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Approaches to Subsurface Lithium Production – Benefits and Risks of Water Injection

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Summary

Formation waters of the Western Canada Sedimentary Basin (WCSB) contain a large amount of lithium. There has recently been a rapid growth of commercial interest in the production of the lithium from the WCSB including preliminary economic assessments under NI 43-101 guidelines. These and other projects consider pumping formation water to surface, extracting lithium from the formation water, and then injecting the lithium-depleted water back into the lithium-rich aquifer or into a new disposal zone. The decision of where to inject the lithium-depleted water is an important factor to a Project's feasibility and economics.

This presentation explores the benefits and risks associated with injecting lithium-depleted water into the lithium-rich aquifer. The presentation: describes the difference between pressure propagation and fluid migration; summarizes the groundwater community's experience with fluid migration; and provides recommendations for deciding between project approaches.