Mine Water Solutions 2027
May 10-12, 2027 · Vancouver

SHORT COURSE

A RISK-BASED APPROACH TO ENVIRONMENTAL DESIGN FLOOD EVALUATION FOR MINE WATER MANAGEMENT

Date: May 10, 2026
Location: UBC, Vancouver BC
Duration: 4 hours
Delivery method: in-person only. The course will not be livestreamed or recorded.
*Information provided here is subject to change

Presenters:

- Michelle Liew, Senior Civil and Water Resources Engineer, Klohn Crippen Berger Ltd., Canada
- Barbara Wernick, Senior Technical Director, WSP Canada Inc., Canada

Course Objectives: Attendees will learn how to develop and apply a risk-based framework for EDF selection, including the use of water balance assessments, flood evaluation methods, and receiving environment effects assessments to support mine water management design.

Course summary: The Environmental Design Flood (EDF) is a key hydrotechnical design criterion used to size dams, ponds, pumping systems, and water treatment infrastructure for mines. The Canadian Dam Association (CDA) defines the EDF as “the most severe flood that is to be managed without release of untreated water to the environment,” and is distinct from the Inflow Design Flood (IDF), which addresses dam safety. Facilities with insufficient EDF management capacity may experience reduced operational flexibility, increased reliance on emergency measures, unplanned releases, and potential adverse effects on the receiving environment.

CDA has established a working group to update guidance for deriving the EDF and a purpose of this workshop is to provide an overview of the in-progress guidance and to receive feedback for incorporation into the final guidance. The EDF concept will be introduced, with an overview of the current state-of-industry practice and key challenges. The course will also present a risk-based EDF framework, as well as an overview of water balance assessments and approaches for evaluating and quantifying potential effects to receiving environment uses during a hypothetical release event to inform EDF derivation. Participants will also engage in the practical application of EDF concepts using a hypothetical case study.

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Michelle Liew is a Senior Civil and Water Resources Engineer at Klohn Crippen Berger Ltd. with more than 13 years of experience in mine water management. Her experience includes water balance and water quality modelling, as well as the planning and design of mine water infrastructure throughout all stages of the mine life cycle. Michelle has led and supported modelling studies for a wide range of mining projects, including providing critical inputs to the design and sizing of dams and water treatment systems. Her work has also contributed to environmental impact assessments, regulatory permitting, and long-term water management planning. Michelle has authored and presented technical papers on Environmental Design Flood (EDF) assessment and mine water management at industry conferences. She is a member of the Canadian Dam Association's EDF working group.



Barbara Wernick has more than 30 years of experience in environmental permitting, evaluation of water quality and potential for effects from effluent discharges, and management of works in and about aquatic environments. She is a former regulator (Fisheries and Oceans Canada) with extensive experience in evaluating risks to the aquatic receiving environment related to discharges from planned, operating, and closed mines. Her recent projects have involved leading integrated engineering and environmental portfolios of work for several metal mines, and the water quality and aquatics disciplines for a number of other mining and industrial projects. She is currently serving as the co-chair for the Canadian Dam Association Environmental Design flood working group.