



Moving Forward Together: Designing the Process for Selecting a Site



Share Your Thoughts
WORKBOOK

nwmo

NUCLEAR WASTE
MANAGEMENT
ORGANIZATION

SOCIÉTÉ DE GESTION
DES DÉCHETS
NUCLÉAIRES

Help Design the Process for Selecting a Site!

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. Share your thoughts through this workbook!

In June 2007, the Government of Canada selected Adaptive Phased Management as Canada's approach for the long-term management of used nuclear fuel which is produced through the generation of electricity. Currently, Canada has just over 2 million used fuel bundles to be managed. If the used fuel bundles could be stacked like cordwood, all of Canada's used nuclear fuel bundles could fit into six hockey rinks, from the ice surface to the top of the boards.

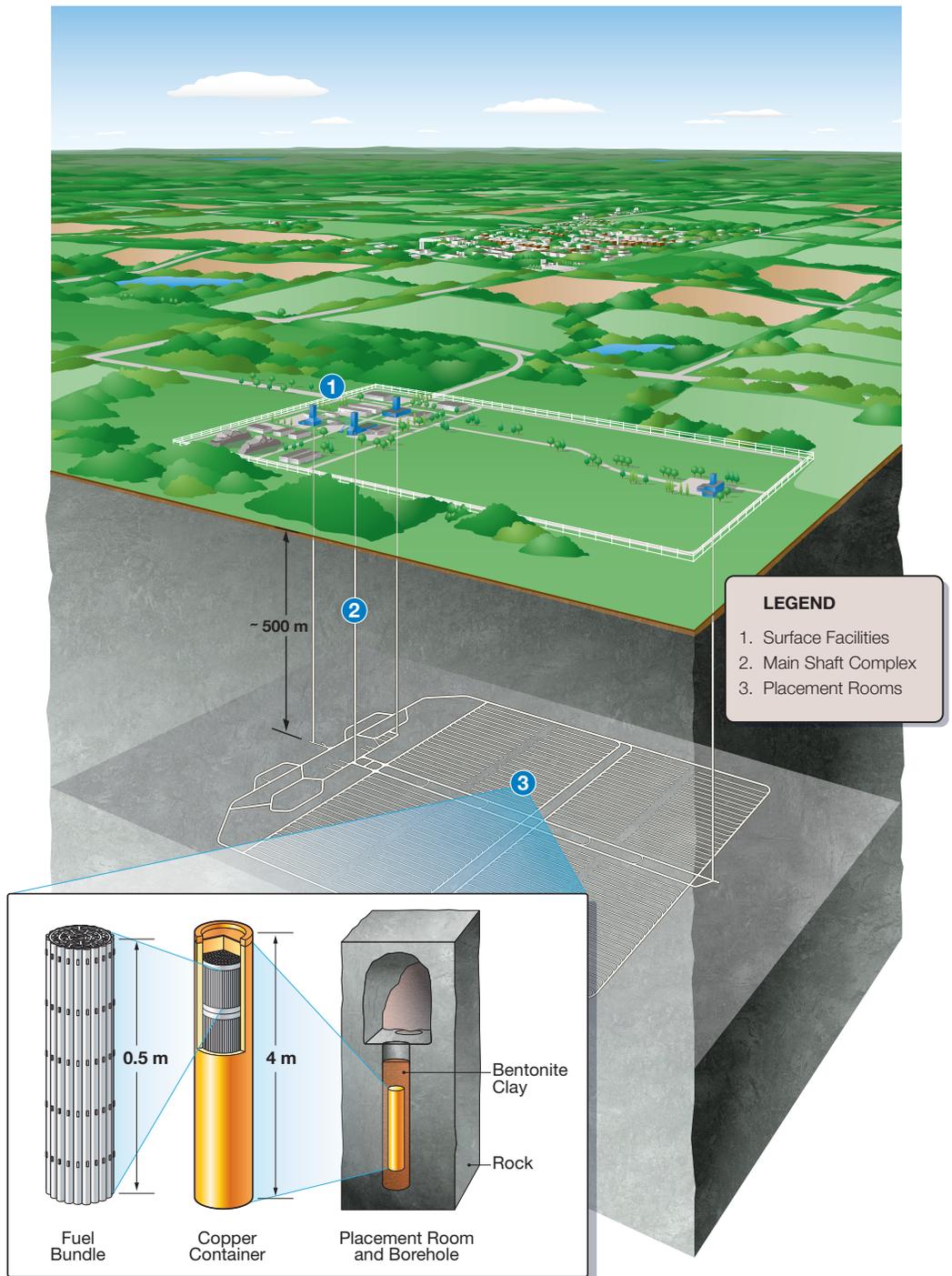
Adaptive Phased Management requires ultimate centralized containment and isolation of used nuclear fuel in a repository deep underground in a suitable rock formation, in a willing host community. This will require the transportation of used nuclear fuel from nuclear plants where the material is currently safely and securely stored on an interim basis to the site. The project will be implemented in a way which both safely and securely contains and isolates used nuclear fuel and helps foster the well-being of the community which agrees to host this facility.

The Nuclear Waste Management Organization has proposed a process Canada might use to seek and select a willing community in which to locate this project. Please use this workbook to share your thoughts about key components of this process. Are they appropriate? Do changes need to be made? The comments you and others make will be used to refine the design of the process.



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.



**QUESTION 1**

Are the proposed siting principles fair and appropriate? What changes, if any, should be made?

Principles

In earlier work conducted by the Nuclear Waste Management Organization, Canadians told us that any appropriate siting process for Canada must be founded on a set of principles which address the concerns important to Canadians. The proposed principles are outlined in more detail on pages 16 and 17 of the discussion document. They are presented in brief below.

- 1. FOCUS ON SAFETY.** Safety, security and protection of people and the environment are central to the siting process.
- 2. INFORMED AND WILLING HOST COMMUNITY.** The host community, the local geographic community in which the facility is to be located, must be informed and willing to accept the project.
- 3. FOCUS ON THE NUCLEAR PROVINCES.** Fairness is best achieved with the site selection process focused within the provinces directly involved in the nuclear fuel cycle: Ontario, New Brunswick, Québec and Saskatchewan.
- 4. RIGHT TO WITHDRAW.** Communities that decide to engage in the process have the right to end their involvement at any point up to and until a final agreement is signed. In the initial steps of the siting process, the local government will express interest on behalf of a community. However, in order for a community to be selected, the community will need to show that their residents are willing.
- 5. ABORIGINAL RIGHTS, TREATIES AND LAND CLAIMS.** The siting process will respect Aboriginal rights and treaties and will take into account that there may be unresolved claims between Aboriginal peoples and the Crown.
- 6. SHARED DECISION-MAKING.** The site selection decision will be made in stages and will entail a series of decisions about whether and how to proceed. These decisions will be made with the community.
- 7. INCLUSIVENESS.** The NWMO will respond to, and address where appropriate, the views of others that are most likely to be affected by implementation, including the transportation of used nuclear fuel that would be required.
- 8. INFORMING THE PROCESS.** The selection of a site will be informed by the best available knowledge – including science, social science, Aboriginal Traditional Knowledge, and ethics – relevant to making a decision and/or formulating a recommendation throughout the process.
- 9. COMMUNITY WELL-BEING.** An important objective of project implementation will be to foster the long-term well-being, or quality of life, of the community in which it is implemented.
- 10. REGULATORY REVIEW.** Construction of the project will not proceed until it has been demonstrated that the safety, health and environmental protection standards set by the regulatory authorities can be met and enforced.

Q2

QUESTION 2

Are the proposed decision-making steps consistent with selecting a safe site and making a fair decision? What changes, if any, should be made?

Nine steps are proposed in the process to select a site. These steps are outlined in more detail on pages 20-24 of the discussion document. They are presented in brief below.

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.

**QUESTION 3**

Are there additional safety-related questions which you would like to see addressed?

Ensuring the Safety of a Site

The safety and appropriateness of any potential site will be assessed against a number of factors, both technical and social in nature. These factors are described on pages 25 through 32 in the discussion document.

Any site that is selected to host this facility must be demonstrated to be able to safely contain and isolate used nuclear fuel for a very long period of time. Any site selected will need to address scientific and technical siting factors that will acknowledge precaution and ensure protection for present and future generations.

Six safety-related questions will be asked of any site:

1. Are the characteristics of the rock at the site appropriate to ensuring the long-term containment and isolation of used nuclear fuel from humans, the environment and surface disturbances?
2. Is the rock formation at the site 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 natural disturbances and events such as earthquakes and climate change?
3. Are conditions at the site suitable for the safe construction, operation and closure of the repository?
4. Is human intrusion at the site unlikely, for instance through future exploration or mining?
5. Can the geologic conditions at the site be practically studied and described on dimensions that are important for demonstrating long-term safety?
6. Can a transportation route be identified or developed by which used nuclear fuel can safely and securely be transported to the site from the locations at which it is currently stored?

These key safety-related questions, and the performance objectives and evaluation factors associated with each outlined in the discussion document, would be addressed through the development of a robust safety case. The safety case will need to demonstrate with confidence that the project can be safely implemented at the site and can meet or exceed the requirements of regulatory authorities.

Q4

QUESTION 4

Does the proposed process provide for the kinds of information and tools that are needed to support the participation of communities that may be interested? What changes, if any, should be made?

Towards a Partnership with a Willing Community

The proposed process outlines the support (funding and resources) which the NWMO will provide to those who wish to participate in the process to select a site. This includes: communities which are interested in considering hosting this project, communities in the surrounding area, communities along potential transportation routes, Aboriginal peoples who may be affected, and other communities or individuals or groups who may be interested. The approach to support is outlined in more detail on pages 33–35 of the discussion document. We briefly outline the proposed support to communities which are interested in considering hosting the facility and encourage you to review the discussion document to read more about other support which is proposed.

IN THE PROPOSED PROCESS, the community decides whether it will enter the site selection process and then proceed through each of the steps. The community can decide at any time to cease its involvement in the process up until the signing of a formal agreement. For each major step, the terms and conditions of participation in that step will be jointly developed by the NWMO and the community. All reasonable costs will be covered for a potentially interested community to:

- » conduct a community visioning exercise that may assist the community in identifying a long-term plan for its well-being and long-term sustainability, or build upon an existing plan, as early input to the community assessing whether it may be interested in the project (**as early as Step 2**);
- » seek independent expert advice concerning the project and/or the results of the various site screening and site evaluation stages throughout the siting process (**as early as Step 2**);
- » establish a community office for the project, if desired, at any point in the process;
- » assess and demonstrate its willingness to be a host community (**Step 4**);
- » develop jointly with the NWMO the terms of an agreement that outlines the basis upon which the project would proceed (**Step 5**) and ratify this agreement (**Step 6**);
- » participate with the NWMO in the regulatory review process (**Step 8**) (the project will proceed only after all regulatory approvals are obtained); and
- » participate through the construction and operation of the facility (**Step 9**).

Thank you for taking the time to share your thoughts.

PLEASE TELL US A BIT ABOUT YOURSELF

Name _____

Address _____

City _____

Province _____

Postal Code _____

Email _____

For statistical purposes:

Please indicate if you are **under 35** years of age: Yes No

Please indicate gender: Male Female

**Would you like to receive further materials from the NWMO?
If yes, please complete all the contact information above.**

Yes No

For more information

For a copy of the discussion document and a complete listing of information sessions, please visit: www.nwmo.ca

Please send us your comments

Nuclear Waste Management Organization

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