Objectives
The objective of Tailings and Mine Waste ‘18 is to provide a forum for presenting the state-of-the-art with respect to mill tailings and mine waste practice, and to discuss current and future issues facing the mining and environmental communities.

Background
Tailings and Mine Waste ‘18 is a continuum of a series of symposia on mill tailings management that originally started at Colorado State University in 1978 and subsequently progressed as the annual Tailings and Mine Waste Conferences 1994 through 2004. The conference resumed in 2008. The primary purpose of the conference is to provide a forum and meeting place for members of the mining community, engineers and scientists serving the mining industry, regulatory groups and other interest groups concerned with environmental issues related to tailings and mine waste management. Topics related to the engineering and management of tailings and mine waste will be covered, including geotechnical considerations, geochemistry, mill tailings, site design and operations, water management, remediation & reclamation, risk informed decision making, failures, imaging analysis, and new technologies.

Venue
The conference will be held at the Keystone Resort in Keystone Colorado http://www.keystoneresort.com. The Resort sits at the base of Dercum Mountain, an internationally acclaimed ski resort, located about 90 miles west of Denver. The major airport to use is Denver International Airport. Keystone enjoys a clear, dry climate year-round. While sunny skies are the norm at this time of year, please keep in mind that in October, a sudden snowstorm may occur, so plan your dress and travel time accordingly.

Organizing Committee and Sponsors
Christopher Bareither, Conference Chair, CSU, Fort Collins, CO
Jason Hilgers, AECOM, Denver, CO
Kurt Schimpke, Barr Engineering Co., Minneapolis, MN
Mike Henderson, BGC Engineering, Montrose, CO
Andy Jung, CETCO, Evergreen, CO
Shawn Steiner, ConeTec, Inc., Salt Lake City, UT
Daniel D. Overton, Engineering Analytics, Fort Collins, CO
Dean Durkee, Gannett Fleming, Phoenix, AZ
Brent Bronson, Golder Associates, Inc., Lakewood, CO
Kate Patterson, Klohn Krippen Berger, Ltd.
Jim Cremeens, Knight Piésold Consulting, Denver, CO
Carlo Cooper, MineBridge Software Inc., Calgary, A.B.
Nicholas Rocco, NewFields, Denver, CO
Matt Bachman, Paterson & Cooke, Denver, CO
Jack Caldwell, Robertson & Partners GeoConsultants, Inc., Vancouver, B.C.
Larry Cope, SRK Consulting, Inc., Fort Collins, CO
Melanie Davis, Stantec, Denver, CO
Daryl Longwell, TetraTech, Fort Collins, CO
Matt Fuller, Tierra Group International, Ltd., Lakewood, CO
Brett Byler, Wood, Englewood, CO
Dave Sego, University of Alberta, Edmonton, AB
Dirk van Zyl, University of British Columbia, Vancouver, BC

Community Sponsor
Anddes Asociados SAC
In conjunction with this conference, we are pleased to be able to offer the following five short courses to be held on Sunday, September 30, 2018.

**Alternative Tailings Technologies: Reducing the Risk**
Presented/Moderated by:
- **G. Ward Wilson**, University of Alberta
- **Bjorn Weeks**, Golder Associates, Canada
- **Kristen Salzsauler**, Golder Associates, Canada
- **Ben Wickland**, Golder Associates, Canada
- **Sue Longo**, Golder Associates, Canada

Keystone Conference Center
Registration: 8:00 AM – Course 8:30 AM – 5:00 PM

**OVERVIEW**
The course presents a state of practice summary with practical considerations for alternate tailings disposal technologies to tailings dams with a water pond. The course will include: an overview of tailings disposal methodologies, geotechnical and geochemical risks and mitigations associated with tailings facilities, a technology primer and implementation considerations for tailings dewatering and co-disposal of tailings with waste rock, and closure considerations.

The course focuses include a broad overview and advanced technical content regarding tailings facility operation, principles of unsaturated soil mechanics, seepage flow, soil mechanics, and acid rock drainage/ metal leaching. The course is suitable for industry practitioners, regulators, stakeholders, students, and mine owners with at high school to Ph.D. level of education.

**Covered in Course**
- Introduction
- Overview of state of practice for mine waste disposal
- Risks and Geotechnical Hazards of tailings facility
- Geochemistry of tailings
- Dewatering tailings for disposal
- Co-disposal of tailings
- Closure of Tailings Facilities
- Questions

**FEE**
The course fee is $500 Regular and $250 for students. On-site registration will be on a space available basis. A minimum number of registrants is required. The registration fee includes continental breakfast, lunch and course notes.

**Building Dynamic Probabilistic Simulation Models for Mine Water and Waste using GoldSim**
Presented/Moderated by:
- **Rick Kossik**, GoldSim Technology Group
- **Jason Lillywhite** Goldsim Technology Group

Keystone Conference Center
Registration: 7:30 AM – Course 8:00 AM – 5:00 PM

**OVERVIEW**
The primary goal of this Course is to provide an introduction to the use of probabilistic, dynamic simulation for mine water and waste management. By necessity, in order to be “hands-on”, the Course will focus on the use of a specific tool (GoldSim), but will cover many topics required to carry out such analyses using any similar tool.
Although the Course is primarily designed for those who are new to probabilistic simulation, more experienced modelers (including existing GoldSim users) are also likely to find the Course to be of value. Although this approach can be applied to both water and material balance and water quality modeling, given the time constraints, the Course will focus on water and material balance modeling.

GoldSim is perhaps the most widely used tool (the most widely used alternative being spreadsheets) for building water balance (and water quality) models for mines. It has been used at hundreds of mine sites worldwide by the world’s largest mining companies, as well as by nearly 100 consulting firms that support the industry.
The specific objectives of the Course are as follows:

- To provide an overview of the kinds of mine water and waste management problems that can be addressed using dynamic, probabilistic simulation.
- To explain the fundamental concepts associated with dynamic, probabilistic simulation, including a detailed explanation of how simulation tools carry out their calculations. This is critical; as a general rule, you should not use “black boxes” to build models. If you don’t understand how a tool works, you should not use it.
- To teach the basic concepts required to allow attendees to actually build some simple water balance models during the Course (using GoldSim).
- To discuss some of the most critical issues that need to be properly addressed when building realistic mine water and waste management models (e.g., representing stochastic rainfall and runoff, representing time-variable stage-storage curves associated with tailings facilities, representing control logic used for pumping).

This Course is primarily intended for engineers who are actually responsible for building water management models for a mine. However, the Course will be structured so that it will be of value to others who do not need to actually build the models, but need to understand how to use them.

**FEE**
The course fee is $400 regular; $200 for student. On-site registration will be on a space available basis. A minimum number of registrants is required. The registration fee includes continental breakfast, lunch and course notes.

**Tailings 2.0: A Two-pronged Approach to Deliver Value and Comply with Societal Demands in the XXI Century**
Presented/Moderated by:
- Franco Oboni, Riskope Associates, Inc.
- Cesar H. Oboni, Riskope Associates, Inc.
- Micheal Henschel, MDA
- Roger Morin, MDA

Keystone Conference Center
Registration: 7:30 AM – Course 8:00 AM – 5:00 PM

**OVERVIEW**
This course will show how a seamless two pronged approach consisting of Space Observation and Quantitative Risk Assessment synergy deliver value to the mining industry and regulators. It will show how modern Space Observation (a mix of radar and optical satellite image data, as well as specific algorithms) can become input into a Quantitative Risk Assessment (QRA) platform.

It describes a QRA platform capable of using that “Rich Data” context to deliver an enhanced, updated risk landscape of a project or operation. The QRA platform has to be updatable, scalable, drillable and convergent to maximize benefits.

This course provides case histories of specific applications where this joint technology delivers clear benefits to miners and governments, allowing for better Risk-Informed Decision Making, which in turn generates value.

The two pronged approach brings significant advantages to mining end-users, whether they are mining managers, tailings stewards, other key stakeholders, or the general public.

By virtue of this joint technology it is also possible to identify emerging crises; check and update alert thresholds and, in timely and orderly manner, update probabilities and all other significant hazards and risk parameters. This allows to understand where projects or operations stand in term of risk mitigation at discrete and up to almost real-time pace, if and when required.

During the day the course will work through all the phases of the approach (based on the ORE methodology - Optimum Risk Estimates- ©Oboni Riskope Associates Inc.), including:

- System definition
- Success/failure criteria.
- Delivered data
- “Rich Data” context
- What methods to use for probabilistic estimates?
- Hazards Identification
- Simplified breach analyses
- Multi-dimensional consequences analyses
- Risks
- Risk tolerances
- Dashboards
- Decision-making (alternative selection, mitigation, resilience enhancements, etc.)
- Actions (includes communication)
- Back to the start: monitoring, new data, etc.

**FEE**
The course fee is $600 regular; $250 for student. On-site registration will be on a space available basis. A minimum number of registrants is required. The registration fee includes continental breakfast, lunch and course notes.

**Mining Association of Canada’s Guidance on Tailings Management**
Presented/Moderated by:
- Charles Dumaresq, Mining Association of Canada
- Michael Davies, Teck Resources, Canada

Keystone Conference Center
Registration: 12:30 PM – Course 1:00 PM – 5:00 PM

**OVERVIEW**
This short course will provide an in-depth examination of the principles of responsible tailings management, with a focus on risk management and continual improvement. The
session will be based on two key guidance documents on tailings management produced by the Mining Association of Canada (MAC):

- A Guide to the Management of Tailings Facilities (the Tailings Guide); and
- Developing an Operation, Maintenance and Surveillance Manual for Tailings and Water Management Facilities (the OMS Guide)

Responsible tailings management is an important focus of MAC, the national industry association for mining in Canada. MAC released the first edition of the Tailings Guide in 1998, followed by the OMS Guide in 2003. In 2004, MAC established the Towards Sustainable Mining® (TSM®) initiative, with tailings management as a core component. Implementation of TSM at Canadian operations is a condition of MAC membership, and it is also being applied by members at operations around the world. In addition, TSM has been adopted by industry associations in Finland, Spain, Botswana, Argentina and the Philippines.

The Tailings Guide and OMS Guide are written for both Canadian and international audiences and are in use world-wide, and are recognized as leading practice. They are freely available and can be implemented at any site, regardless of whether TSM is being applied.

The Tailings Guides describes a management systems approach to tailings governance and management, building on principles in the ISO 14000 standards on environmental management, but tailored to the unique considerations and challenges of tailings management. The intent of the Tailings Guide is to facilitate the development and implementation of facility-specific tailings management systems that address the specific needs of individual Owners and tailings facilities across the entire life cycle. The Tailings Guide does not provide technical guidance or standards for tailings facility design, construction or operation.

The third edition of the Tailings Guide was released in 2017 and reflects the outcomes of comprehensive internal and external reviews of the tailings management component of TSM, which were initiated in 2015. These reviews considered lessons learned and the evolution of best practices for tailings management in Canada and internationally.

The third edition of the Tailings Guide retains a strong emphasis on management systems, while strengthening technical components, especially those critical to the physical and chemical stability of tailings facilities. The Tailings Guide is also consistent with the International Council of Mining & Metals’ Tailings Governance Framework. The third edition strengthens key concepts, including: integrating a risk-based approach into tailings management systems; selecting and implementing best available technologies and best available practices; designing and operating for closure; and independent review.

The OMS Guide provides guidance on developing site-specific operation, maintenance and surveillance manuals as an integral component of optimizing tailings facility performance and managing risk. MAC is currently finalizing the second edition of the OMS Guide, which is expected to be released before the end of 2018. The second edition of the OMS Guide underscores the importance of developing OMS manuals on a site-specific basis, and: integrates a risk-based approach and critical controls management; strengthens guidance on developing and updating OMS manuals; and establishes clear linkages with emergency preparedness and response planning.

Short course participants will be provided with in-depth presentations on the Tailings Guide and OMS Guide, and will have opportunity to ask questions and discuss the guidance and concepts presented on both documents.

**FEE**

The course fee is $250 regular; $20 for students. On-site registration will be on a space available basis. A minimum number of registrants is required. The registration fee includes continental breakfast, lunch and course notes.

**Modeling Aspects of Tailings Disposal Facility Design—Prediction of Storage Capacity**

Presented/Moderated by:
Dirk van Zyl University of British Columbia
Dobroslav Znidarcic, University of Colorado, Boulder
Gordan Gjersapic, Golder Associates, inc.

Keystone Conference Center
Registration: 8:00 AM – Course 8:30 – 5:00 PM
LAPTOPS REQUIRED

**OVERVIEW**

The short course presents the current state of practice for sedimentation, consolidation and desiccation analyses with an emphasis on predicting tailings settlements, an essential component for the successful Tailings Disposal Facility (TDF) design. The theoretical framework for the Analyses will be covered at a basic level including conventional consolidation approach, as well as the more advanced concepts based on material coordinates in order to provide practitioners with tools to perform different types of settlement analyses. The course will cover both the experimental and analytical procedures used for testing of tailings materials in order to obtain relevant material characteristics for numerical modeling. Participants will be provided with simple spreadsheet based algorithms to solve typical consolidation problems encountered in tailings disposal and closure operations. In addition, participants will be provided with the beta version of a more advanced software for solving one-dimensional and three-dimensional consolidation problems.

The intent of the course is to provide participants with a working knowledge on how to collect necessary data for storage capacity calculation, how to select representative samples for testing and how to analyze and interpret results of the analyses. The participants will be given “hands-on” introduction in using advanced consolidation models, though additional training might be needed to perform the analyses independently.
The course fee is $500 regular and $100 for students. On-site registration will be on a space available basis. A minimum number of registrants is required. The registration fee includes continental breakfast, lunch and course notes.

TENTATIVE CONFERENCE PROGRAM

Sunday, September 30, 2018
Preregistration and Reception (Cash Bar)
Exhibit Hall—Columbine Room
6:30—8:30 PM

Day One—Monday, October 1, 2018
7:00 AM—5:00 PM Registration
Columbine Foyer
7:30—8:30 AM Presenters’ Breakfast—
7:30—8:30 AM Continental Breakfast—Exhibit Hall
Columbine Ballroom

Introductions
8:30—9:00 AM

Keynote Speaker
Dr. Peter Robertson
9:00—10:00 AM Shavano Peak

Session 1A Geotechnical Considerations 1
10:30 a.m.—Noon Shavano Peak
• Toward the Sensible Use of Tailings Filtering Technology
  B. Ulrich and J. Rogers
• Filter-Pressed Dry Stacking: Design Considerations Based on Practical Experience
  C. Crystal, C. Hore, and I. Ezama
• Compression Behavior of Filtered Tailings and Waste Rock Mixtures: GeoWaste
  C.A. Bareither, M.H. Gorakbbki, J. Scalia, and M. Jacobs
• The Shear Strength of Filtered Tailings and Waste Rock Blends
  R. Burden, D.J. Williams, G.W. Wilson, and M. Jacobs

Session 1B Geochemistry 1
10:30 a.m.—Noon Shavano Peak
• Geochemical Behavior of Different Waste Rock Configurations from the Lac Tio Mine: Comparison between Column Tests and Experimental Waste Rock Pile Results
  B. Poaty, B. Plante, B. Bussière, M. Benzaazoua, T. Pabst, V. Martin, M. Thériault, and P. Nadeau
• Pile Scale Models for Acid Rock Drainage Prediction and Their Application
  L. Ma, C. Huang, and K.A. Morin
• Bench-Scale Nitrate and Sulphate Biochemical Reactor Case Study, Amulsar Mine, Armenia
  J.J. Gusek, G. Fattore, L.P. Josselyn, and A. Aghbajanyan
• Passive Arsenic and Manganese Removal in Neutral Mining Influenced Water
  T. Wildeman and F. Vasconcelos

Session 1C Reclamation & Remediation 1
10:30—Noon
• Synergy between Operation and Closure of the Orcopampa Mine
  A.B. Fernandez Canchos
• Evaluation of Physical Parameters in Environmental Desulfurization by Flootation for Production of Reclamation Cover-suitable Desulfurized Tailings
  J. Guimond-Roussoin, I. Demers, and C. Rocard
• Remediation Design of a Uranium Mill Tailings Pond
  Y. Koitzsch, S. Metzker, A. Mühl, U. Barnekow and M. Speer
• Closure of Abandoned and Derelict Asbestos Mines: Design, Construction and Monitoring
  R. Mayne, X. Adams, and W. Naidoo

Session 1D Risk-Informed Decision Making
10:30—Noon
• Assessment of Design and Operating Practices on the Risks Associated with Waste Rock Stockpiles
  L. Piciacchia, B. Larrieu, J. Masquer, and Z. Bouazza
• Risk Informed Design of a Large Scale, Lined Tailings Storage Facility
  L.I. Bosbaff, R.W. McNeill, and M. Boroko
• Risk Management by Tailings Storage Facility Dam Classification
  C. Johns and D. Hasanloo
• Assessing Mine Site or Tailings Facility Water Management Risks by Integrating Tailings Deposition and Water Balance Modeling
  K. Patterson, M. Liew, and R.W. Chambers

Noon—1:30 PM Lunch—Exhibit Hall
Columbine Ballroom

Session 2A Geotechnical Considerations 2
1:30—3:00 PM Shavano Peak
• Scale-effect Considerations for Shear Strength Assessment of Coal Mine Spoil
  L.R. Bradfield, S.G. Fitzus, and J.V. Simmons
• Fine Coal Refuse – 25 Years of Field and Laboratory Testing Data and Correlations
  B.E. Genes, G. Castro, T.O. Keller, F. Ciloglu
• Geotechnical Considerations to Reduce Adverse Impacts of Mine Waste Rock Dumps on the Environment
  R.B. Kaunda
• Unsaturated behavior of Suncor coke, Suncor Sand and Mature Fine Tailings
  E. Abazari, D. Sego, and G.W. Wilson
Session 2B Design & Operation 1
1:30—3:00 PM
- Leading versus Lagging Indicators of Tailings Dam Integrity
  J. Boswell and J. Sobkowicz
- Alternative Approaches to Management and Closure of Tailings Storage Facilities
  D.J. Williams
- Benefits of Rotational, Thin Layer, Air Dried Tailing Deposition after 25-Years of Operation of the Juniper Tailing Storage Facility
  A.H. Gipson, Jr., J. Taylor, J. Chilson, B. Hutchings, and J. Gilbert
- Tailings Facility Performance: 2017 & 2018
  C. Strachan and J.A. Caldwell

Session 2C Reclamation & Remediation 2
1:30—3:00 PM
- How Plant Water Use Efficiency Can Inform Evapo-transpirative Cover Design
  R. Murphy and J. Dillon
- Monitoring a Cover Performance Test Section on a Uranium Mill Tailings Management Cell
  M.M. Davis, C.H. Benson, E.F. Redente, and H.R. Roberts
- Effectiveness of Oxygen Barriers under Climate Change: Definition of a Drought Index
  É. Bresson, I. Demers, Y. Chavaillaz, P. Roy, and T. Pabst
- Soil Health & Biotic Soils via 5 Fundamentals for Sustainable and Cost Effective Mine Rehabilitation
  M.D. Robeson and A. Jung

Session 2D Site Investigation 1
1:30—3:00 PM
- Site Characterization throughout the Tailings Facility Life Cycle
  M. Malgesini, L. Aubone, R. Hunsaker, and W. Boyd
- Magnetometric Resistivity as an Effective Tool for Leakage Detection and Monitoring
  M. Jessop, V. Kofod, K. Wall, A. Revi, and A. Jardani
- Non-Invasive Geophysics for Active Mining Sites
  S. Calendine and D. Rucker
- Satellite-based Repeat Surveying of Tailings: A Cost-effective Alternative to Aerial Surveying
  G. Mitchell, J. Turner, and J. Engels

3:00—3:30 p.m. Break—Exhibit Hall Columbine Ballroom

Session 3A Geotechnical Considerations 3
3:30—5:00 PM Shavano Peak
- Review of Alternative Tailings Disposal Methods for Water Management
  C.L. Strachan
- Desiccation of Tailings in an Instrumented Column under Laboratory and Atmospheric Conditions
  D.J. Williams, S. Quintero, C. Zhang and X. Lei
- Improved Methodology for TSF Capacity Prediction
  G. Gjerup and D. Znidaric
- Assessing Oil Sands Tailings Consolidation Parameters Relative to Long-term Reclamation
  H. Rourke and D. Hockley

Session 3B Geochemistry 2
3:30—5:00 PM
- Minimization, Treatment, and Monitoring of Acid Waters Generated in the Prometida Mine Waste Dump
  C. Del Castillo Macedo
- Understanding Mineralogical Composition, Weathering, and Alteration to Manage ML/ARD in a Base-Metal Tailings Storage Facility
  J. Durocher and L. Robertson
- Solidification of Acid Mine Drainage by Sodium Silicate
  B. Koobestani, E. Yilmaz, and E. Yilmaz
- Impact of Calcium Hydroxide on the Equipment and Process of Oil Sands Tailings Treatment
  K. Rabal, J. Fox, J. Leikam, M. Tate, and N. Romanik

Session 3C Design & Operation 2
3:30—5:00 PM
- Design of a Centerline Method Tailings Dam using Mine Waste Rockfill in Perú
  P.W. Ridlen, T.F. Kerr, G. Dominquez, J-B Varnier, and J. Toro
- Guidance for the Safe and Optimized Operation of Waste Rock Facilities
  J.A. Vides, L. Piacchia, and V. Marefat
- Mine Waste Rock Storage Facilities Design, Construction, and Operation as Engineered Structures
  L. Piacchia, J.A. Vides, and J. Mosquerz

Session 3D Geosynthetics
3:30—5:00 PM
- Vertical Expansion of a 41-m High Geosynthetic Reinforced Soil Slope
  F. Herrera, L. Chabana, E. Murrugarra, and D. Reaño
- A New Safe and Sustainable Approach for Constructing Ballast Layers for Waste Containment Facility Liner Systems
  C. Cilliers and M. Briers
- Lessons Learned on the Performance of Multi-Linear Drainage Geocomposites for Mining Applications
  P. Saunier and E. Blond
- Critical Strength of High Peel Strength Geosynthetic Clay Liners at Low Normal Stresses
  S. Ghazizadeh and C.A. Bareither

5:30—7:30 P.M. Reception—Exhibit Hall Columbine Ballroom
Day Two—Tuesday, October 2, 2018
7:30 AM—5:00 PM  Registration
Colombine Foyer
7:30—8:30 AM  Presenters’ Breakfast
8:00—9:00 AM  Continental Breakfast—Exhibit Hall
Colombine Ballroom

Keynote Speaker  Dr. John Lupo
9:00—10:00 a.m.  Shavano Peak
Topic:  *TSFs, Risk and the Human Element*

10:00—10:30 PM  Break—Exhibit Hall
Colombine Ballroom

<table>
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<tr>
<th>Session 4A Geotechnical Considerations 4</th>
<th>10:30—Noon  Shavano Peak</th>
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</table>
| • Undrained Shear Strength Evolution with Loading on an Undisturbed Block Sample of Desiccated Gold Tailings  
  D. Reid, A. Fourie, J. Castro, and J. Lupo |
| • Platinum Tailings – Field and Laboratory Investigation to Evaluate Geotechnical Behaviour  
  A. Smith and H.A.C. Meintjes |
| • Comparing CPT and Vs Liquefaction Triggering Methods for Mine Tailings  
  R. Moghaddam, Y. Mao, and S. Kam |
| • Static Liquefaction of Tailings: A South African Perspective on Rate of Rise  
  H.C. Ungerer and W. Kruger |

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<tr>
<th>Session 4B Design &amp; Operation 3</th>
<th>10:30—Noon</th>
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| • Investigating the Effect of Pre-shear Prior to Flocculation  
  C. Torres López, M.L. Catling, J. Bellwood, and L. Boxill |
| • Design Considerations for Distributed Tailings Deposition Systems  
  J. Stowe, R. Cooke, I. Farrell, and R. Martinson |
| • Selecting the Optimum Solids Concentration for Transport in an Iron Ore Mine  
  J.L. Cuervo, A. Fernández Iglesias, A.C. de Araujo, and F.A. Vasconcelos |
| • Lime as an Additive for Oil Sands Ore-Water Slurry Based Bitumen Extraction, Tailings Disposal and Fluid Fine Tailings Dewatering Processes  
  S. Arnpally, R. Burden, J.D. Scott, and B. Ozum |

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<tr>
<th>Session 4C Reclamation &amp; Remediation 3</th>
<th>10:30 - Noon</th>
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| • Assessment of CCBE Performance with Climate Change: Case Study of the Lorraine Mine Site  
  G. Hotton, E. Bresson, B. Bussière, I. Demeri, P. Thomas, and R. Philippe |
| • High Resolution Estimation of Tailings Facility Evaporation Using Landsat Data  
  J. Keller, J. Hendrickx, M. Milezarek, F. Partey, and M. Geidts |
| • Repurposing Mine Sites – A Win for Owners, Colorado, and the Environment  
  J.R. Almon and S.L. Borden |
| • Mine Waste Remediation as a Stepping Stone for New Contractors in Emerging Economies  
  X. Adams, B. Engelsman, and R. Mayne |

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<tr>
<th>Session 4D Water Management</th>
<th>10:30—12:00</th>
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| • Mine Tailings Drainage: A Bottoms Up Approach using HDD Well Installation Methods  
  J. Gallagher and D. Bardisky |
| • Improving Water Management in the Orcopampa Mine  
  J.C. Gabriel Espinoza |
| • Optimizing Tailings Deposition and Water Management for a Mine in Ontario, Canada  
  R. Conto and P. Merry |
| • Operational Improvements through Installation of Seepage Cutoff Wall using Soil Mixing  
  I. Contreras and G.K. Bryant |
| 12:00—1:30 PM  Lunch—Exhibit Hall  
  Colombine Ballroom |

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<tr>
<th>Session 5A Geotechnical Considerations 5</th>
<th>1:30—3:30 PM  Shavano Peak</th>
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| • Adjustments to Tailings Deposition with Thickened Tailings in Svappavaara  
  S. Töyrä, P. Marthin, K. Jokinen, and D. Lundell |
| • Frozen Core Tailings Dam: Part 1, Long-Term Thermal Performance  
  M. Rykaart, P. Luedke, and C.W. Stevens |
| • Frozen Core Tailings Dam: Part 2, Long-Term Creep Deformation  
  M. Rykaart, A. Barrero, and A. Lizzano |
| • Thermal Cover Design for Mine Waste Facilities in Cold Regions  
  C.W. Stevens, T. Shapka-Fels, and M. Rykaart |

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<tr>
<th>Session 5B Geochemistry 3</th>
<th>1:30—3:00 PM</th>
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| • Mitigation and Treatment Options for Selenium Control in Mine-site Runoff  
  D. Jackson |
| • Direct Extraction Lithium Processes: The Challenges of Spent Brine Disposal  
  I. Ezama, C. de los Hoyos, P. Cortegoso and T. Braun |
| • Geotextile Dewatering of Acid Mine Drainage Precipitates  
  K.J. Westhaver, K. Zimmermann, N. Devaere, D.R. Latulippe, R. Mafi, and E. Ausch |
Session 5C Site Investigation 2
1:30—3:00 PM
- Time Domain Reflectometry Measurement of Soil Water Content and Electrical Conductivity of Oil Sand Tailings, Suncor Sand and Suncor Coke
  E. Abazari, D. Sego, and W. Wilson
- EGT – Innovative Fine Granular Material Sampling Technique
  J-F. St-Laurent
- Geotechnical and Structural Monitoring System Deployment for the Spillway of a Dam at Padcal Mine in the Philippines
  V. Le Borgne, A. Coentini, S.-É. Thivierge and J.-M. Bribé
- A Geotechnical Monitoring System to Support Implementation of the Observational Method at Teck Highland Valley Copper
  G. Afriyie, B. Bale, and C. Anderson

Session 5D Regulations
1:30—3:00 PM
- Changes to Tailings Dam Regulation in Brazil in the Aftermath of Failures
- Update on Tailings Dam Safety and Regulation in the United States
  C.F. Cobb
- Impact of Changes in Water Use Policy and Legislation on Mine Waste Water Management Infrastructure – A Case Study of In-Line Attenuation Ponds
  W. Naidoo and P. Janse van Rensburg

3:00—3:30 PM Break—Exhibit Hall Columbine Ballroom

Session 6A Geotechnical Considerations 6
3:30—5:00 PM
- Characterization and Field Performance of Long-Term Settlement Behavior of a Tailings Pile
  B.F.H. Foster, B.N. Lingwall, S.T. Parkhill and M.D. Moriarty
- Essential Issues for Testing and Modeling of Tailings Exhibiting Creep
  D. Perić, G. Gjerapić, and D. Znidarčić
- Creep Displacements Induced from Waste Rock Loading
  J. Kurylo, M. Rykaart, and A. Lizcano
- Vacuum Consolidation of Mature Fine Tailings
  E. Abazari, D. Sego, and G.W. Wilson
- Learnings from Real-time Pore Pressure Monitoring at a Platinum Tailings Facility
  L. Boshoff, H.A.C. Meintjes, M. Boroko
- System Dynamics Approach to Tailings Management Simulation
  T. Zheng and N. Beier
- Practical Nomograms for Waste Rock Piles Design on Competent Foundations
  L. Piciacchia, V. Marefat, and A. Vides

CONFERENCE CLOSES

CONFERENCE INFORMATION

Presenters’ Breakfasts
Presenters should come to the presenters’ breakfast on the day they are presenting to meet with their session chairman to discuss the format of their session and introduction of their papers.

Registration Information
Authors’ Registration: Authors’ registration discounts pertain only to the author(s) presenting the paper at the conference. Registration fees for those presenting papers will be discounted $50.00 (U.S.) from the participant registration, which is $825.00 and must be paid by September 14, 2018, 5:00 pm MDT. The registration fee after September 14, 2018, or on site for those presenting a paper is $925.00.

Participant Registration: There is an advance registration fee of $875.00 (U.S.) if paid by 5 pm MDT, September 14, 2018. The registration fee after September 14, 2018 or on site is $975.00 (U.S.).

The presenter and participant registration package includes attendance at all sessions, refreshment breaks and lunches.

All registrants will receive a USB of the proceedings.

One-Day Registration: There is a one-day registration fee of $675.00 (U.S.) per day for Monday (10/01/18), or Tuesday (10/2/18) if paid by 5 pm MDT, September 14, 2018. The one-day registration fee after September 14, 2018 or on site is $775.00 (U.S.). There is no author discount for one-day registrations. The one-day registration package includes attendance at all sessions, refreshment breaks and lunches.
**Student Registration:** Students fully enrolled at a university, college, or high-school may register for a fee of $200.00 (U.S.) if paid by 5 pm MDT, September 14, 2018. The registration fee after September 14, 2018 or on site is $275.00 (U.S.). Please provide an adviser letter or other verification of student status along with submission of registration form. The student registration package for the conference includes all items under the general package.

**CE Units:** Colorado State University Division of Continuing Education will grant Continuing Education Units (CEUs) after successful completion of the conference. A recording fee of $50.00 is required for those desiring to receive CEUs.

**TO REGISTER ON-LINE:**
[https://conferencereg.colostate.edu/Registration/Welcome.aspx?e=ACDBD74794E98F4F588BDF0035505496](https://conferencereg.colostate.edu/Registration/Welcome.aspx?e=ACDBD74794E98F4F588BDF0035505496)

**VENUE/ACCOMODATIONS**
Keystone Resort is holding a room block for the use of Group attendees until midnight September 1, 2018. Late reservation requests will be handled on a space available basis and room rates will be honored. For Group attendees wishing to extend their stay, rates will be honored (3) days prior and three (3) days after the dates the dates of the conference, subject to and limited by space availability. Check-in time is after 4:00PM. and check-out time is before 11:00AM. Luggage storage will be offered for early arrivals or late departures.

<table>
<thead>
<tr>
<th>Room</th>
<th>Single Rate/Double Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keystone Lodge &amp; Spa</td>
<td>$169.00</td>
</tr>
<tr>
<td>Keystone Lodge &amp; Spa Loft</td>
<td>$210.00</td>
</tr>
<tr>
<td>The Hyatt Place Lodging</td>
<td>$149.00</td>
</tr>
<tr>
<td>Inn at Keystone 1-Bedroom Suite</td>
<td>$169.00</td>
</tr>
<tr>
<td>Conference Village Studio</td>
<td>$159.00</td>
</tr>
<tr>
<td>Conference Village 1 Bedroom</td>
<td>$169.00</td>
</tr>
<tr>
<td>Conference Village 2 Bedroom</td>
<td>$210.00</td>
</tr>
</tbody>
</table>

In addition to the rates above, there is a daily resort fee of $17.00 per room, per night. This includes: complimentary parking, internet access in guest rooms and public areas, use of the Business Center and Fitness Center, pool and other amenities.

Keystone reservations may be made on-line at [http://www.engr.colostate.edu/ce/Tailings/venue.shtml](http://www.engr.colostate.edu/ce/Tailings/venue.shtml) The Keystone reservations phone number is (800) 258-0437. Please refer to the group code CN8MIN when making a reservation. Reservations require one (1) night's deposit in the form of a credit card when the reservation is made. If a reservation is made within thirty (30) days of arrival, full payment is due at such time. After a deposit is received, a confirmation will be sent. Keystone will offer transportation packages to attendees making individual reservations.

Individual cancellations within thirty (30) days of arrival are subject to forfeiture of full deposit amount. Individual cancellations outside of thirty (30) days of arrival will result in a refund of the deposit less a $30.00 processing fee.

**TRANSPORTATION**
Travel from Denver International Airport (DIA) to Keystone can be by rental car, bus or limousine. Keystone is about a two-hour drive from DIA via Interstate I-70. Colorado Mountain Express offers a shuttle service from DIA to Keystone. When making a reservation mention “Tailing” to get a discounted rate of $56.00 one-way. They have a regular scheduled route to and from Vail and DIA. You may call them at 1-800-334-7433 or register on-line: [http://coloradomountainexpress.hudsonltd.net/res?USERIDENTRY=TAILING18&LOGON=GO](http://coloradomountainexpress.hudsonltd.net/res?USERIDENTRY=TAILING18&LOGON=GO)