
Project Hydrogeologist

Expertise Saturated/Unsaturated Groundwater Flow and Density-Dependent/Contaminant Transport Modeling Using *FEFLOW* and *PEST*, Water-Resources Management

Education B.A.S. (Environmental Engineering), 2014
University of Waterloo, Waterloo, Ontario, Canada

Professional Experience

2024 – Present ITASCA Denver, Lakewood, Colorado
Project Hydrogeologist

2012 – 2020 SNC Lavalin Inc., Saskatoon, Saskatchewan, Canada
Numerical Modeler

Project Experience

Saturated/Unsaturated Groundwater Flow Modeling: Developed conceptual and numerical models of groundwater flow to assess groundwater sourcing from regional drinking water aquifers using *FEFLOW*. Additionally, conducted groundwater flow modeling to estimate the potential cumulative impacts over time on stakeholder wells on a regional scale for potash mine operations using sensitivity analyses for Environmental Impact Assessments.

Density-Dependent/Chemical Fate and Transport Modeling: Specialized in developing conceptual and numerical models based on regional and site-specific geology. Identified critical features from contamination sources to receptors and calibrated models to simulate natural hydrogeological processes and engineered structures across historical, current, and future scenarios. Utilized these models to predict water and contaminant flow behaviors, supporting planning/feasibility studies, optimizing engineered structures, and assessing cumulative impacts. Conducted thorough sensitivity analyses to address variations and specific concerns, ensuring comprehensive documentation covering characterization, model development, calibration, predictions, and uncertainties. Reported on potential local and regional effects of deep well brine injection pressures and optimized well-field configurations for brine disposal across multiple client projects as part of Environmental Impact Assessments.

Construction Dewatering: Characterized groundwater flow to estimate dewatering rates for construction projects using both analytical and numerical models across various locations in Canada.

Research and Development: Developed specialized plug-ins for *FEFLOW*, integrating consolidation into groundwater flow modeling for applications such as modeling potash mine tailings piles. Conducted performance benchmarks and identified bottlenecks for solver algorithms.