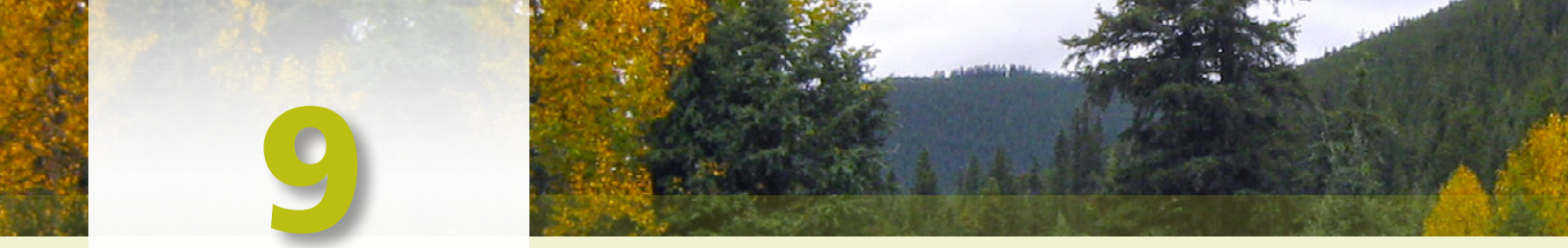

9

Challenges in the Environmental Assessment and Development of Risk Based Corrective Actions Associated with an Abandoned Uranium Satellite Site – Lorado Mine Site, Uranium City, Saskatchewan

Janice Paslawski and Jessica Perras, SNC-Lavalin Inc.
David Sanscartier and Mikaela Kilcup, Saskatchewan Research Council

The site of interest for the study is the abandoned Lorado Mine site, one of Northern Saskatchewan's abandoned uranium mines located 2.5 kilometers south of Beaverlodge Lake (BVL) and 10 km south of Uranium City. It is among the many sites located on crown land included in the Saskatchewan Research Council's (SRC) Project CLEANS (Cleanup of Abandoned Northern Sites) with the goal of transferring the sites over to the provincial Institutional Control Program (ICP). At the Lorado Mine site, specifically, construction began in 1954 and the mine operated from 1957 to 1960 during which time ore was moved off-site to the Lorado Mill to be processed. Since the termination of operations in 1960, the site buildings were demolished in the 1970s and a concrete cap was reportedly added to the shaft in the 1980's (SNC-Lavalin 2016).

With limited access to current environmental assessment tools and seasonal challenges, the proposed presentation will focus on the processes SRC and SNC-Lavalin have undertaken for the initial phases of the site assessment to determine the environmental risks associated with the site's current conditions. A University of Saskatchewan Environmental Engineering Capstone Design Project team undertook a theoretical assessment to provide decommissioning alternatives and used numerical modelling to assess the effectiveness of remedial cover systems. The modelling program used was Geo-slope's VADOSE/W analysis with GeoStudio 2012. This program modelled the ingress of oxygen, movement of water through the saturated and unsaturated regions of the soil profile and the freeze/thaw cycle for different engineered cover systems. The presentation will include both the challenges in a desktop assessment as well as the challenges of current environmental assessment approaches to development of remedial actions and the feasibility of evaluating effective risk management options.

Janice Paslawski, PhD, PEng

Dr. Janice Paslawski has over 25 years of experience in conducting and managing environmental specialists in the delivery of protective risk management strategies for complex impacted sites. She has been working in the environmental field since 1990, including three years of research. Dr. Paslawski's experience includes development of quantitative risk assessment approaches for the evaluation of contaminants of concern in sediment, soil and groundwater with respect to human and ecological health risk, as well as development of risk management plans and assessment tools for multiple-site portfolios. She has managed teams for the development of regulatory guidelines in Canada. She currently directs the Centre of Excellence for Risk Assessment at SNC-Lavalin. She is experienced in the management of diverse project teams and technical experts. Dr. Paslawski has conducted national projects on the development of risk-based criteria for environmental protection and application of remediation guidelines in Canada.

Mikaela Kilcup, BSc

Mikaela Kilcup is a recent graduate from the University of Saskatchewan. During her education, she held a summer positon with SRC and is continuing work with SRC now that her degree is complete. As part of her Capstone Design Project during her final year of university, she worked with SRC and SNC-Lavalin on the Lorado Mine Remediation Project. Over the course of the Project, Mikaela and her design team developed a remediation solution for the remote abandoned uranium mine. The project went on to compete at the annual Saskatoon Engineering Society Competition and came in first place in the environmental category.