TAILINGS AND MINE WASTE 2023

November 5-8, 2023 | JW Marriott Parq Hotel | Vancouver, BC

SHORT COURSE OUTLINE

Title: Site Investigation for Tailings, Mine Waste & Heap Leach

Expected Learning Objectives:

Participants will be exposed to the various equipment, techniques, and considerations necessary to facilitate planning, implementing, and analyzing a T&MW site characterization. An introduction to a broad suite of testing tools ranging from geophysical, drilling, sampling, and in-situ testing. Brief case history examples will be provided throughout the course.

Agenda:

8:00	**Breakfast**
8:30	**Presenter: Dallas McGowan**
8:30	Safety moment, introductions, housekeeping
9:00	Integrated site characterization
9:15	Site investigation rigs
9:30	Site investigation techniques (the toolbox) • Geophysics (MASW, HVSR, 3DSS, SBP, DHS, PL-Logger, NMR) • Insitu (CPT, DMT, PMT, BCPT, VST, UVIF/UVOST, MIP, EC) • Drilling & Sampling (Auger, Sonic, Mud, Air Rotary, sampling)
10:30	**Break**
11:00	**Presenter: Jamie Sharp**
11:00	Seismic Cone Penetration Test (SCPTu) • History, ASTM, deployment • Standard channels (q_t, f_s, u), secondary channels (T, I_x, I_y, g_x, g_y) • Corrected cone tip resistance (q_t) • Dissipation testing • Shear and compression wave velocity • Normalized parameters • Soil Behavior Type (SBT) • Geotechnical Parameters from CPTu (s_u, σ_p', γ, ϕ')
12:00	**Lunch**
13:00	**Presenter: Jason DeJong**
13:00	Drained, Undrained, and Partially Drained Strength Measurements • VR-CPTu

	• VR-VST

14:00	Static/Flow Liquefaction Screening Using the CPTu
	• Introduce CSSM
	• CPT state assessment techniques:
	  ○ Robertson 2010
	  ○ Been and Jeffries 2015
	  ○ Mayne 2017
	• Post Liquefaction Strength

15:00	**Break**
15:30	**Presenter: David Slack**
15:30	New Technologies • Robotics and Automation • NMR • Machine Learning
16:30	Concluding remarks, Q&A
17:00	**Adjourn**

Presenters:

Jason T. DeJong, Ph.D. – Professor, University California Davis
Dr. Jason DeJong is a Professor at the University of California, Davis. Jason directs and coordinates research through the Soil Interactions Laboratory, UC Davis Center for Geotechnical Modeling, and NSF ERC Center for Bio-mediated and Bio-inspired Geotechnics. Prof. DeJong's major technical achievements have been in the areas soil and site characterization, biogeotechnics, earthquake engineering, and geotechnical sustainability. Jason has developed or refined several in situ and laboratory tools as well as data quality and correction methods, to improve the characterization of difficult soils – soft sediments, intermediate soils, tailings, and gravelly soils. At the project scale he created an integrated site characterization framework for practice to develop a hypothesis-driven program which streamlines and optimizes industry work, with the goal of cost-efficient and optimized designs that are not excessively conservative and over-designed. Results from his research program have been disseminated through more than 250 publications. His contributions have been recognized through the ASTM International Hogentogler Award (2x), ICE TK Hsieh Prize, ASCE Huber Research Prize, ASCE Casagrande Professional Development Award, Prakash Research Award, ICE Telford Premium Prize, and as an ASCE Fellow.

Jamie Sharp, P.Eng. – Chief Executive Officer, ConeTec Group
Jamie is a Geotechnical Engineer, graduating from the school of Applied Science at Queen's University in Kingston, Ontario in 1998. He has worked on hundreds of geotechnical and environmental projects throughout the United States and Canada, South and Central America, and Asia. These projects have exposed him to all types of in-situ testing and drilling methods both in a fieldwork and project management setting. Jamie is adaptive to unconventional site investigation techniques in remote and challenging environments, specifically mining applications. Jamie has and continues to lead the implementation and management of large and innovative site investigation projects in marine and mine tailings environments. Jamie is the initiator of several novel site characterization innovations including in-situ testing, drilling, and geophysical techniques. Jamie currently manages the ConeTec family of site investigation contractors.

Dallas McGowan, P.Eng. – Vice President Oil Sands, ConeTec Group

Dallas is a Civil Engineer, graduating from the school of Applied Science at the University of British Columbia in Vancouver British Columbia. Starting with ConeTec as a Co-Op field engineer in 2010, he has field experience on projects throughout Western Canada on civil infrastructure, environmental and mining projects in Western Canada, the United States, and Mexico. Passionate about building relationships with local communities, Dallas initiated the formation of the Mikisew-ConeTec Limited Partnership, a business arrangement between the Mikisew Cree First Nation and ConeTec offering site investigation, instrumentation, and ground improvement services to the Oil Sands industry. Dallas has authored several papers and has extensive knowledge of oil sands tailings and mining site investigations using in-situ testing, drilling, instrumentation, and geophysical techniques. Dallas is currently the Vice President of ConeTec's Oil Sands division.

David Slack - Chief Operating Officer, ConeTec Group

David has a B.A.Sc in Mechanical Engineering from University of British Columbia in Vancouver, Canada. David began working with ConeTec in 2007 as a Field Engineer and spent years developing skills in many site characterization techniques. In 2010 David applied his mechanical engineering background in the ConeTec development group and worked designing both field tools and equipment as well as operational systems to improve both ConeTec's product offering, safety, and internal efficiency. David relocated to Lima, Peru and Santiago, Chile in 2013 to open the South America regional offices and act first as General Manager and later as Vice President Latam. In 2018, David returned to Canada as the COO of the ConeTec Group where he focuses on improving all operational aspects of the companies while also maintaining an oversite role specifically over the South American and Latam businesses.