

MYTHS AND REALITIES OF TAILINGS DEWATERING

- When:** Tuesday, 31 August 2021 @7AM Vancouver; 8AM Denver, 10AM Santiago
- Presenter(s):** Kate Patterson, KCB; Rachel Jensen, Paterson & Cooke; Guillaume Tremblay, Rio Tinto; Michael Davies, Teck Resources Ltd., John Lupo, Newmont; Caius Priscu, UBC (Moderator)
- Language:** English, with live Spanish interpreters
- Length:** 2.5 hrs
- Description:** This live technical workshop, **organized by the Norman B. Keevil Institute of Mining Engineering at the University of British Columbia**, will discuss the latest trends and practices on the topic of tailings dewatering and sustainable tailings management. Myths will be debunked, and realities will be uncovered by five specialists from around the world, related to tailings dewatering systems and processes. Speakers represent well established and respected consulting engineering firms, owners and operators of tailings storage facilities, and the academia. Several case studies will form the basis of the discussion as they relate to tailings dewatering challenges and opportunities, what works and what doesn't, success stories and mishaps. Above all, the workshop will reveal some difficult but practical solutions considered when the realities of field implementation do not really align with the original design intent, and how we can learn and continuously improve in this field of practice.

TECHNICAL BACKGROUND

This workshop will dive into the technical challenges of tailings dewatering from many angles, including civil, geotechnical, mineral processing, and metallurgical engineering, optimized mine waste management plans, and sustainable tailings management practices.

PARTICIPANTS

This workshop is designed specifically for the practitioners, engineers and scientists alike, in the field of mine waste management, and for those who have interest in gaining practical knowledge and willing to learn from the success stories and the challenges the industry faces when considering tailings dewatering in their projects or at their operations. Students, engineers and geoscientists in training are particularly encouraged to attend this workshop.

CONTENT AND PROGRAM

| Time (Chile local time) | Activity / Presentation Title | Presenter |
|----------------------------|--|--------------------|
| 10:00 – 10:10 | Welcome, Introductions and Safety Share | Caius Priscu |
| 10:10 – 10:30 | Strategies and alternative analyses for dewatering tailings | Kate Patterson |
| 10:30 – 10:50 | Planning and implementing dewatering transition - Operational challenges | Guillaume Tremblay |
| 10:50 – 11:10 | Thickened and paste tailings dewatering – The key ingredients | Rachel Jansen |
| 11:10 – 11:20 | Coffee break | |
| 11:20 – 11:40 | Dry stacking in cold regions – What works and what doesn't | Michael Davies |
| 11:40 – 12:00 | Filtered tailings: Lemon or Lemonade? | John Lupo |
| 12:00 – 12:30 | Q&A – open discussion forum, and closing | Caius Priscu |

RESULTS FROM ATTENDING THE WORKSHOP

At the end of the workshop, participants will learn from experienced practitioners on the topic of tailings dewatering technologies, the pros and cons of available methods, and how tailings dewatering – if properly implemented, could lead to successful tailings management projects with multiple benefits, including safer facilities, improved water recovery, and lower risks.

SPECIFIC OBJECTIVES

- Objective 1: understand the opportunities of implementing tailings dewatering technologies
- Objective 2: understand advantages and disadvantages of the various dewatering technologies
- Objective 3: learn from the past mistakes in implementing dewatering projects
- Objective 4: be aware of the pitfalls of assumptions or poor implementation decisions, and
- Objective 5: have a confirmation that one size does not fit all, that each site and location context is different, and solutions need to be looked at and evaluated based on their own merit.

WORKSHOP METHODOLOGY

The workshop will take place in a synchronous mode, with live presentations, using the ZOOM platform. It will consist of five, 20 minute long presentations by five experienced professionals, followed by a Q&A session where participants can ask questions related to the presentations or general questions on the topics.

WORKSHOP MATERIALS

Participants will receive a copy of the slides presented in PDF format, just prior to the workshop.

PRESENTERS' BIO

Kate Patterson, M.Eng, P.Eng, P.E, KCB, Vancouver, BC, Canada



Kate Patterson is a senior Civil Engineer and Associate at KCB with over 14 years of experience in mine waste management with a focus in tailings and water strategic planning and design. She has a keen interest in tailings alternatives assessments and decision analysis, recently leading and facilitating studies for several large, complex projects. Kate coordinated a review of tailings technologies (from 2015 to 2017) commissioned by the MEND project and supported by the Mining Association of Canada (MAC). This study includes an inventory of alternative tailings management technologies in Canada and a case study review of international alternative tailings technologies.

Rachel Jensen, M.Phil, Paterson & Cooke, Denver, CO, United States

Rachel Jensen is a senior process engineer focusing on tailings management strategies and solutions within Paterson & Cooke's North American practice. Rachel is currently providing support to a major mining company in the development of long-term tailings strategies for their global operations. She has over 16 years of experience in mineral processing within various roles, including engineering, consulting, and project management. Rachel has field experience in South Africa, Turkey, Indonesia, Mexico, Brazil, and Australia. Her experience includes tailings dewatering, paste backfill, process design, feasibility studies, circuit mass balance, model building and simulation and surveys for plant optimization/auditing.

Guillaume Tremblay, Ing., Rio Tinto, Jonquiere, QC, Canada

Guillaume Tremblay is a geotechnical engineer working for Rio Tinto Aluminum in Québec, Canada. Mr. Tremblay has more than ten years of experience, with a focus on geotechnical engineering, consulting and project management. Working with Rio Tinto for 7 years now, he recently joined the bauxite residue disposal area management team as the dam engineer. His focus is on the geotechnical aspects of the RDA while managing the operational transition between wet and dry disposal.

Michael Davies, PhD, P.Eng, Teck Resources Ltd., Vancouver, BC, Canada

Dr. Michael Davies is a senior advisor for Teck Resources. Michael joined Teck in early 2012 as their Vice-President, Environment and in late 2017 transitioned as part of a phased retirement to a senior advisory role. His current role involves assisting in Teck's technical pursuits, providing internal review and leading Teck's tailings governance program, guiding specific input on mine waste research and development, and in developing talent. In addition to his corporate mining experience, prior to joining Teck Michael had over 25 years of consulting experience including several tailings/geotechnical

review boards.

John Lupo, PhD., P.E., Newmont, Denver, CO, United States



Dr. Lupo is the Sr. Director of Geotechnical and Hydrology for Newmont. He has spent over thirty years in the mining industry playing in rock, soil, and water in projects across the world.

Caius Priscu, Ph.D, P.Eng, University of British Columbia, Vancouver, BC, Canada



Dr. Priscu is an Adjunct Professor with the Norman B. Keevil Institute of Mining Engineering at the University of British Columbia, where, since January 2021, he enjoys mentoring students, sharing knowledge, and teaching Mine Waste Management, Safety and Risk Management of Tailings Storage Facilities. Dr. Priscu is also Co-Founder and Principal Geotechnical Engineer with Priscu and Associates Consulting Engineers Inc., based in West Vancouver, BC, Canada. He has over 30 years of experience in the field of geotechnical and geo-environmental engineering related to the mining and water resources industries across the world. He was involved in projects located in Canada, US, Australia, South Africa, Botswana, Zimbabwe, Tunisia, Chile, Peru, Brazil, Slovenia, Spain, Mongolia, Philippines, and Romania.