



Road Deicing Salt Contamination at a Former Highway Works Yard in Penticton, BC- delineation, Offsite Migration to Adjacent Properties and the Regulatory Approval Process in BC (2019-2024) - A Case Study

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Road deicing salt plumes are found within several works yards and other properties where large quantities of road deicing salt are stored to be used in the winter. Environmental subsurface investigations at a former highway works yard in Penticton, BC revealed deep sodium and chloride contamination in soil and groundwater beneath the Site and migration of contamination to adjacent properties (adjoining commercial property and adjoining roadway). Comingling plumes were identified due to Highway Road deicing. A sensitive archaeological site of the Penticton First Nation prevented additional delineation activities. An application was made to the BC Ministry of Environment & Climate Change Strategy for an "Approval to not delineate." A nearby surface water receptor was assessed to determine if any adverse environmental impacts had been observed due to salty groundwater. Plume concentrations were monitored to demonstrate a "reducing plume". Other issues involved remediation of sandblasting waste impacted area, a hydraulic oil spill area and a waste oil spill area within the works yard. Background concentrations in groundwater were identified for uranium and lithium. An application for a Risk-Based Certificate of Compliance for the Site and associated offsite areas was submitted to BC MOECCS in May 2024.

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Jay Rao is the Director of Environmental Services, Western Canada for EXP Services Inc. He is a Senior Environmental Engineer with 25 years of combined civil and environmental engineering experience, and manages projects involving site assessments, remediation, and risk assessments. Jay has been practicing in BC since 2001 and in AB since 2014. He has completed or reviewed more than 1000 Stage 1 Preliminary Site Investigation (PSI), Phase I Environmental Site Assessment (ESA) type investigations and has completed several Stage 2 PSIs, Phase II ESA's, underground storage tank removals and detailed site investigation/remediation projects for residential, commercial, and industrial sites in British Columbia and Alberta. He has directed more than 50 medium to complex projects that have received BC Ministry of Environment and Climate Change Strategy instruments such as an Approval in Principle or a Certificate of Compliance over the years. He has been extensively involved in planning, managing, and reporting site investigation and remediation programs (in-situ, ex-situ). Jay also conducts and reviews simple human health risk assessments. He is a past Director (three two-year terms) of the board of the Surrey Board of Trade, current director (four-year term) of the Association of Consulting Engineering Companies of BC and Metro Vancouver's National Zero Waste Council (2nd term). He is also the chair of the environmental team at the Surrey Board of Trade since 2011.