

Process for Selecting a Site for Canada's Deep Geological Repository for Used Nuclear Fuel



Presentation to: Canadian Nuclear Society

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nwmo

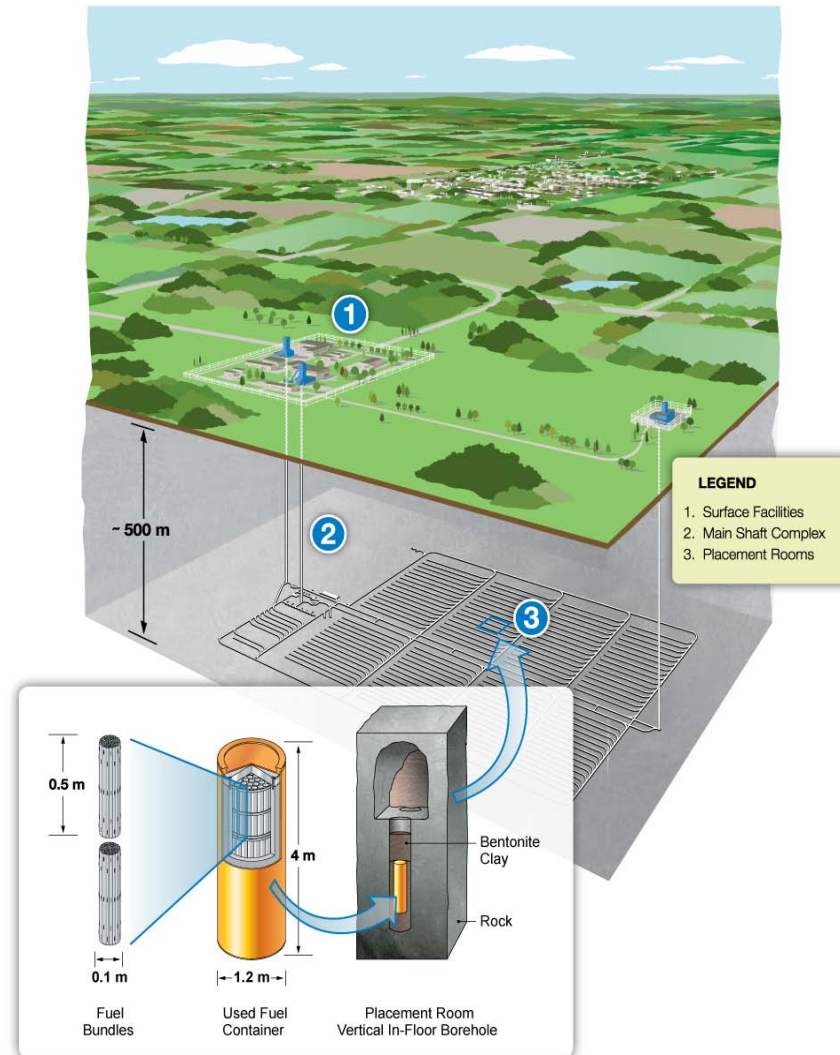
NUCLEAR WASTE
MANAGEMENT
ORGANIZATION

SOCIÉTÉ DE GESTION
DES DÉCHETS
NUCLÉAIRES

- » **2002: *Nuclear Fuel Waste Act*** required formation of the NWMO
- » **NWMO Mission statement:** *The purpose of the NWMO is to develop and implement collaboratively with Canadians, a management approach for the long-term care of Canada's used nuclear fuel that is socially acceptable, technically sound, environmentally responsible and economically feasible*
- » NWMO is a corporation that operates as a not-for-profit organization
- » Funded by nuclear waste owners (Ontario Power Generation, Hydro-Québec, New Brunswick Power, Atomic Energy of Canada Limited); trust funds in place

Federally Mandated National Infrastructure Project

- » High technology, national infrastructure project
 - ◆ Investment of \$16-24 billion (dedicated funding)
 - ◆ Will operate as centre of expertise
 - ◆ Project requires dedicated *surface* area of ~100 hectares (250 acres) and *subsurface* area of ~2.5km x 1.5km (375 hectares/930 acres)
 - ◆ Project development, operations and monitoring for more than 100 years



Road Map for Selecting a Site

- » Site selection process collaboratively developed over 2 years through dialogue with Canadians
- » Process initiated May 2010

Steps in the Site Selection Process

Step 1

Becoming
aware &
informed

Steps 2, 3 & 4

Assessing interest & suitability

- Community visioning
- Screening
- Feasibility
- Detailed assessment
- Regional study & involvement
- Centres of expertise launched

Step 5

Community
assesses &
demonstrates
willingness

Step 6

Preferred site
identified

- Collaborative
agreement
established

Step 7

Regulatory
review &
approvals

- Site is selected

Step 8

National centre of
expertise established
& construction
of underground
demonstration facility

Step 9

Construction
begins...

Technical Site Evaluation Process

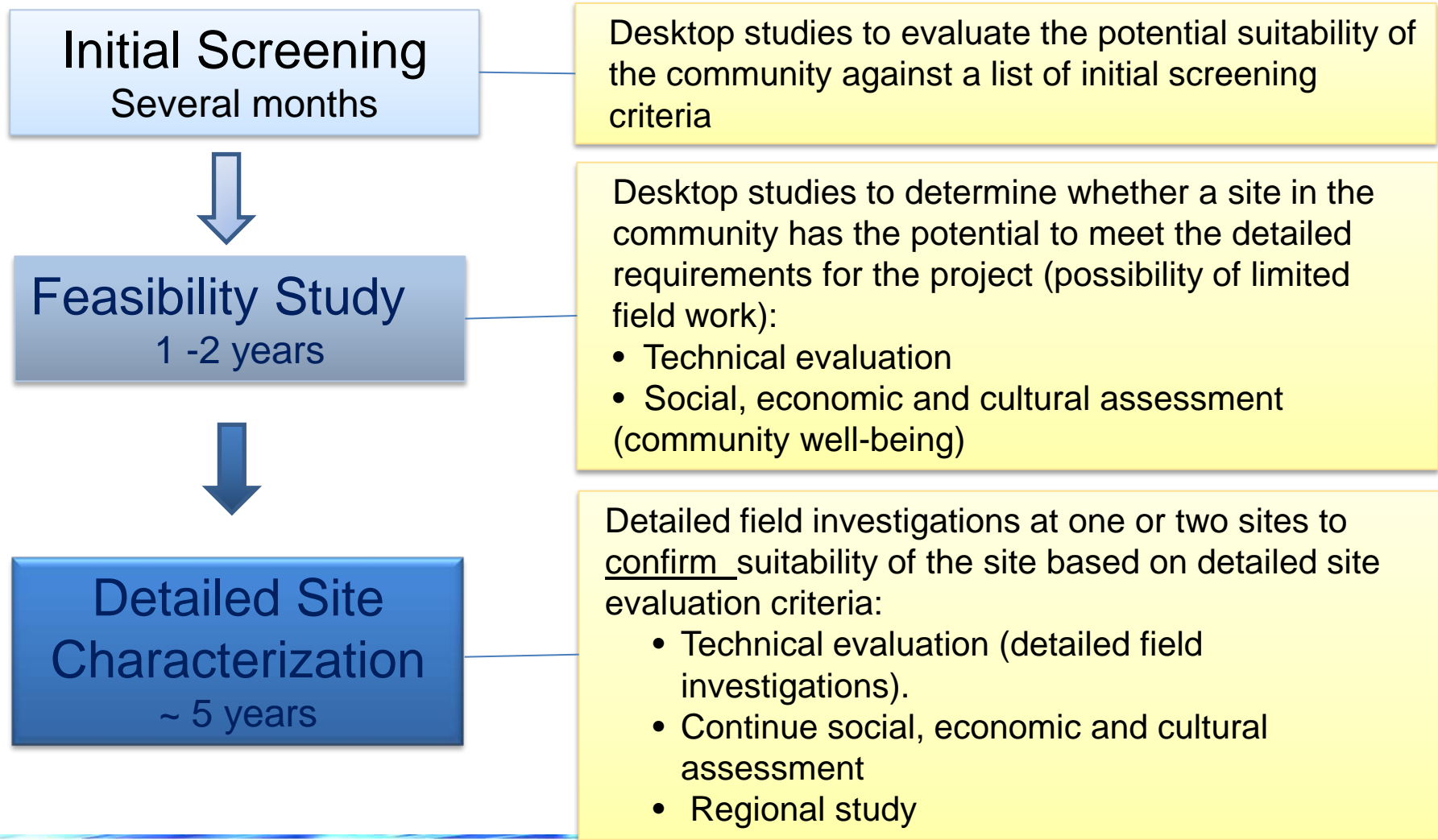


- » Ensure technical safety to protect humans and the environment, now and in the future
- » Progressive and thorough technical site evaluation process (7-10 years)
- » Comprehensive technical site evaluation criteria
- » Evaluation process and results are subject to third-party reviews



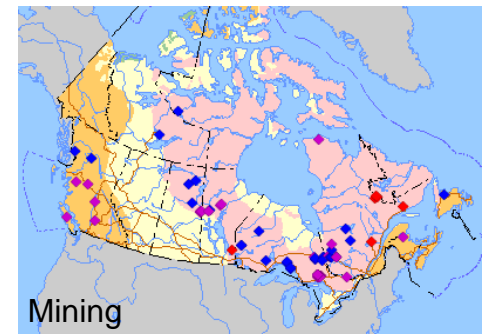
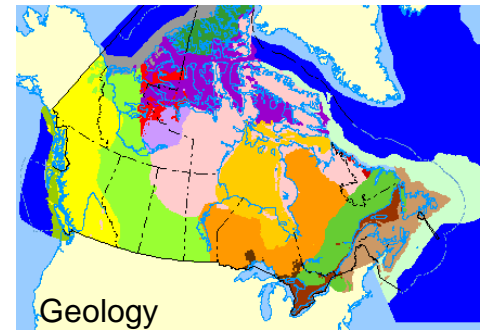
Main Site Evaluation Stages

Site evaluation process is driven by community's interest to participate:



Initial Screening Criteria

- » Enough land to accommodate surface and underground facilities
- » Outside protected areas, heritage sites, provincial/national parks
- » Land must not contain groundwater resources at repository depth
- » Land must not contain known economically exploitable natural resources
- » Land must not be located in areas with known geological and hydrogeological features that prevent site from being safe





Suitable sites must satisfy six safety functions

1. Safe containment and isolation of used nuclear fuel
2. Long-term resilience to future geological processes and climate change
3. Isolation of used fuel from future human activities
4. Amenable to site characterization and data interpretation activities
5. Safe construction, operation and closure of the repository
6. Safe and secure transportation routes

Communities currently interested in learning more



Interested Communities in Canada



Objective

- » Assess whether there are any obvious conditions that would exclude a community from NWMO site selection process based on readily available information

Status

- » Nine communities expressed interest in learning more about NWMO site selection process and requested an initial screening
- » All these communities are located on crystalline rocks of the Canadian Shield
- » Eight initial screenings completed

Results

- » Seven communities passed the initial screening stage
- » One community did not meet the screening criteria
- » One screening still in progress



- » Begin feasibility studies early in 2012 for communities interested in continuing in the process, without obligation
- » Communities decide whether or not they wish to participate in the feasibility study phase
- » Interested communities and NWMO agree on path forward for feasibility study phase, including:
 - Scope of feasibility study
 - How NWMO and community will work together
 - How community members will be engaged
 - Outreach to surrounding communities, Aboriginal peoples and region.



Thank you!

www.nwmo.ca