

PRELIMINARY ASSESSMENT OF POTENTIAL SUITABILITY

Twenty-One Phase 1 Assessments Completed

**PHASE 1 ASSESSMENTS HAVE BEEN CONCLUDED IN 21 COMMUNITIES:**

- » Arran-Elderslie, Ontario
- » Blind River, Ontario
- » Brockton, Ontario
- » Central Huron, Ontario
- » Creighton, Saskatchewan
- » Ear Falls, Ontario
- » Elliot Lake, Ontario
- » English River First Nation, Saskatchewan
- » Hornepayne, Ontario
- » Huron-Kinloss, Ontario
- » Ignace, Ontario
- » Manitouwadge, Ontario
- » Nipigon, Ontario
- » The Northern Village of Pinehouse, Saskatchewan
- » Saugeen Shores, Ontario
- » Schreiber, Ontario
- » South Bruce, Ontario
- » Spanish, Ontario
- » The North Shore, Ontario
- » Wawa, Ontario
- » White River, Ontario

The Nuclear Waste Management Organization (NWMO) has completed the first phase of preliminary assessment in collaboration with 21 communities that expressed interest in learning about Canada's plan for the safe, long-term management of used nuclear fuel.

Preliminary assessments are the third of nine steps in a multi-year process for evaluating potential suitability to host a deep geological repository for Canada's used nuclear fuel and associated Centre of Expertise.

The Ontario communities of Elliot Lake, Blind River, Ignace, Manitouwadge, Hornepayne, Huron-Kinloss, Schreiber, South Bruce, White River, Central Huron, and the Saskatchewan community of Creighton were identified for further study in the second phase of assessment. Preliminary assessment studies in Schreiber and Creighton are now completed and these two communities will not be continuing with more detailed studies. Phase 1 findings do not confirm suitability of any site, and no community has expressed willingness to host the project at this early point in the site evaluation process.

Phase 1 assessments evaluate in a preliminary way the potential for communities to meet the technical and safety requirements of the project, and to align with the community's long-term goals and vision. Any site selected in the future must have an informed and willing host, meet strict scientific and technical criteria for protecting people and the environment for the very long term, and meet or exceed regulatory requirements.

Next Steps

For communities that continue, the next phase of work involves more intensive technical studies, community learning and engagement activities. Work will take on a broader focus to include surrounding communities and First Nation and Métis communities in the area. This ongoing engagement will be important to understanding the potential to foster well-being of the broader area and the ability to work together to implement the project. Depending on the area, technical work will include activities such as geophysical surveys and geological mapping. It may also include borehole drilling and testing in the future. These activities will further assess potential suitability, and identify specific siting areas that have the potential to meet the project's technical and safety requirements.

As individual studies are completed, the NWMO will continue to gradually focus its activities on a smaller number of areas with strong potential to be suitable for hosting a repository. Ultimately, the project will only proceed at a site that can safely

contain and isolate used nuclear fuel, and with the involvement of the interested community, First Nations and Métis communities, and surrounding municipalities working together to implement it.

It is expected to take several more years to complete the necessary studies to identify a preferred site and an informed and willing host. Communities may choose to end their involvement at any point during the site evaluation process until a final agreement is signed, subject to all regulatory requirements being met and approvals received.

About Phase 1 Preliminary Assessment Studies

Potential suitability of communities was assessed through desktop studies using detailed technical and community well-being criteria. Four overarching questions guided this first phase of Preliminary assessment:

1. Is there potential to find a safe site?
2. Is there potential to foster the well-being of the community through implementation of the project, and what might need to be put in place (e.g., infrastructure, resources, planning initiatives) to ensure this outcome?
3. Is there potential for citizens in the community to continue to be interested in exploring this project through subsequent steps in the site selection process?
4. Is there potential to foster the well-being of the surrounding area and to establish the foundation to move forward with the project?

The NWMO site selection process requires that potential sites be assessed against a number of safety-related technical site evaluation factors, organized under six safety functions that a site would need to satisfy to be considered suitable:

- » **Safe containment and isolation of used nuclear fuel:** Are the characteristics of the rock at the site appropriate to ensuring long-term containment and isolation of used nuclear fuel from humans, the environment and surface disturbances caused by human activities and natural events?
- » **Long-term resilience to future geological processes and climate change:** Is the rock formation at the siting area geologically stable and likely to remain stable over the very long term in a manner that will ensure the repository will not be substantially affected by geological and climate change processes such as earthquakes and glacial cycles?
- » **Safe construction, operation and closure of the repository:** Are conditions at the site suitable for the safe construction, operation and closure of the repository?
- » **Isolation of used fuel from future human activities:** Is human intrusion at the site unlikely, for instance, through future exploration or mining?

- » **Amenable to site characterization and data interpretation activities:** Can the geologic conditions at the site be practically studied and described on dimensions that are important for demonstrating long-term safety?
- » **Safe transportation:** Does the site have a route that exists or is amenable to being created that enables the safe and secure transportation of used fuel from storage sites to the repository site?

A number of factors beyond safety were also considered to begin exploring the potential for the project to foster the well-being of the interested community. Phase 1 community well-being studies involved desktop studies and community engagement and collaboration, using a subset of factors pertaining to the community:

- » Potential social, economic and cultural effects during the implementation phase of the project, including factors identified by Aboriginal Traditional Knowledge.
- » Potential for enhancement of the community's and the region's long-term sustainability through implementation of the project, including factors identified by Aboriginal Traditional Knowledge.
- » Potential to avoid ecologically sensitive areas and locally significant features, including factors identified by Aboriginal Traditional Knowledge.
- » Potential for physical and social infrastructure to adapt to changes resulting from the project.
- » Potential to avoid or minimize effects of the transportation of used nuclear fuel from existing storage facilities to the repository site.

Phase 2 assessments build on the studies completed in Phase 1, expanding the assessment to include elements such as field studies and eventually borehole investigation, as well as more detailed exploration of the potential to foster well-being through the project in the community, as well as in the surrounding area, including First Nation and Métis communities and surrounding municipalities.

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