

NWMO Deep Grouting Trial - Phase 1

Triverton, Ontario, Canada

Keller drilled and grouted for Phase 1 of a deep grouting trial being executed to determine parameters for the pre-treatment of the underlying rock formation.



The project

The Nuclear Waste Management Organization (NWMO) was considering the construction of a deep geologic repository (DGR) at Bruce Nuclear Generating Station near Tiverton, Ontario. The DGR would host long-term storage of low and medium-level radioactive waste.

The challenge

The project required a feasibility study for the DGR prior to the excavation of the proposed shafts. Keller was retained to perform drilling and grouting for Phase 1 of a deep grouting trial being executed to determine parameters for the pre-treatment of the underlying rock formation. Strict drilling accuracy at depth was required (with a specified tolerance of 0.5 degrees, or ± 1.0 metre in plan at 200 metres depth).

The solution

The Wassara water hammer drilling system was chosen specifically for its ability to drill straight, clean holes with reasonable speed. Gyro survey methods were used to check hole alignment and determine when drilling corrections were required, at which point the Navi-Drill system was used to make minor hole alignment corrections to maintain the required tolerance. Prior to grouting, an acoustic televiewer was used to supplement the water test data to better establish the nature of the rock fractures.

Project facts

Owner(s)

Nuclear Waste Management Organization (NWMO)

Keller business unit(s)

Keller

Main contractor(s)

Keller

Engineer(s)

Golder Associates

Solutions

Groundwater control and dewatering

Markets

Power

Techniques

High mobility (cement slurry) grouting

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