australia*
- 15:15 Application of telepresence systems for accelerated re-entry and inspection after seismic events J Cronin, *Australian Droid + Robot, Australia*; D Gilbreath, *Rajant Corporation, USA*

15:30 AFTERNOON BREAK

SESSION 14: GROUND SUPPORT

- 16:00 Characterising the behaviour of rockbolts based on in situ pull tests J Hadjigeorgiou, *P Tomasone, University of Toronto, Canada*
- 16:15 Discrete element modelling of a laboratory static test on welded wire mesh RE Karampinos, *B Baek, J Hadjigeorgiou, University of Toronto, Canada*
- 16:30 An empirical comparison between new and existing laboratory-based dynamic sample configurations G Knox, *A Berghorst, P de Bruin, New Concept Mining, South Africa*
- 16:45 Rapid mine development using efficient in-cycle shotcrete F Erisman, *B Lindlar, Sika Services AG, Switzerland*; C Munoz, *Sika, Chile*; M Hansson, *Sika Services AG, Sweden*; R Erlangga, *Sika Indonesia, Indonesia*
- 17:00 Numerical modelling of dynamic testing for rock reinforcement used in underground excavations E Marambio, *JA Vallejos, L Burgos, University of Chile, Chile*; C Gonzalez, *MIRARCO Mining Innovation, Canada*; L Castro, *JP Saure, Compañía Siderúrgica Huachipato, Chile*; J Urzúa, *Teiko Ingeniería Ltda., Chile*

SESSION 15: CAVING DATA

- 17:15 Using a structured data management system to improve mine development efficiencies E Savage, *T Moorcroft, Oyu Tolgoi LLC, Mongolia*; S Talu, *Rio Tinto, Australia*
- 17:30 Geotechnical data collection and approach to modelling for the Cukaru Peki deposit K Llewelyn, *SRK Consulting (UK) Limited, UK*; J Jakubec, *SRK Consulting (Canada) Inc., Canada*; R Goddard, *SRK Consulting (UK) Limited, UK*; P Stenhouse, *Polyphase Consulting Ltd, New Zealand*
- 17:45 Major sponsor presentation: Sika
- 17:50 Closing address and farewell
- 18:05 SYMPOSIUM CLOSE