

The long-term management of used nuclear fuel in Canada – the geoscientific site evaluation process

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The Nuclear Waste Management Organization (NWMO) is responsible for implementing Adaptive Phased Management, the approach selected by the Government of Canada for long-term management of used nuclear fuel generated by Canadian nuclear reactors. The ultimate objective of APM is the centralized containment and isolation of Canada's used nuclear fuel in a Deep Geological Repository in a suitable crystalline or sedimentary rock formation. In May 2010, the NWMO published and initiated a nine-step site selection process to find an informed and willing community to host a deep geological repository for Canada's used nuclear fuel. The site selection process is designed to address a broad range of technical and social, economic and cultural factors.

The suitability of candidate areas will be assessed in a stepwise manner over a period of many years, and the site evaluation process includes three main steps: Initial Screenings; Preliminary Assessments; and Detailed Site Characterizations. As of March 2015, NWMO has completed Initial Screenings for 22 communities, and completed the first phase of Preliminary Assessments (desktop) for 20 communities. Phase 2 of the preliminary assessments has been initiated in a number of communities, with field activities such as high-resolution airborne geophysical surveys and geological mapping. This paper describes the approach, methods and criteria being used to assess the geoscientific suitability of communities currently involved in the site selection process.