ABSTRACT

Title: **Pore-water Extraction and Characterization: Benchmarking of the Squeezing and Adapted Isotope Diffusive Exchange Methods**
Report No.: **NWMO-TR-2018-14**
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Date: October 2018

Abstract

The objective of this research is to benchmark the squeezing and adapted isotope diffusive exchange (AIDE) methods for low-porosity, high-salinity systems. To this end, samples of Queenston, Georgian Bay and Blue Mountain formation shale collected during characterization activities at the Bruce Nuclear Site, as well as samples of Opalinus Clay collected from the Mont Terri Underground Rock Laboratory, were equilibrated with water from an external reservoir, such that the chemical and isotopic composition of the pore water was known and could be used as a benchmark. After equilibration, the samples were subjected to squeezing and AIDE tests, and the results were compared with the benchmark compositions. The equilibration process was a central aspect and accomplishment of the project, requiring a specialized design in order to minimize potential artefacts and to limit equilibration times.