Moving Forward Together: Designing the Process for Selecting a Site

Invitation to Review a Proposed Process for Selecting a Site

Summary

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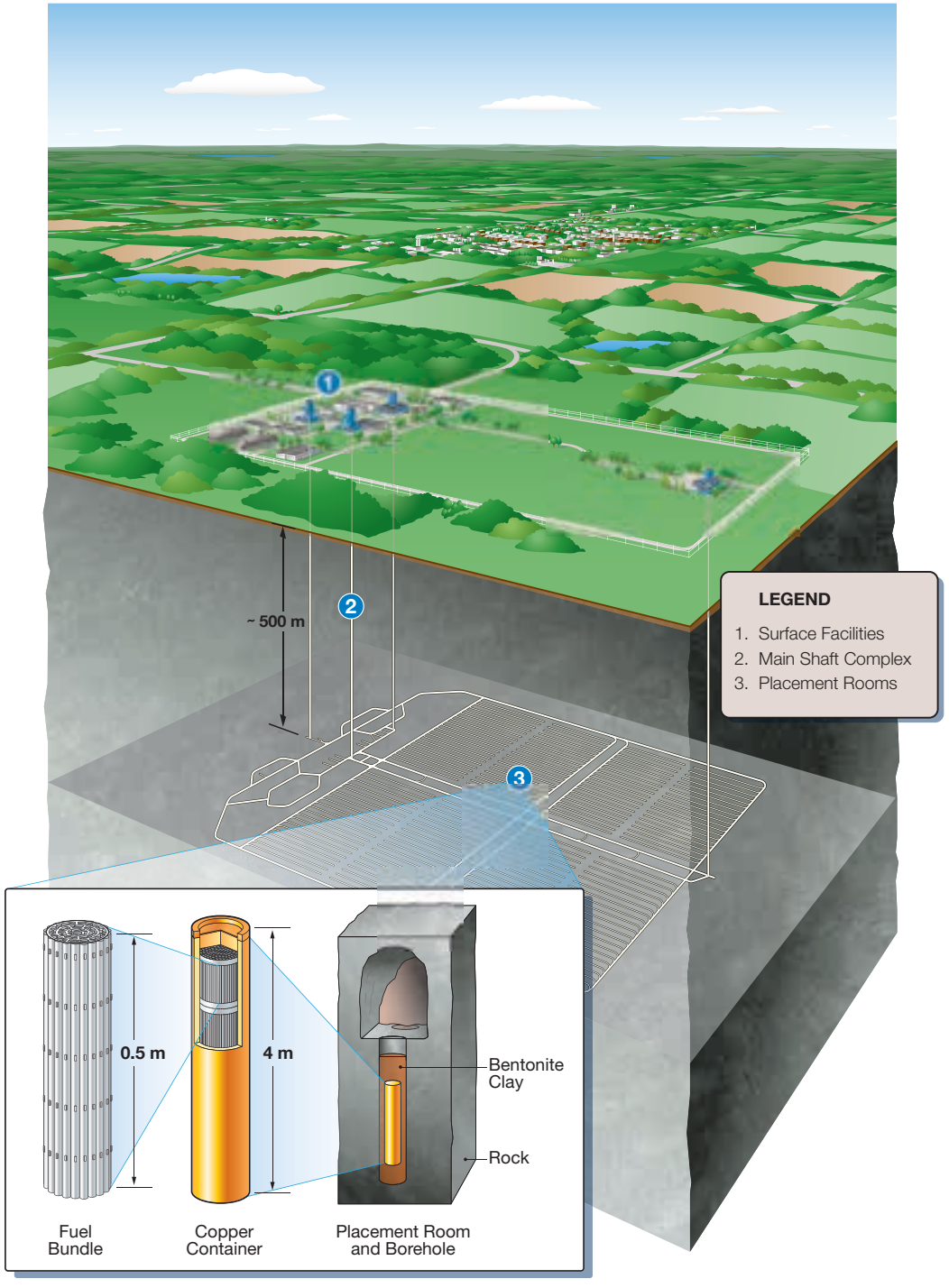
nwmo
NUCLEAR WASTE MANAGEMENT ORGANIZATION
SOCIÉTÉ DE GESTION DES DÉCHETS NUCLÉAIRES

The deep geological repository will require a surface area of about two by three kilometres. The underground facility will be constructed at a depth of approximately 500 metres, depending upon the geology of the site, and will consist of a network of placement rooms for the used fuel.

A CANDU fuel bundle is about 0.5 metres long. Engineered and natural barriers will safely contain and isolate the used fuel from people and the environment. Three hundred or more used fuel bundles will be enclosed in corrosion-resistant copper and steel containers. These containers will be placed in boreholes drilled into the floor along the length of the placement rooms and surrounded and protected by a bentonite clay sealing material. The placement rooms will be connected by a series of access and surface shafts and a network of access tunnels.



Help Design the Process to Select a Site for an Important New National Infrastructure Initiative

FOR DECADES CANADIANS HAVE BEEN USING ELECTRICITY generated by nuclear power reactors in Ontario, Québec and New Brunswick. We have produced just over 2 million used fuel bundles, a number that will double if our existing reactors operate to the end of their planned lives. When used nuclear fuel is removed from a reactor, it is radioactive. Although its radioactivity decreases with time, the used fuel will remain a potential health risk for many thousands of years and requires proper management.

In 2007, the Government of Canada approved a plan for the long-term management of the used nuclear fuel produced by Canada's nuclear electricity production. Called Adaptive Phased Management, the plan enables our generation to proceed in a deliberate and collaborative way to establish the foundation for the safe and secure stewardship of Canada's used nuclear fuel for the long term.

Today, used nuclear fuel is safely stored at licensed interim storage facilities at nuclear reactor sites in Canada. As we plan for the future, Adaptive Phased Management charts a course for the safe, secure long-term management of used nuclear fuel, in line with best international practice and the expectations of Canadians.

The Nuclear Waste Management Organization (NWMO) was created by Canada's nuclear electricity generators in 2002 as a requirement of the *Nuclear Fuel Waste Act*. The Act required the NWMO to study, recommend and then implement a plan for the long-term management of used nuclear fuel in Canada. The NWMO engaged thousands of citizens, specialists and Aboriginal people in every province and territory to develop a long-term management approach that is socially acceptable, technically sound, environmentally responsible and economically feasible. The plan that emerged from this dialogue, Adaptive Phased Management, requires that used nuclear fuel be contained and isolated in a deep geological repository. A fundamental tenet of this plan is the incorporation of learning and knowledge at each step, to guide a process of phased decision-making. The plan builds in flexibility to adjust the plan if needed.

The NWMO is now implementing Adaptive Phased Management. Our current task is to collaboratively design the process that will be used to identify a safe and secure site in an informed and willing community to host Canada's long-term management facilities for used nuclear fuel.

Canadians have a decision to make: where should our used nuclear fuel be contained and isolated for the long term?

We need a fair, ethical and effective process for making this decision. We invite you to help design the process for selecting a site in an informed, willing host community.

Building on the Direction from Canadians

BUILDING ON ITS ONGOING PROGRAM OF ENGAGEMENT WITH CANADIANS, the NWMO initiated a dialogue in 2008 with interested organizations and individuals on important principles and elements for a fair process that ensures the selection of a safe, secure site for a deep geological repository in an informed and willing host community. Our *Proposed Process for Selecting a Site* is designed to be responsive to the direction provided by Canadians who participated in these dialogues.

Canadians told us they want to be sure, above all, that the selected site is safe and secure for people and the environment, now and in the future. The process for choosing the site must be grounded in the values and objectives that Canadians hold important, and it must be open, transparent, fair and inclusive. The people we engaged said the process must be designed in a way that citizens can be confident that the highest scientific, professional and ethical standards will be met. This project is designed to be implemented through a long-term partnership involving an informed and willing community.

What is the Project?

THIS $16–$24 BILLION PROJECT will involve the development of a deep geological repository for the long-term management of used nuclear fuel and the creation of a centre of expertise. The used fuel will be safely contained and isolated by both engineered barriers and the geology surrounding the repository. This deep geological repository is similar to those being developed in other countries for the long-term management of used nuclear fuel. The system is designed so that the waste will be retrievable for an extended period. Consistent with international best practice, and the expectations of Canadians, the facility will be built to ensure the safety of people, communities and the environment.

The repository and centre of expertise are high technology initiatives that will provide significant economic benefits including direct employment for hundreds of people at the facility for many decades plus many more indirect jobs. Implementation will involve scientists, engineers, tradespeople and many others.

The centre of expertise will support the project and, alongside the repository, will serve as a hub for sharing research across Canada and with other countries such as Sweden, Finland, France and Switzerland, and potentially others in future which are following a similar path.

Designing a Process for Selecting a Site

THE PROPOSED PROCESS IS DESIGNED TO ADDRESS the broad range of issues and protections that people told us are important for any appropriate siting process in Canada. It draws from experiences and lessons learned from past work and processes developed in Canada to site facilities for the management of hazardous material. It also draws from similar projects in other countries pursuing the development of a deep geological repository.

The proposed site selection process is designed to use a partnership-based approach to:

- help ensure that any community that is selected to host this facility is both informed about the project and willing to host it;
- help ensure that any site that is selected to host this facility will safely contain and isolate used nuclear fuel for a very long period of time, in an appropriate geological formation, and that there is an acceptable way of transporting used fuel to the site;
- assist the potentially interested host community to consider carefully and thoroughly the project's potential benefits and risks when deciding whether to express interest, and ultimately, willingness to host the project;
- involve surrounding communities, regions and other jurisdictional levels potentially affected by the project and the transportation of used fuel in the identification and assessment of public health, environmental, social, economic and cultural effects of the project as part of a broader regional assessment;
- involve First Nations, Métis and Inuit who are potentially affected by the implementation of this project; and
- help foster an ongoing public conversation on questions to be answered and issues to be addressed throughout the site selection process.

We invite you to review the nine steps proposed in our discussion document *Proposed Process for Selecting a Site*.

The Proposed Process for Selecting a Site – At a Glance

Step 1	**The NWMO initiates the siting process.** Through a broad program of activities, the NWMO will provide information, answer questions, and build awareness among Canadians and communities about the project and the siting process. Awareness-building activities will continue throughout the siting process.
Step 2	**For communities that would like to learn more, an initial screening is conducted.** At the request of the community, the NWMO will evaluate the potential suitability of the community against a list of initial screening criteria.
Step 3	**For interested communities, a preliminary assessment of potential suitability is conducted.** At the request of the community, a feasibility study will be conducted to determine whether a site in the community has the potential to meet the detailed requirements for the project. The NWMO will conduct the feasibility study in collaboration with the community.
Step 4	**For interested communities, potentially affected surrounding communities are engaged and detailed site evaluations are completed.** In this step, the NWMO will work with interested communities to engage potentially affected surrounding communities in a study of health, safety, environment, social, economic and cultural effects of the project at a regional level, including effects that may be associated with transportation. Involvement will continue throughout the siting process. The NWMO will also select one or more suitable sites from communities expressing formal interest, and conduct detailed site evaluations in collaboration with the community.
Step 5	**Communities with confirmed suitable sites decide whether they are willing to accept the project and negotiate the terms and conditions of a formal agreement to host the facility with the NWMO.**
Step 6	**The NWMO and the community with the preferred site enter into a formal agreement to host the project.** The NWMO selects preferred site, and the NWMO and community ratify formal agreement.
Step 7	**A centre of expertise is established, and construction and operation of an underground demonstration facility proceeds.** The NWMO, in partnership with the community, will establish a centre of expertise involving the construction of an underground demonstration facility and surface facilities to demonstrate technologies that will be used to implement the project. The regulatory requirements for this step will be discussed with regulatory agencies.
Step 8	**Regulatory authorities review the safety of the project and, if all requirements are satisfied, give their approvals to proceed.** The regulatory review and approval process will involve an environmental assessment and a series of consecutive licensing phases related to site preparation and construction, and the operation of facilities associated with the project. Various aspects of transportation of used nuclear fuel will also need to be approved by regulatory authorities.
Step 9	**Construction and operation of the facility.** The NWMO implements the project, starting with site preparation and construction of the deep geological repository and associated surface facilities. Operation will begin after an operating licence is obtained. The NWMO will continue to work in partnership with the host community in order to ensure the commitments to the community are addressed throughout the entire lifetime of the project.

Community Well-Being

THIS PROJECT WILL BE IMPLEMENTED through a long-term partnership involving the community and the NWMO. It is important that the project be implemented in a way that will help the host community foster its well-being and sustainability.

Implementation of the project will deliver significant economic benefits to the host community, region and province from the construction and operation of the facilities and associated centre of expertise, extending over many decades. The project offers employment, income and other benefits, including the opportunity for the creation of transferable skills and capacities.

A project of this size may contribute to social and economic pressures in the community that will need to be managed by the NWMO and the community as part of implementation. The proposed process for selecting a site encourages communities to carefully consider their interest in the project in light of their long-term plans and aspirations.

Share Your Thoughts

We invite you to review our discussion document, which outlines a proposed process for discussion. Share your thoughts on whether the proposed site selection process is appropriate and what changes, if any, need to be made. The comments you and others make will be used to refine the design of the process.

We look forward to working with you to design an appropriate site selection process for this important national initiative. Please attend an upcoming information session in your region, complete a workbook, fill out a survey, make a submission on the NWMO website or send your comments to:

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