

Who's Responsible? Innovative Approaches to Apportioning Salinity Plumes

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Determining the ownership of comingled salinity impacts for a suite of salinity-impacted sites is a difficult task and requires multiple lines of evidence and methods when the chemical signatures of impacts are identical; the potential source(s) are in close proximity; plume lengths are relatively long; and the geological settings are varied and complex.

Innovative, practical approaches to obtain comingling resolution were required and included: mass-balance and volume-based methods; a drilling waste calculation technique; area-based approaches; and generic allowances using regional spill records. Apportioning options were developed for several of these approaches using 3D visualization software, which was critical for communicating and exploring environmental data with all stakeholders and determining salinity mass and volume apportioning. A high-level summary of the methodology developed to apportion salinity plumes will be presented, with a focus being placed on the 3D visualization procedure.

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Brent Lennox is a senior hydrogeologist and environment group manager with Waterline Resources Inc. and has over fourteen years of consulting experience in contaminant hydrogeology, physical hydrogeology, and environmental geoscience, as well as a Master's of Science in geology. He is particularly focused on contaminant hydrogeology, environmental site assessments, and remediation and has experience with a wide variety of contaminant sources, environmental settings, and remediation approaches.