



Overview of Decision-Making Framework



**Presentation to: Huron-Kinloss
Community Advisory Committee**

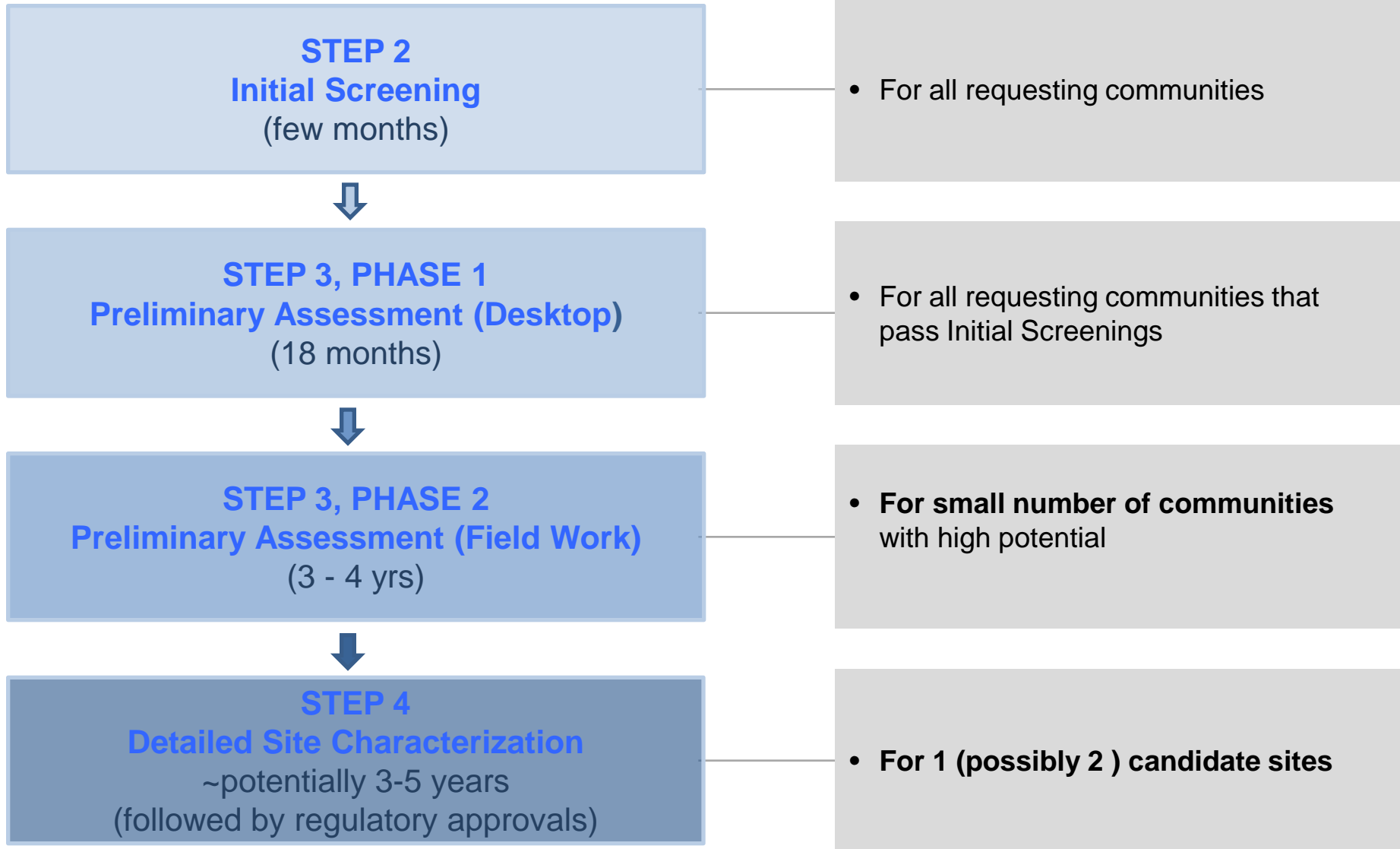
**J. Facella
February 2014**

nwmo

NUCLEAR WASTE
MANAGEMENT
ORGANIZATION

SOCIÉTÉ DE GESTION
DES DÉCHETS
NUCLÉAIRES

Multiple Stages of Assessment and Dialogue



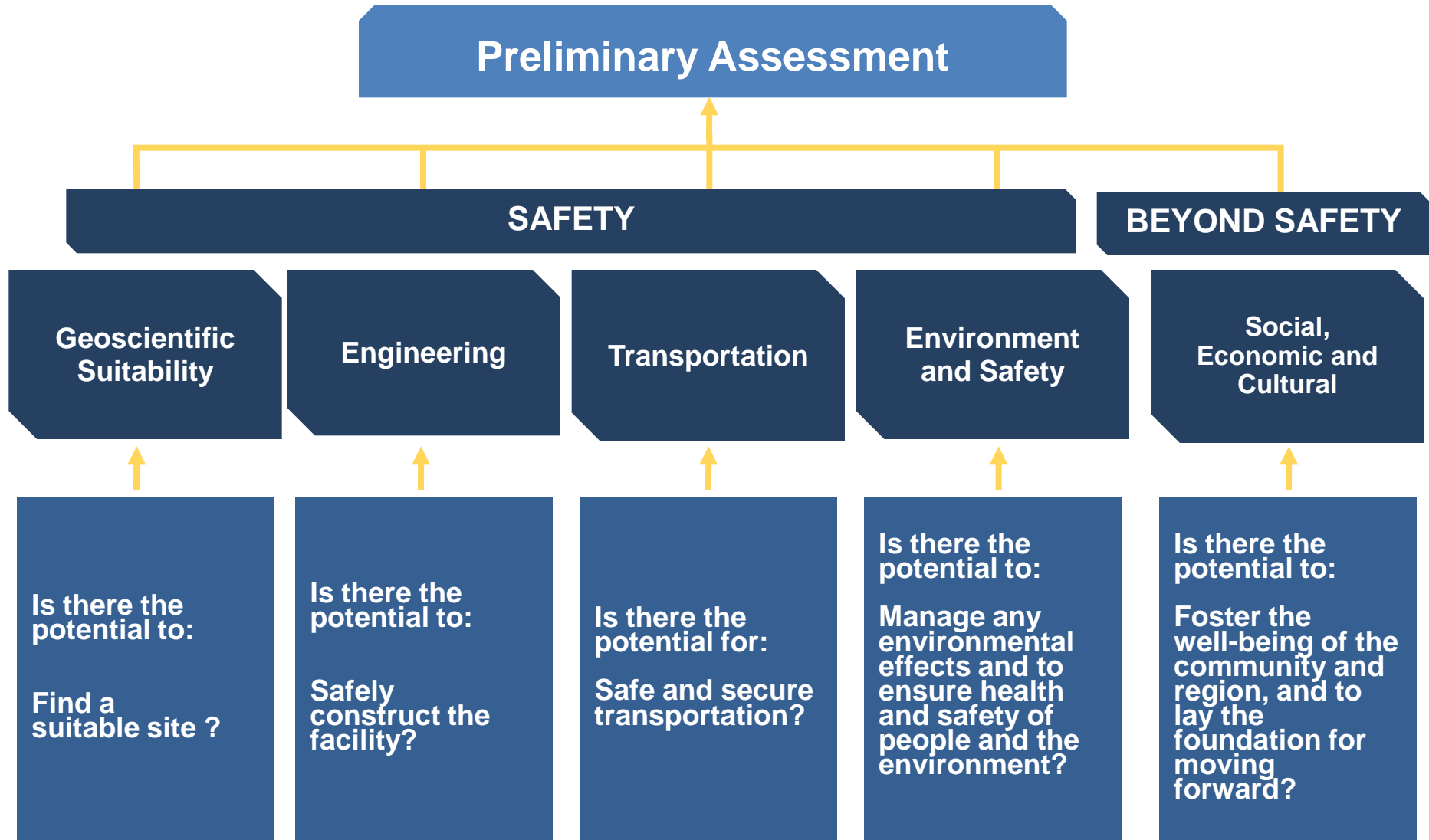
What are Preliminary Assessments?

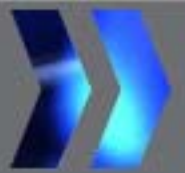


Preliminary Assessment of Potential Suitability – Feasibility Studies are an opportunity for both the community and the NWMO to explore four key questions

1. Safety, security and protection of people and the environment are central to the siting process. *Is there the potential to find a safe site?*
2. The project will be implemented in a way that will foster the long-term well-being of the community. *Is there the potential to foster the well-being of the community through the implementation of the project, and what might need to be put in place (e.g. infrastructure, resources, planning initiatives) to ensure this outcome?*
3. At a later step in the process, the community must demonstrate it is informed and willing to host the project. *Is there the potential for citizens in the community to continue to be interested in exploring this project through subsequent steps in the site selection process?*
4. The project will be implemented in a way that will foster the long-term well-being of the surrounding area. *Is there the potential to foster the well-being of the surrounding area and to establish the foundation to move forward with the project?*

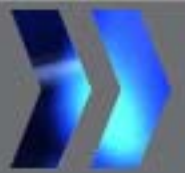
Step 3: Phase 1 Assessments





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



Key factors that assessed at the desktop stage:

- » **Geological setting:** Avoid areas of unfavourable geology
- » **Structural Geology:** Consider spatial distribution, character and history of relative movement of local and regional scale faults
- » **Lineament Analysis:** Favor areas with a relatively low density of lineaments, particularly a low density of longer lineaments
- » **Protected Areas:** Avoid provincial and federal parks and other protected areas
- » **Natural Resources:** Avoid areas with exploitable natural resources as known today.
- » **Overburden:** Favor areas with greater bedrock exposures.
- » **Surface Conditions:** Areas with obvious surface constraints (topography, large water bodies, wetlands etc.) were considered less favourable during the identification of siting areas.



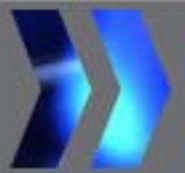
Ontario Geological Survey

- » Factual review of the geoscientific characteristics of communities

APM-GRG

- » Preliminary geoscientific assessment approach, methods, criteria and findings used for conducting the assessments
- » Assessment of uncertainties and their impact on relative suitability of communities

Independent Experts



» **Environmental Features**

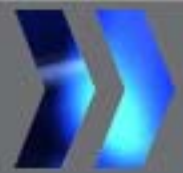
- ◆ Are there any environmental features present that would preclude the subject area from being a potential site for a deep geological repository?

» **Anticipated Environmental Impacts**

- ◆ Can the anticipated environmental effects be managed such that the ongoing health and safety of persons and the environment is assured?

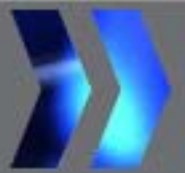
» **Postclosure Safety**

- ◆ Are there any unacceptable consequences anticipated at long times after repository closure?



» Examined:

- ◆ Infrastructure
- ◆ Protected Areas (Parks, Reserves, Heritage Sites)
- ◆ Land Use
- ◆ Natural Environment (Terrestrial / Aquatic Features, Special Concern Species)
- ◆ Background Environmental Conditions (Air, Soil, Water)
- ◆ Surface Water Hydrology
- ◆ Groundwater and Wells
- ◆ Climate and Meteorology
- ◆ Natural Hazards



» Examined:

- ◆ Public road system and rail network
- ◆ Adequacy of road and rail system
- ◆ Travel restrictions (weather & seasonal)
- ◆ Number of serviceable routes
- ◆ Emergency response measures
- ◆ Carbon footprint
- ◆ Conventional accidents
- ◆ Shipping costs

Engineering Feasibility in Community

- » Examined:
 - Engineering Feasibility in Community
 - Engineering Costs for Community

- » Main APM surface facilities include:
 - Used Fuel Packaging Plant
 - Main Shaft, Service Shaft and Ventilation Shaft Complexes
 - Sealing Materials Compaction Plant
 - Administration Building, Firehall and Cafeteria
 - Quality Control Offices and Laboratory
 - Water Treatment Plant
 - Storage Areas and Commons Services

- » Assess need for additional infrastructure and associated costs (e.g.):
 - Roads
 - High-voltage transmission lines
 - Other (to support APM facility construction and operation)

Community Well-Being Evaluation Factors

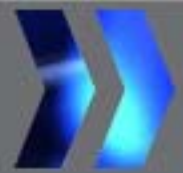
- » Potential social, economic and cultural effects during implementation phase of project, including factors identified by Aboriginal Traditional Knowledge.
- » Potential for enhancement of the community's and the region's long-term sustainability through implementation of the project.
- » Potential to avoid ecologically sensitive areas and locally significant features.
- » 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.

Factors Examined by Asset



Asset	Factors
Human Assets	<ul style="list-style-type: none">• Population size and demographics• Skills and labour supply• Education• Health and safety facilities and services
Economic Assets	<ul style="list-style-type: none">• Employment• Income• Business activity• Tourism• Economic development services• Governance and municipal finances
Infrastructure	<ul style="list-style-type: none">• Land use• Housing (and property value)• Municipal Infrastructure and services• Transportation infrastructure and services
Natural Environment	<ul style="list-style-type: none">• Parks and protected areas• Natural areas/ features of significance
Social Assets	<ul style="list-style-type: none">• Diversity of population• Cultural and heritage resources• Community and recreation facilities and programs• Social services and organizations• Community character

Reporting by Asset



Criteria / Measures	CWB is Enhanced When ...	Current Community Profile		Possible Community Profile with APM Project		Observations and Implications
OVERALL CWB IMPLICATIONS:						
Human Assets	Population growth occurs and youth are retained in the community	Declining	←	Enhanced	→	
Economic Assets	Employment opportunities are available and tax base increases to fund community services and facilities					
Infrastructure	Infrastructure is maintained or improved					
Social Assets	Opportunities exist for recreation and social networking. Community is cohesive, and enhanced.					
Natural Environment	Natural areas, parks and conservation reserves are preserved and maintained.					

Factors Examined 'Beyond Safety'



Factor	Indicator	
Potential social, economic and cultural effects during the implementation phase of the project, including factors identified by ATK	<ul style="list-style-type: none"> • Health and safety of residents and the community • Sustainable built environments • Sustainable natural environments • Local and surrounding area economy and employment • Community administration and decision-making processes • Balanced growth and healthy, livable communities 	<ul style="list-style-type: none"> • Maintained • Enhanced • Uncertain
Potential for enhancement of the community's and surrounding area's long term sustainability through implementation of the project, including factors identified by ATK	<ul style="list-style-type: none"> • Health and safety of residents and the community • Sustainable built environments • Sustainable natural environments • Local and surrounding area economy and employment • Community administration and decision-making processes • Balanced growth and healthy, livable communities 	<ul style="list-style-type: none"> • Maintained • Enhanced • Uncertain
Potential to avoid ecologically sensitive areas and locally significant features, including factors identified by ATK	<ul style="list-style-type: none"> • Ability to avoid ecologically sensitive areas and locally significant features 	<ul style="list-style-type: none"> • Yes • No • TBD
Potential for physical and social infrastructure to adapt to changes resulting from the project	<ul style="list-style-type: none"> • Potential for physical infrastructure to be adapted to implement the project • Potential for social infrastructure to be adapted to implement the project • NWMO resources required to put in place physical and social infrastructure needed to support the project 	<ul style="list-style-type: none"> • Yes • No • TBD
Potential to avoid or minimize effects of the transportation of used nuclear fuel from existing storage facilities to the repository site	<ul style="list-style-type: none"> • Availability of transportation routes (road, rail, water) and the adequacy of associated infrastructure and potential to put such routes in place from a social perspective • Availability of suitable safe connections and intermodal transfer points, if required, and potential to put them in place from a social perspective • NWMO resources (fuel, people) and associated required to transport used fuel to the site • Carbon footprint • Potential for effects on communities along the transportation routes and a intermodal transfer points 	<ul style="list-style-type: none"> • Yes • No • TBD

Integrated Approach: A Focus on Safety



Integration methodology is set out in published siting process “Moving Forward Together” (2010).

- » **The preeminent focus is ensuring Safety for people and the environment**
 - » For a candidate site to be considered, specific scientific and technical requirements must be met
 - » Safety factors published in 2010 have since been assessed under focused areas of study for:
 - Geoscience
 - Environment and Safety
 - Engineering
 - Transportation

- » **Beyond safety, APM project must foster long-term Community Well-Being**
 - » As outlined in siting publications, assessments have examined:
 - Potential of APM to foster well-being in interested community, Aboriginal peoples and surrounding communities
 - Potential to sustain interest in the APM project, and establish the foundation to move forward

Range of Reports

