What we heard:
Implementing Canada's plan in 2021

APRIL 2022

nwmo
NUCLEAR WASTE MANAGEMENT ORGANIZATION
SOCIÉTÉ DE GESTION DES DÉCHETS NUCLÉAIRES

LAND ACKNOWLEDGMENT

The Nuclear Waste Management Organization (NWMO) acknowledges that we have worked in many different Indigenous territories since the inception of the organization. We are grateful to the many Indigenous and municipal communities that have worked with us over the past 20 years.

We further acknowledge that today we are working in northwestern Ontario in the Wabigoon Lake Ojibway Nation traditional territory with Wabigoon and the Township of Ignace.

In southern Ontario, we are working in the Saugeen Ojibway Nation (SON) traditional territory with the two SON communities – Chippewas of Nawash Unceded First Nation and Chippewas of Saugeen First Nation – and the Municipality of South Bruce.

We further acknowledge that in both the northwest and the south, we have the privilege of working with other First Nations and organizations, with Métis communities and the Métis Nation of Ontario, and many municipal communities that have all expressed an interest in learning about our work.

As part of our commitment to Reconciliation, we recognize both the historic and current injustices far too many Indigenous communities endure and pledge to do our part to encourage well-being in communities with which we work.

At the end of each year, the Nuclear Waste Management Organization (NWMO) reports on the content and nature of our ongoing dialogue with communities, interested individuals and organizations as we advance the implementation of Canada's plan. These "What we heard" reports are intended to share these conversations more broadly, and invite others who may be interested to add their voice and help shape the conversation.

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INTRODUCTION

Last year, the Nuclear Waste Management Organization (NWMO) heard from thousands of Canadians and Indigenous peoples as we continued implementing Adaptive Phased Management (APM), Canada's plan for the safe, long-term management of used nuclear fuel.

APM includes a technical plan, as well as a phased and flexible implementation plan. It is both a technical method (what we plan to build) and a management system (how we will work with people to get it done). The technological approach involves developing a deep geological repository in a suitable rock formation to safely contain and isolate used nuclear fuel. The management system involves phased and adaptive decision-making, supported by public engagement and continuous learning.

As part of implementing APM, we have been busy talking to people in communities around our two remaining siting areas in northwestern and southern Ontario, sharing what we're learning as we prepare to select a single site to isolate and contain Canada's used nuclear fuel for thousands of years.

This report is the latest in a series of annual reports that intend to broadly summarize the vast breadth of conversations we have on this complex and sometimes charged topic. Public engagement is one of the NWMO's central values, and here you will find a summary of key questions, concerns, and topics we heard about in 2021, including:

Safety, water and the environment
Our repository safety specialists continue to hear from members of the community. We hear that people in the potential siting areas want to know more about the Used Fuel Containers, and their role in isolating the used nuclear fuel from the environment. We understand that there continues to be a need to communicate the safety features of the rock surrounding the repository and explaining how it is only one of a series of barriers meant to ensure used fuel stays isolated.

We also hear that people are worried that hosting a deep geological repository could have a stigmatizing effect on local agricultural products and are concerned about the potential effects of the project on water. In both areas, protecting water is a focal point through all project phases, both on and off-site.

Based on input received in 2021, we are currently working with various rights holders and stakeholders on incorporating ceremony, implementing quarterly program updates, creating opportunities for community oversight, identifying training and educational opportunities, and identifying local organizations to independently collect data.

Willingness and partnership
Community discussions advanced through 2021 with the help of third-party consultants selected by the communities. Both Ignace and South Bruce each produced a report outlining community plans for demonstrating willingness.

In the Municipality of South Bruce, the final report was presented to South Bruce Council in November 2021 and is available at the Municipality's website at www.southbruce.ca. South Bruce Council endorsed a process to determine willingness through a by-election after a draft hosting agreement has been negotiated.

Results in Ignace showed that residents are comfortable with having multiple ways to answer the question during a decision period. The wording of the question and timing of the decision would be decided by Ignace Township Council. Timing would likely depend on the completion of community studies, associated health, safety and environmental studies and identification of benefits. To achieve fairness, an extended decision process time-period would allow seasonal residents and workers who live in Ignace and travel outside for work to participate.

Borehole studies
In 2021, in addition to borehole drilling, coring and testing, additional fieldwork activities were completed such as installation of microseismic monitoring stations, completion of a 3D seismic survey and initiating the installation of a shallow groundwater monitoring well network.

Through engagement, we have already heard a range of perceptions about the likely potential impacts on neighbouring property values. In response to these

concerns, the NWMO and the Municipality of South Bruce agreed to establish a program to compensate property owners if values are adversely affected bythe project, should it be sited in the SON-South Bruce area.

Reconciliation and Indigenous Knowledge
Throughout all of 2021, we continued to meet virtually with the Council of Elders and Youth in order to maintain consistency in their involvement in our work, and their ability to provide vital and meaningful advice and guidance to the NWMO.

We also developed and piloted our Reconciliation Part Three training program. The training program, focused on the historical and modern contexts of treaty making and treaty rights, was delivered in a virtual environment that allowed for interactive group and small discussions. What we heard from staff is the importance of this training module in supporting them to understand the history and implementation of treaties, their impacts on modern land-claims, and especially to develop a deeper understanding of the treaty territories in which the NWMO works.

We have heard from Indigenous communities that they are happy that the NWMO is making a commitment to Reconciliation, but that they are still working through what their role in the process will be.

Transportation planning
In late 2021, we published a revised draft Transportation Planning Framework based on public engagement that occurred in 2020 and 2021. As we engaged on the framework, it became clear that people had many questions about the technical component of the NWMO's transportation plan. Although much of our planning work is preliminary in nature, it is important for people to see that their concerns are being reflected in our planning. Therefore, we developed a plain language preliminary transportation plan with the concept of social safety at its core.

Going forward, these documents will be revised and updated as more detailed information becomes available. We continue to be driven by the public's questions and how we can best respond to those questions, and both the Transportation Planning Framework and the Preliminary Transportation Plan are available for review at www.nwmo.ca/transportationplanning.

Media and online voices
We hear a range of public opinion via traditional media reports in newspapers, on the radio and TV, including support for the project and what it can bring to potential siting communities, questions from information-seekers and those still learning, as well as critiques from those firmly opposed to Canada's plan. For another year, conversations online and on social media were dominated by frequent, sometimes divisive discussion of community willingness and decision-making. We continue to see the same broad themes discussed throughout this report as topics of conversation online, both in social media and in reviews of traditional media.

Public engagement continues to inform all the NWMO's work. In this report, you will find a detailed summary of the key questions, concerns and topics that we heard about in 2021 across a wide range of engagement programs.

2021 IN REVIEW

Approaching milestones

Over the course of the past decade, the NWMO has narrowed down potential siting areas to just two, both located in Ontario – the Wabigoon-Ignace area in the northwest and the Saugeen Ojibway Nation (SON)-South Bruce area in the south.

A significant milestone is now on the horizon, as we expect to select the site for the repository in 2023. The communities we work with are more engaged than ever in site selection activities, from collaborating in environmental, social and economic studies, to involvement in planning and undertaking the technical studies like boreholes underway in each area. In 2021, the NWMO organized more than 240 engagement activities and we estimate more than 3,000 people participated both in-person and virtually. Engagement is one of our fundamental values as an organization.

Residents in and around siting areas also recognize that important decisions must be made, and there's never been a bigger need for clear, concise and factual information about the project, and opportunities for people to engage with the NWMO's specialists, engineers and scientists.

Engaging safely and virtually

Our site selection process has always been rooted in community dialogue. When the pandemic struck in 2020, we immediately reoriented our engagement approaches to ensure communities and employees were safe, while keeping lines of communication open.

In 2021, we maintained this safety-conscious approach to public engagement. Engagement teams in Toronto and each siting area followed advice from local public health authorities and found many ways to engage virtually and keep people safe from COVID-19 and its variants. Community Liaison Committees kept meeting virtually, and virtual briefings and presentations became the norm, as well as participation in virtual conferences and meetings.

To assist this work, we produced more multimedia content like YouTube videos and refined some of our virtual engagement tools. We also began offering accessible and concise "virtual open houses" for various municipal and Indigenous audiences.

Even with all the opportunities for virtual engagement, we heard from people that they wanted more opportunities for high-quality, in-person engagement with specialists, so our Mobile Learn More Centre (MLMC) made more than 50 stops in communities to share information, answer questions, and hear the public's comments and concerns. With experts on hand that could provide answers to their questions directly, people asked for evidence or demonstrations of the safety of Canada's plan. Residents of potential siting areas were able to interact with models and displays developed to assist with learning. In many cases, these materials were sufficient to ease people's concerns about the technology or other aspects of the project.

As public health measures relaxed in August we were also able to re-open our newly renovated Ignace Learn More Centre. This interactive learning space and community office was redesigned thanks to feedback from community members. They told us they wanted a better way to visualize and gain a deeper understanding of the project. The centre's new design has a visual focus. It includes new displays, including a large 3D model of a deep geological repository.

For more detail on the kinds of engagement activities we held over 2021, please see our most recent Annual Report, published on our website at www.nwmo.ca/annualreport2021.

Community surveys

In recent years we have benefitted from hearing from larger groups of people across Canada through surveys carried out by qualified and independent consultants.

In 2021, the results of independent community surveys commissioned by the NWMO, the Township of Ignace and the Municipality of South Bruce showed high levels of community awareness about the NWMO and our work. The surveys were carried out by CCI Research between January and April and mailed to 850 Ignace households and 2,099 South Bruce households.

In summary, most residents of both Ignace and South Bruce are aware of the NWMO and know that their communities are part of the site selection process for a deep geological repository for the long-term management of Canada's used nuclear fuel.

Other key findings of the surveys include:

- Awareness of the NWMO: Between 96 and 98 per cent of survey respondents had heard of the NWMO prior to receiving their survey.
- Familiarity with community involvement: Between 88 and 92 per cent were very or somewhat familiar with their community's involvement in the site selection process.
- Awareness of willingness requirement: Between 84 and 87 per cent of survey respondents were aware the project will only be implemented with the involvement of informed and willing hosts.
- Interest in studies: Both siting communities said they were most interested in learning about environmental studies.
- Preferred method of communication about the project: Survey respondents preferred to receive information about the project through brochures, newsletters, meetings, and authoritative websites (such as the township or the NWMO).

Another survey of approximately 600 residents commissioned by Bruce Power in February and carried out by Ipsos (a firm specializing in market research) showed that a majority of residents in Bruce, Grey and Huron Counties support the NWMO's siting process. More than two thirds of area residents — 69% — "support the consultation and study process" led by the NWMO, and awareness of the project in Bruce County, where South Bruce is located, is nearly 80%.

A survey about our transportation planning priorities revealed that they closely align with what Canadians and Indigenous peoples consider important, and that 91 per cent of all respondents agree that safety is a top requirement. Additional detail on transportation planning is discussed in that section of the report.

Finally, we also published a digital survey to accompany the report, to solicit feedback online from Canadians and Indigenous peoples. This was our first year using a digital survey with this report and we received 761 survey responses. This new approach is one of many examples of how the NWMO is leveraging digital technologies to provide more options for engagement with Canada's plan.

A Virtual Open House was relaunched in 2021 and available at www.nwmo.ca/voh.

The newly renovated NWMO Ignace Learn More Centre features new displays, including a large 3D model of a deep geological repository.

Interest in new and emerging technologies

Driven by increased discussion in the national media and commitments by provincial governments, there is growing public interest in learning about small modular reactors (SMRs) and how these might impact the implementation of Canada's plan. Common questions include:

- How many Canada Deuterium Uranium (CANDU) reactors are in Canada?
- What is an SMR, and how does the technology compare to CANDU reactors?
- What kind of fuel is used for SMRs?
- Will the NWMO be able to manage used fuel from SMRs safely?
- Who will manage radioactive waste from SMRs, apart from the used fuel?
- Can CANDU fuel be reused or reprocessed in an SMR to reduce the volume of waste to be managed by the NWMO?
- Can CANDU reactors overseas reprocess or recycle other kinds of nuclear fuel?

In response to these and other questions, the NWMO developed a backgrounder in 2018 called Small Modular Reactors: Managing Used Fuel, which remains available on our website. It outlines the NWMO's responsibility for the long-term management of all of Canada's used nuclear fuel, including any created using new or emerging technologies. We will also stay informed about technological advancements to anticipate any changes in fuel cycles and the types of waste we might be required to manage in the future. This information on new technology is shared with the public through the annual Watching Brief on Advanced Fuel Cycles, available online at www.nwmo.ca/adaptation.

Climate change

People also remain interested in how the NWMO will adapt the project to the challenges posed by climate change. It is a common, perennial topic, often prompted by recent news of climate-change (i.e. wildfires, melting permafrost), and the increasingly popular belief that nuclear technology could be a means to reduce greenhouse gas emissions from electricity production. We spoke with people who noted major climate and social events around the world in 2021 that they believe might affect how we implement Adaptive Phased Management.

Our engagement and technical specialists often speak about our specific duty to manage the end of the

nuclear fuel cycle, and respond to questions about how we will adapt to present and future climate change, including both warming and cooling (i.e. ice ages and masses of ice pressing down on a deep geological repository), and the possibility of social disruption that might impact the ongoing interim management of used nuclear fuel at reactor sites.

The discussion of social disruption has more recently led to additional conversations about the status quo (i.e. not pursuing APM), or questions such as, "What happens if we leave [used nuclear fuel] where it is?" Some people we hear from believe strongly that leaving used nuclear fuel aboveground at existing interim storage facilities is a safer option, others believe it should remain as is (rolling stewardship) for a defined period of time such as 100 years until alternatives can be found and yet others are very concerned about the long-term safety and security of the material above-ground if it were to require active management in the face of extended disruptions posed by climate change, pandemics or breakdowns of social order.

In 2021, we further prepared for an uncertain future by commissioning Golder Inc. (an engineering firm) to write reports that examine how the climate may change in either potential siting area. The reports allow us to adapt our technical designs for both areas to ensure they can withstand shifting weather patterns, whether that is through changes to our stormwater management or ensuring the surface facilities can withstand extreme heat or even flooding.

EXPLORING SAFETY TOGETHER

Community directed learning

Through virtual community liaison committee meetings, lunch and learn events, open houses, workshops and project briefings in communities, people were able to participate in site selection activities despite the public health restrictions due to the COVID-19 pandemic. As restrictions allowed, repository safety and other specialists also began working out of community offices to better engage residents who were eager to have questions immediately answered by the right experts at the NWMO.

Our repository safety specialists continue to hear from members of the community through these valuable engagement opportunities. We know we build trust by being available, and through routine interaction with residents near borehole drilling sites, municipal and regional officials, and members of local civil society.

We hear that people in the potential siting areas want to know more about the Used Fuel Containers, and their role in isolating the used nuclear fuel from the environment. We understand that there continues to be a need to communicate the safety features of the rock surrounding the repository and explaining how the rock is only one of a series of barriers meant to ensure used fuel stays isolated.

We also hear that people are worried that hosting a deep geological repository could have a stigmatizing effect on local agricultural products. We also know we have work to do to demonstrate the safety of the project during its construction and operation phases and how local water sources will not be negatively impacted throughout the long timeframes involved in the project.

It is responding to these kinds of community information needs that helps inspire new areas of study. For example, in 2021 we began working with residents in the northwestern area to launch a community-based biodiversity program to test baseline chemistry of various plants and animals. In the southern area, we partnered with the Saugeen Valley Conservation Authority to launch a joint program to conduct surface water and hydrology studies on behalf of the NWMO.

Co-designing the environment program

In keeping with the participatory model of Canada's plan, we used a participatory process to co-design a predictive baseline monitoring program. Co-design is a collaborative process that combines designers, users, rights holders, experts, citizens, knowledge holders, or regulators with the assumption that anybody is an expert regarding their own experience and draws on the diversity of one's practical and experiential knowledge to create a better design. This definition builds on Sanders and Stappers (2008) definition of co-design referring to "the creativity of designers and people not trained in design working together in the design development process."

The environment program is based on a continuous learning model that adapts through the life of the project to address the questions and concerns of the co-designers as they evolve through the different phases of the project. Initial community workshops kicked–off the design phase of the environmental baseline program. Community workshops were held beginning in 2019 for feedback on three questions:

- What are your questions and concerns about your local environment?
- What are the current stressors/pressures on your local environment?
- What are the key elements of an open and trustworthy environmental monitoring program?

Initial input received ranged from what should be monitored, to who should be involved and how information is shared. It was also noted that the design should be led by experts.

Input from the initial workshops was used as foundational elements of the baseline program design, and consultants with various fields of expertise provided draft designs and study areas that were brought back out to community workshops.

Participants were asked to identify if their input was used appropriately in the design, if the study areas captured their concerns and local knowledge, and whether the

program as designed was acceptable as a starting point. Feedback at these workshops was used to further refine the baseline design, including study areas. Workshop participants were also asked how community members may wish to participate in the implementation of the program as well as contributing to the continuous learning and adaptation of the program going forward.

As we moved into implementation of the program in 2021, we continued to seek and incorporate feedback to address input on key program elements such as:

- how to continue to incorporate spirit and ceremony into the work.
- how to build local capacity to take on some of the monitoring.
- how results can be shared in an accessible and transparent manner.
- how independent and trusted third parties can be involved in data collection and analysis.

Based on input received, we are currently working with various stakeholders and rights holders on incorporating ceremony, implementing quarterly program updates, creating opportunities for community oversight, identifying training and educational opportunities, and identifying local organizations to independently collect data. Examples of community-led local data collection include the data collected by the SVCA and the Township of Ignace.

Water and the environment

As part of our program of community-directed learning on critical subjects like safety, we continue to hear about the importance of maintaining clean, safe water both above and below ground, in whichever community is selected for a deep geological repository.

In the Wabigoon-Ignace area, we often hear about water as a feature of the geography, encountered virtually everywhere as streams, rivers and small lakes that are all connected, ultimately to the broader Arctic Ocean watershed, in that siting area.

In the SON-South Bruce area, talking to people about water and safety means hearing about how it is an integral part of agriculture and livelihoods, and how essential it is that sources of water remain uncontaminated—to keep it a safe, shared resource that nourishes the land, animals and people.

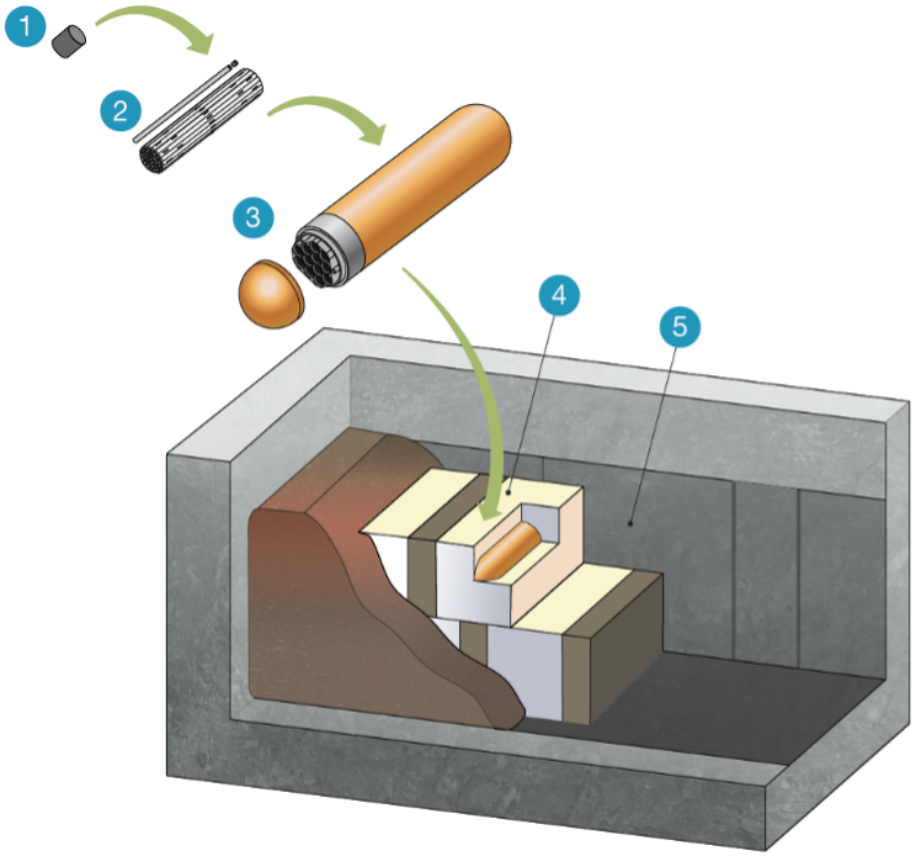
And across Ontario, we hear from First Nations and Métis people who tell us of their sacred relationship with water and its role in the life of animals, people and communities. The NWMO is committed to interweaving Indigenous Knowledge into our work and we learn from traditional teachings such as respecting Mother Earth.

In 2021, the Safety and Technical Research team continued to improve its understanding of Indigenous Knowledge, including conducting an Indigenous Knowledge and western science workshop and participating in the NWMO's Journey of Water project (see the section on Reconciliation for more information on that project). As work progresses, the team will seek Indigenous input into its safety assessments, including considering local lifestyles representative of the communities in the potential siting areas.

Our commitment to keeping water safe and responding to people's concerns led to several other important streams of work in 2021. In February, the NWMO's geoscience team and their contractor completed a pre-drilling water sampling and testing at the potential repository site in Teeswater. In response to feedback received from the community, the private water well testing was expanded to include more wells.

Landowners who participated received data on their wells, and the sampling supported the NWMO's environmental baseline monitoring program. The environmental baseline monitoring program applies to both siting areas and is about understanding the current local environment, from the water and air, to the flora and fauna, so the NWMO can avoid, prevent or mitigate the impacts of our work in the selected community.

In both areas, protecting water is a focal point through all project phases, both on and off-site.



This diagram shows the multiple-barrier system that will contain and isolate the used nuclear fuel.

FREQUENTLY ASKED QUESTIONS: **SAFETY**

- How long will this radioactive material be dangerous?
- How can you know if it will be safe over millions of years?
- What is a deep geological repository? How will it isolate used nuclear fuel from people and the environment?
- How will it be determined that the project is safe?
- How will people and the environment be protected? What is the multi-barrier system?
- How is the NWMO technically demonstrating safety of the project?
- How much radiation would this facility emit in a year?
- Will this affect groundwater and nearby waterways like rivers, lakes and the Great Lakes?
- Will this affect the safety of agricultural products produced in the area?
- How will future generations, a thousand years from now and perhaps without today's technology, be made aware of the danger of disturbing the repository?
- What are the implications for used fuel storage if a site is not selected?
- Do used fuel containers and packages become radioactive?
- Would the driver of a transport vehicle with a used nuclear fuel package be safe? What would their dose level be?
- How will the environment, and specifically water, be protected during technical studies when you are drilling boreholes?
- How will the environment be protected when the repository is under construction and during operations?
- What are the safety measures at surface facilities? How will these facilities use water, treat waste and safely manage radioactive sources?
- What does the rock look like here in the region? Is it suitable for a deep geological repository?
- Used nuclear fuel is moved around at nuclear power plants and in interim storage sites already. Are there any activities that would be considered higher risk than the activity already being done at the nuclear power plants?
- Are you assessing the advantages and disadvantages of opening the packages, putting it in the transport containers, and then repacking into the barrier system?
- How will you manage water run-off from the site?
- What are the environmental impacts of the rock pile that will be created during the deep geological repository's construction?
- How will an emplacement room in the deep geological repository be filled? Will robots be used?
- What is the radiation limit for a nuclear worker in Canada?
- Will there be a monitoring system placed underground?
- In an ice age, can the repository withstand the weight of a glacier on top of it?
- Is the NWMO considering disruptive events such as forest fires, flooding and extreme weather?
- Does the NWMO take into consideration the possibility of earthquakes?
- Can land on top of the repository be farmed?
- How would accidental releases into local waterways affect local agricultural products?

EXPLORING PARTNERSHIP AND WILLINGNESS

Following a collaborative road map

With the support of third-party consultants and input from the community, a project vision was summarized and described in reports published in each core municipality in 2020. Under the leadership of Municipal Councils in Ignace and South Bruce, project visioning work then moved into a phase of information gathering to determine the project's potential fit in each area.

Developing that community-specific vision for the project marked the completion of the second step in the 'partnership roadmap' (see diagram below), which includes a series of activities developed with communities to explore the potential for partnership.

In 2021, the NWMO worked with its partners in both siting areas to advance our way along the roadmap. With the support of independent consultants, the municipalities and the NWMO are beginning to answer some of the questions posed by the project visions, such as effects on local populations, traffic, and economies. Some examples are listed at the end of this chapter.

Socio-economic studies

A desire for reliable, accessible information remains a constant everywhere we work. Validating the project visions of each community required that the municipalities and the NWMO each commission a series of peer-reviewed studies to provide insight on the social and economic changes that might accompany the project, and what could be done to mitigate negative effects while capitalizing on opportunities.

Initial studies have indicated there is a strong potential to identify a safe site in either siting area. They also showed that the project has the potential to fit with the social, cultural, spiritual and economic well-being aspirations of either siting area.

Of course, further detailed studies are required to fully assess each of the potential safety, social, economic and cultural impacts of the project, including at a regional scale. The NWMO worked with each of the Township of Ignace and Municipality of South Bruce in 2021 to prepare a plan for studies covering topics that align with project visions each municipality had developed in 2020 (discussed in last year's What We Heard report).

Consultants from many people living in both siting areas as part of their qualitative and quantitative research in 2021. The findings from the studies noted in the table below will be shared broadly with the community as they are published in 2022 and 2023.

Further detailed study topics:	
Employment and workforce	Describing the current workforce, the number of workers, and skills that will be required, and identifying opportunities to enhance local employment
Housing	Examining current housing situation, whether sufficient short-term or long-term housing will be available, and what increased demand may mean for housing prices.
Infrastructure	Examining potential changes associated with additional people and traffic, including required improvements to roads and other infrastructure.
Economics	Identifying current local and regional economic conditions and development opportunities arising from the project.
Environmental	Ensuring the production of local rivers, lakes, and groundwater, and the development of the site will note harm sensitive ecosystems and endangered species.
Health	Examining the regional health and social service systems to prepare for the new families the project will bring into the area.
Well-being	Examining the effects on education and services for vulnerable groups in the region to meet the needs of individuals and families.

Determining willingness
In 2021, both Ignace and South Bruce conducted independent, consultant-lead studies into how their respective communities would express willingness to host a deep geological repository.

Community discussions advanced through 2021 with the help of third-party consultants selected by the communities. Each produced a report outlining community plans for demonstrating willingness and are discussed over the following pages.

Consent will be determined by the potential host communities, and the project will only proceed in an area with informed and willing hosts, with the involvement of the interested municipality, First Nation and Métis communities and others in the area working together to implement the project.

Ignace has decided this will take the form of a resolution from council after a multi-pronged engagement approach with residents. After gathering input from the community, those results will be collated and then a resolution will be presented. In South Bruce, willingness will be determined using a by-election with a question on the ballot after a draft hosting agreement has been established between the municipality and NWMO. The First Nations involved will also have their own processes for willingness.

The NWMO has always said the decision about willingness to host the project belongs in the hands of communities themselves. It's up to the community to decide the best way to define their willingness, whether or not they are willing, and how they will express that willingness.

Road map to partnership (2017-22)

ALIGNED PARTNERSHIPS
Through a schedule developed and agreed upon with partners

INVESTMENTS
Identify and deliver investments that drive capability and economic prosperity for partners

IDENTIFY REQUIRED PARTNERSHIPS
Identify required partnerships with whom, at what level, in what combination, and when

DEVELOP VISION FOR THE PROJECT
Develop the project vision that will meet the NWMO's and community's interests, and potential partners as well

VALUES AND PRINCIPLES TO GUIDE PARTNERSHIP DISCUSSIONS
Agree on common values and principles to guide partnership discussions

Starting from the bottom and moving upwards, the road map guides our discussions about partnership with communities.

WILLINGNESS IN SOUTH BRUCE, ONT.

The Municipality of South Bruce contracted with GHD, an independent consultant, to produce its own Willingness Study that was completed in October. The Municipality's objective for the Willingness Study was to ensure the process to determine willingness reflects the values and priorities of the South Bruce community. The study sought broad input from residents and ratepayers to inform how the community's willingness will be determined.

The final report was presented to South Bruce Council in November and is available at the Municipality's website (www.southbruce.ca). South Bruce Council endorsed a process to determine willingness through a by-election after a draft hosting agreement has been negotiated.

Input was gathered through a program of public engagement including Virtual Community Workshops, in-person drop-ins, questionnaires, and a meeting with the local Community Liaison Committee. Overall, 230 individuals participated in some fashion.

Source: Final Community Engagement Report.

What the community said to researchers was summed up in a series of themes:

1. Overwhelming preference for a public referendum
2. Different perspectives on the timing of a referendum
3. Diversity of perspectives on other ways to determine willingness—other than a referendum, no individual process for determining willingness emerged as strongly preferred.
4. Desire for clear, accessible and unbiased information from trusted sources
5. Importance of broad representation
6. Issues related to trust, mistrust, transparency, and community division

Detailed findings are available on the Municipality's website in the final report and its appendices at www.southbruce.ca/en/municipal-government/studies-and-reports.aspx.

WILLINGNESS IN IGNACE, ONT.

The Township of Ignace's Willingness Study was conducted by SLR & Hardy Stevenson & Associates and commissioned independently by the Township. The goal of the study was to research and outline a possible process for Ignace residents to demonstrate willingness for the project being implemented in their area. The final report was published in December 2021 and is available on the Township's website at www.ignace.ca. After discussing at a meeting, Ignace Council decided willingness will be determined by a vote of council, informed by public input as described below.

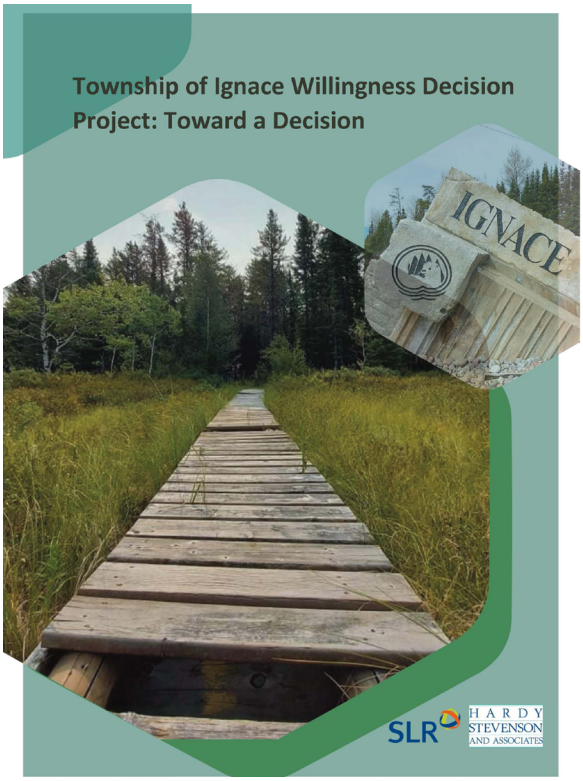
The final report presents findings from a series of community engagement events that occurred between June and October 2021 to explore how Ignace residents want to make the community decision to host the project, that is, 'what ought to be the decision process for Ignace'. The following is a summary of the findings and their implications.

Results of the study found that, in terms of values, Ignace residents want the decision process to be inclusive and fair, balancing the needs for transparency and confidentiality. Residents are comfortable with having multiple ways to answer the question during a decision period. The wording of the question and timing of the decision would be decided by Ignace Township Council. Timing would likely depend on the completion of community studies, associated health, safety and environmental studies and identification of benefits. To achieve fairness, an extended decision process time-period would allow seasonal residents and workers who live in Ignace and travel outside for work to participate.

In terms of a desired process, it would allow for residents' deliberation, in a manner characteristic of deliberative democracy. Multiple learning opportunities and ongoing dialogue characterizing the process would allow residents to make an informed decision. Methods of obtaining the views of residents could include: special events where people can come together, learn and respond to the question; an all-home door-to-door community survey confidentially administered by a third party, and; pop-up and drop-in events encouraging Ignace residents to answer the question in a confidential manner. Engagement would continue in Ignace and across the region. Every Ignace resident would have multiple opportunities to participate.

The community would be asked to decide. A third party would collate the responses in a transparent manner and present them to the Ignace Community Nuclear Liaison Committee (ICNLC). The ICNLC would share the results to the public and facilitate further deliberation and discernment. Following a period of reflection and comment, the INCLC would present the results to the Ignace Township Mayor and Council for a final community decision through a Council resolution.

Details from this study, including sample input and comments from residents is available in the report and its appendices



FREQUENTLY ASKED QUESTIONS: **PARTNERSHIP AND WILLINGNESS**

- What is the definition of willingness?
- How will willingness and support be gauged? Will there be a referendum? Will Council decide?
- What is our community's role in the site selection process? What do you need from us?
- What is the Community Liaison Committee and when does it meet? Can I attend its meetings?
- Will there be changes to the timeline due to the pandemic?
- What are the local and/or regional benefits of hosting? Will there be local jobs or infrastructure?
- How do I get involved in my community's decision-making process? Is there a local committee?
- Have you talked to [my neighbour] about the project yet? I think they would be interested to know.
- What happens if local circumstances change? Can we opt out of the process?
- How much land is required to build the repository and facilities? Is there enough in my community?
- Will the project involve changes to zoning/land use around the site?
- Will you be looking at Crown land for the repository?
- How can we prepare people in the community and area to participate in the project, and to develop skills and capacity?
- How will the NWMO ensure that the community and people in the area benefit?
- How can we begin to plan for jobs and longer-term economic development?
- What are the opportunities for businesses and employment associated with site selection?
- How are youth being engaged? How can we retain youth in our communities?
- What learning resources are available to students and youth?
- When will we begin to see economic activity and jobs in the area?
- What kind of training is available in the near future to build the kind of human resource capacity needed to accommodate the project?
- What resources are available to communities now to help build understanding of the project locally and with our neighbours?
- Are there economic opportunities related to the rock that is extracted from the repository?
- Who will be involved in partnership discussions? Local municipalities? Indigenous communities?
- Who needs to be supportive of the project in our area for it to proceed?
- How can I help build this partnership?
- With whom is the NWMO looking to partner?
- What resources are available to learn more about partnership and what partnership would mean for our community?
- Can a few people in an area who are opposed to the project prevent it from proceeding in the area?
- How can we help to get more people involved?

GEOSCIENCE FIELDWORK ACTIVITIES

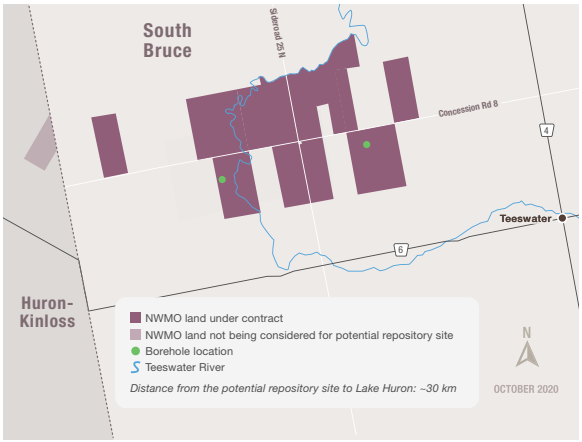
Geoscience fieldwork activities in South Bruce
The NWMO initiated a process in May 2019 to assemble an area of land required to host a potential deep geological repository site. This public Land Access Process continued until late 2020 when we announced we had signed options for 1,500 acres of land in an area northwest of Teeswater, in the Municipality of South Bruce. We also announced our plans to proceed with drilling two boreholes on that land.

The location of the first borehole is Lot 23, Concession 8, and the second is at Lot 28/29, Concession 8. The construction of the first drill pad and access to the site began in November 2020, with drilling of the first borehole started and completed in 2021. The second borehole is expected to be completed in summer 2022.

In 2021, in addition to borehole drilling, coring and testing additional fieldwork activities such installation of microseismic monitoring stations, completion of a 3D seismic survey and initiating the installation of a shallow groundwater monitoring well network.

Through engagement, we have already heard a range of perceptions about the likely potential impacts on neighbouring property values. In response to these concerns, the NWMO and the Municipality of South Bruce agreed to establish a program to compensate property owners if values are adversely affected by the project, should it be sited in the SON-South Bruce area.

Among the prevailing community-based conversations, we continue to hear a few landowners and residents express concerns about the long-term safety of local water sources, the perception of the community's agricultural products in national and international markets, and some business owners have expressed concerns about the project competing for local labour.



Borehole drilling in the Wabigoon-Ignace area

In the Wabigoon-Ignace area, where borehole drilling had been underway already for four years, many people frequently express interest in learning about the drilling results and seek regular updates on the status of the six borehole locations.

Last year was an important one with respect to geological study in the area. In Spring 2021, the NWMO's contractor remobilized to the field to complete the testing of borehole 4 and initiate drilling of borehole 5 (followed by borehole 6). In June 2021, the NWMO's geological specialists presented an update to the Ignace Community Nuclear Liaison Committee.

In November, we announced that borehole drilling in the area was complete, and that final downhole testing was underway. Equipment is planned to be removed in Spring 2022 when downhole testing is completed. Altogether, the NWMO's contractors drilled six one-kilometre holes, extracting the core samples for study. Around 240 people, including students, visited the boreholes, MET and seismic stations to gain a better understanding of what was happening on-site.

In September, the NWMO's teams lowered six steel modules 300 metres into one of the boreholes as part of an engineered barrier material study, to study how clay and copper will react in conditions similar to a deep geological repository. Those canisters will be retrieved periodically over the next ten years.

During pre-drilling engagement in the Wabigoon-Ignace area, people expressed interest in the potential environmental, social, economic and cultural effects of borehole drilling. For example, we heard about the importance of protecting fish and wildlife habitats and preventing any environmental contamination. Some people who use the land near boreholes asked questions about how we would manage drilling activities so that these did not interfere with hunting, fishing and trapping activities.

Borehole drilling core samples in Ignace, Ont.

FREQUENTLY ASKED QUESTIONS:
BOREHOLE STUDIES AND LAND ACCESS

- What is the purpose of borehole drilling?
- How deep will the boreholes be drilled?
- How many workers will be on-site?
- How will siting the boreholes in this location affect my property values?
- How will siting the boreholes in this location affect my use of the land?
- How will siting the boreholes on Crown land affect my Aboriginal and treaty rights?
- How will you address impacts to my business or property while you conduct borehole tests?
- How will siting the boreholes in this location affect surface water, animals and plants?
- How will siting the boreholes in this location advance the well-being of the community and area?
- How will findings from the studies be shared with the communities?
- Do all siting areas have the same rock features? What are some of the differences?
- How much land will be cleared for borehole drilling? Must it all be contiguous?
- What is the environmental impact of the boreholes? What activities take place in preparing land around the boreholes?
- What economic development or business opportunities will result from borehole drilling?
- When you are building borehole access roads, how many water crossings are required?
- How many boreholes will be drilled at an identified location? When will subsequent borehole drilling operations be carried out?
- Will there be environmental monitoring of the borehole drilling sites during operations?
- What is the NWMO doing with the borehole samples? Where are they being stored?
- How does the NWMO's borehole drilling compare to those carried out by mining companies?
- Can drilling boreholes introduce fractures and cracks into the rock that can affect the performance of the deep geological repository?
- Is it possible to evaluate the safety of a rock formation from only six boreholes?
- How do you know that the water retrieved from deep underground is millions of years old?
- How do you know that the core sample/rock is really billions of years old?
- How do you seal/close a borehole after drilling is complete?

RECONCILIATION AND INDIGENOUS KNOWLEDGE

Throughout all of 2021, we continued to meet virtually with the Council of Elders and Youth in order to maintain consistency in their involvement in our work, and their ability to provide vital and meaningful advice and guidance to the NWMO. The Council met virtually once a month with the NWMO and every other month on their own to discuss ways that they could support the organization during these uncertain times. Members of the Council provided support in other ways through hosting monthly Sharing Circles for the NWMO's staff. Members of the Council also participated in monthly Reconciliation training sessions with staff. What we heard from staff is that the participation of Council members was a highlight and helpful for many staff to continue taking further steps in their Reconciliation journey.

We also continued to reach out to the Council of Elders and Youth, external partners and Indigenous community members to provide advice and guidance on various areas of the NWMO's work. Some examples include:

- Formed a cross-departmental working group to begin development of a cohesive Water Protection Strategy for the NWMO. This strategy has also been reviewed by Indigenous community members and will be reviewed by the Council of Elders and Youth in 2022.
- Developed a Reconciliation-informed sustainability framework that included review and input by Indigenous staff at the NWMO, members of the Council of Elders and Youth, Indigenous community members from Wabigoon Lake Ojibway Nation, Saugeen Ojibway Nation, as well as the Department of Water at the Assembly of First Nations.
- The NWMO's Manager of Transportation Engagement brought the draft Transportation Framework to the Council of Elders and Youth for advice and feedback to support the inclusion and interweaving of Indigenous Knowledge throughout the Framework.
- The Council and Indigenous community members also provided valuable feedback to the Integrated Strategy for Radioactive Waste Management.

In 2021, we developed and piloted our Reconciliation Part Three training program. The training program, focused on the historical and modern contexts of treaty making and treaty rights, was delivered in a virtual environment that allowed for interactive group and small discussions. What we heard from staff is the importance of this training module in supporting staff to understand the history and implementation of treaties, their impacts on modern land-claims, and especially to develop a deeper understanding of the treaty territories in which the NWMO works. The training modules will be rolled out to all staff in 2022 as an evolution of the Reconciliation Training Program.

We have heard from Indigenous communities that they are happy that the NWMO is making a commitment to Reconciliation, but that they are still working through what their role in the process will be.

From non-Indigenous people we work with, we hear that they are feeling encouraged by the NWMO's policy as we have created an avenue to advance Reconciliation with their neighbours. However, they have also indicated they still desire support in identifying and implementing next steps. Among our peers in the nuclear industry and corporate Canada, we have heard a lot of very positive feedback about the leadership role that the NWMO has taken on Reconciliation.

When asked how the NWMO Reconciliation work could be more relevant to their communities, community members frequently indicated that there could be more opportunities for reciprocal knowledge sharing between the NWMO and communities, including the importance of Reconciliation and history of Residential Schools. In 2022, we are also prioritizing creating space for learning and sharing between Indigenous and municipal governments and communities by expanding the reach of our Reconciliation training program to communities in our siting areas.

Indigenous communities continue to highlight the importance of protecting the water, air, and land, as well as the need to make technical information as

accessible as possible through collaboratively designed learning materials and creating opportunities to learn more. Many people want to learn how Canada's plan will safeguard water now and in the future.

In 2021, a strong focus on water initiatives guided our work in new and exciting directions as we explore the element's importance to all living beings and seek out expertise on both Indigenous and non-Indigenous strategies for its protection.

Over the past two years, the NWMO listened to and worked with Indigenous communities in the siting areas to overcome some of the unique challenges presented by the COVID-19 pandemic. Overwhelmingly, we heard that Indigenous communities prioritized keeping their members safe. As a result, the NWMO paused engagement and partnership discussions early in the pandemic. Additionally, technical site investigation work was also suspended, and we adapted our timelines in response to safety precautions recommended by communities.

Listening to communities also led us to provide financial support to help siting communities respond to the pandemic. Using our economies of scale, we also purchased and shipped $3,000 of personal protective equipment for youth in Métis communities in the northwest. In December 2021, we helped Indigenous communities in our siting areas respond to food insecurity by sponsoring over $20,000 for local food hampers programs for impacted households.

FREQUENTLY ASKED QUESTIONS:
INDIGENOUS RELATIONS AND RECONCILIATION

- How will the NWMO address the United Nations Declaration on the Rights of Indigenous Peoples in the management of hazardous materials in the traditional territories of Indigenous peoples?
- How can we keep our water safe by gaining a better understanding of the water cycle/the journey of water?
- What considerations are we giving to cultural sites in the selection of potential areas for drilling?
- How can we learn more about Indigenous cultures?
- What are some examples of how the NWMO is interweaving Indigenous Knowledge throughout the project?
- How are Indigenous communities involved in borehole drilling activities?
- How will First Nation/Métis communities indicate they are "willing hosts"? What does that mean?
- How do Land Use claims enter into the discussion? Do all the First Nation/Métis communities that have land claims in the area have to agree to be "willing hosts", even though these land claims have not yet been settled?
- What determines who is involved and who is not in?
- Where or how do the provincial/federal First Nation/Métis governing groups enter into the picture? Do or can they override the decisions of the local First Nation/Métis communities?
- Do they also have to be "willing hosts"?
- Can my group/community participate in Indigenous cultural awareness workshops?
- What is the NWMO doing with respect to Reconciliation with Indigenous peoples?
- How can non-Indigenous communities be involved in Reconciliation?
- Will this affect safety, access to natural resources such as water and ability to enjoy nature, or the ability to harvest or practice ceremony on traditional lands?

NWMO RECONCILIATION STRATEGY

2021 and beyond

Develop an Indigenous youth strategy that includes a scholarship program and recruitment strategy

Continue to enhance Reconciliation training to include unconscious bias training

Include Indigenous Knowledge in water protection plans

Apply the Reconciliation assessment tool to regional engagement strategies

Embed Reconciliation within corporate culture

2020

Enhanced policies and procedures to address Reconciliation

Enhanced procurement program to include an Indigenous strategy

Assessed corporate Reconciliation baseline and developed a Reconciliation measurement matrix

2019

Published *Reconciliation Policy*

Developed and delivered Reconciliation training program

Developed a corporate Reconciliation baseline assessment tool

Enhanced sponsorships and donations program to include a focus on Reconciliation

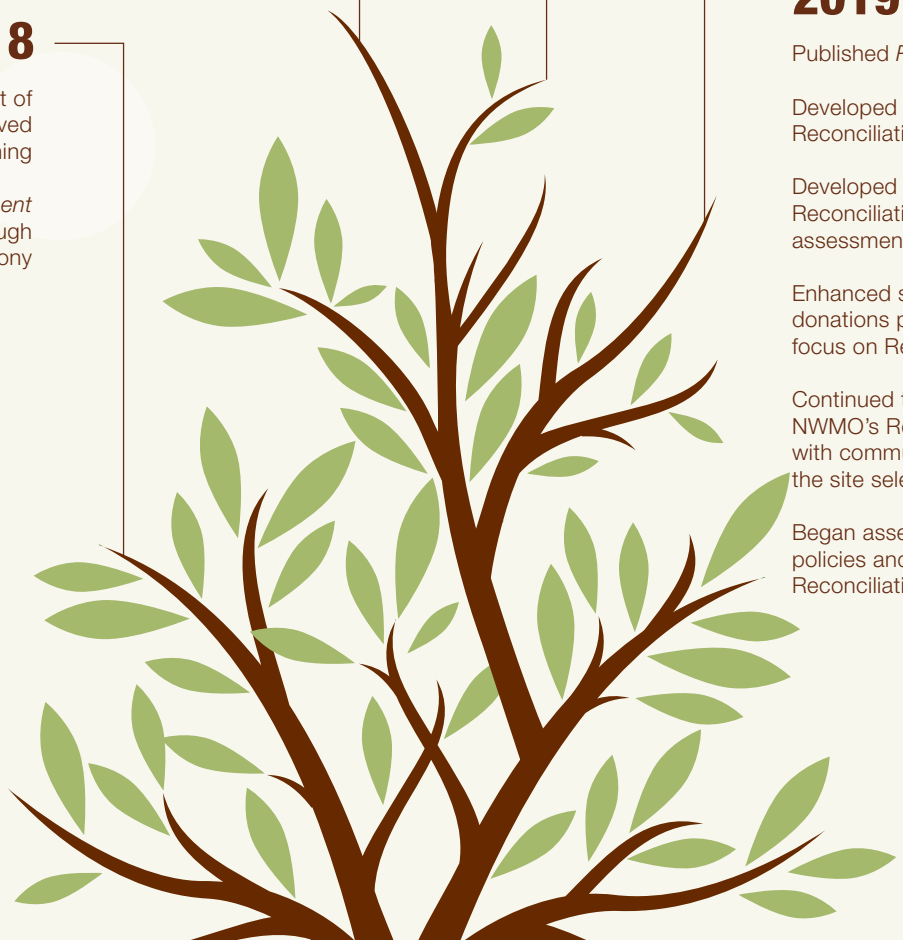
Continued to communicate the NWMO's Reconciliation program with communities involved in the site selection process

Began assessment of NWMO's policies and procedures against Reconciliation assessment tool

2018

85 per cent of NWMO staff received cultural awareness training

Reconciliation Statement finalized through Indigenous ceremony



TRANSPORTATION

Transportation planning framework

Building on a wealth of shared knowledge from years of conversation, a framework for transportation planning appears to be emerging that reflects a common ground of principles, objectives and process considerations. In August 2020, the NWMO published a draft Transportation Planning Framework (the framework) that outlines what we have heard about how community priorities can guide transportation planning and what this means in terms of a process for moving forward. This framework was published as a draft for discussion, to ensure the NWMO has listened well, and that the framework is reflective of people's priorities and values. The NWMO sought feedback on this document from August 2020 through the fall of 2021.

Several tools and techniques were used to solicit feedback on the draft framework, including an online survey (open to all through the NWMO's website and promoted through social media), a general population survey (n=1,001), presence at virtual conferences and trade shows, workshops (third-party facilitated, in-person and virtual), briefings to municipal and Indigenous organizations, virtual and in-person open houses and one-on-one interviews.

Engagement on the draft framework gave the NWMO further insight into how we can move forward together. The response to the draft framework was positive. People indicated that the document reflected their priorities and values. They also gave the NWMO insights into how the document could be enhanced and what people are interested in learning about as we move through a collaborative planning process, including:

- A discussion of Indigenous peoples' connection to the land and how the transportation planning process and program will honour that connection, including the importance of ceremony;
- Enhanced learning on safety and transportation logistics; and
- Further exploration of who to involve in transportation planning and how, including the importance of fact-based information and continued dialogue.

In December 2021, the NWMO published a revised framework and a Preliminary Transportation Plan. Both documents are living documents that will continue to evolve and incorporate social priorities as the NWMO continues to plan for transportation in the 2040s. This commitment to an iterative and inclusive process is outlined in the revised framework.

Social safety or participatory safety

As we engaged on the draft Transportation Planning Framework (the framework) through 2020 and 2021, it became clear that people had many questions about the technical component of the NWMO's transportation plan. Although much of our planning work is preliminary in nature, it is important for people

The NWMO is working with Canadians and Indigenous peoples to develop a socially acceptable framework for transporting used nuclear fuel.

to see that their concerns are being reflected in our planning. Therefore, we developed a plain language preliminary transportation plan with the concept of social safety at its core. The plan outlines the following:

- An overview of the NWMO's plan (e.g., transportation containers, modes of transportation, timeframes);
- A discussion of safety and security – as it applies to questions commonly asked by the public; and,
- An overview of planned tecnical work in the upcoming years.

The fundamental goal of this document is to address those social safety issues that may not be explicitly addressed through regulatory requirements. Therefore, actual questions from members of the public are incorporated into the document and responded to. They include 'what if' questions about accident scenarios and future planning assumptions, questions about transparency and why some information cannot be shared, and questions about mode and route selection.

Going forward, these documents will be revised and updated as more detailed information becomes available. We continue to be driven by the public's questions and how we can best respond to those questions, and both the Transportation Planning Framework and the Preliminary Transportation Plan are available for review and comment on the NWMO website at www.nwmo.ca/transportationplanning.

FREQUENTLY ASKED QUESTIONS: **TRANSPORTATION**

- What transportation route will you be using to get the used nuclear fuel from the interim storage facilities to the repository site?
- Is this material safe to transport? What if an accident happens on the way?
- How do the tests on the transportation package that are required by the CNSC prove that the package can withstand a severe accident?
- What would emergency response planning and training protocols look like? Will my community require an evacuation plan?
- How will emergency response workers stay safe in the unlikely event of an accident?
- What modes can you use to transport used nuclear fuel? Road or rail? Is water being considered? Which is safest?
- What is the frequency of shipments and will that change depending on the season?
- Will new or upgraded transportation infrastructure be required to transport used nuclear fuel? Who will pay for it?
- Will your drivers be transporting the used nuclear fuel even in the harsh, northern winter conditions?
- Will you be tracking the transportation packages?
- Will the used nuclear fuel transportation packages emit radiation while being transported to the repository site?
- Will the NWMO respect Indigenous jurisdiction with respect to transportation?
- How does transportation of highly enriched uranium by another organization differ from that of the CANDU fuel by the NWMO?
- In selecting a particular site that could eventually host the repository, does the NWMO consider proximity to rail and road?
- When will you begin considering local transportation routes? Will dedicated highways or rail spurs be constructed?
- Can the Dry Storage Containers be transported? Will used nuclear fuel be transported in the same containers as used in the repository?
- What happens if an unauthorized individual really intended on opening the Used Fuel Transportation Package (UFTP)? Can the package be opened?
- What happens if a UFTP falls into a body of water? For example, how would you retrieve it from a lake?
- What is the assumed speed of the truck transporting the UFTP?

SOCIAL MEDIA AND ONLINE CONVERSATIONS

In 2021, the NWMO saw an increase of over 30 per cent in the number of public social media comments made about the NWMO vs. 2020. Community residents from both the Ignace and South Bruce areas generated most of the conversation. Facebook and Twitter were the most used social media networks among this audience. Locally-focused initiatives, events and activities drove online interest and conversation, with residents of both areas sharing local news or their opinion on the project with their followers.

Topics that drove the majority of online conversations include:

- Borehole studies in the South Bruce and Ignace areas;
- Potential economic benefits of the project;
- Community approaches to willingness; and
- The NWMO's transportation survey findings.

Of the local conversation, roughly 60 per cent of comments were either positive or neutral in sentiment, vs. 75 per cent in 2020.

Some illustrative comments include:

- "I would like so much for you to visit the Ignace borehole area for a discussion…"
- "A lot of the jobs are permanent jobs though as well… so this will bring more people and families to the area as well to fill those jobs. Which means more money spent by those people at the gas stations, the supermarket, the tavern etc."
- "Not near Lake Huron. No way that's a good thing, for anyone."
- "Try to educate yourself about this project a little more. For starters nothing will be buried there for 30 years, it will take another 40 years to transport the spent fuel there. After that is when de-commissioning starts."

While many social media comments are shared on the NWMO's Facebook page, in 2021 we also observed related conversation on a variety of public Facebook groups that talk about the NWMO. Thoughts and opinions are shared by various group members, yet most of the conversation on these groups comes from a small number of authors.

To ensure local residents remain informed and to better understand public feedback, we continue to monitor online public discussions for emerging topics and themes. In 2021, the concerns and issues we see expressed in these local forums continue to reflect the broad themes discussed throughout this report, resembling the learning process seen in our face-to-face conversations with people in siting areas. Sentiment on these groups ranges from positive to negative, and is often determined by the stance of each individual group owner.

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IMPLEMENTING ADAPTIVE PHASED MANAGEMENT 2021 TO 2025

In March 2021, the NWMO published Implementing Adaptive Phased Management 2021 to 2025, inviting public review and comment. We received comments from organizations and individuals across the country, from those who live in the siting areas and those who live abroad.

We also published a digital survey to accompany the report, to solicit feedback online from Canadians and Indigenous peoples. This was our first year using a digital survey with this report and we received 761 survey responses. This new approach is one of many examples of how the NWMO is leveraging digital technologies to provide more options for engagement with Canada's plan.

This year's input and survey findings offer a snapshot into respondents' thinking. It offers us insight into their confidence in our ability to implement Canada's plan, and the results also revealed where respondents identify areas of opportunity for the NWMO. This type of public input informs and guides our work and comments received help us annually update the five-year implementation plan.

Through the responses, several themes emerged. A full discussion of each theme is published as part of this year's five-year plan, Implementing Adaptive Phased Management 2022 to 2026, available on our website.

Confidence in Canada's plan

A majority of respondents to our digital survey said they have confidence in the NWMO's ability to implement Canada's plan for the safe, long-term management of used nuclear fuel.

Respondents in southern Ontario indicated 72 per cent were confident in Canada's plan versus the northwest where 50 per cent of respondents expressed confidence.

Transportation

Respondents told us questions still remained around the safety of used fuel transportation and the effects of increased traffic on road or rail. However, 76 per cent of respondents let us know they understood this was a priority area for the NWMO.

Long-term safety

The majority of comments about our safety and engineering planning priorities were positive, and Canadians and Indigenous peoples indicated they want to know more about safety over the very long term.

Water

Many of the survey respondents highlighted the protection of water as a key area of importance. The responses we received underscored the importance of this work, and we are continually working to ensure that we are protecting water and helping Canadians and Indigenous peoples understand why a deep geological repository is the best way to do so for generations to come.

Reconciliation

Over the past year, we have completed an audit of the implementation of our *Reconciliation Policy* (2019). This review helped us identify areas where we are doing well and others where we can improve.

We have also increased our efforts to communicate about the ways we incorporate Indigenous Knowledge. For example, readers will find it more clearly interwoven in our Annual Report.

Willingness and partnership

We have heard the challenges expressed about treating the two potential siting areas equally. In many ways, the two areas require different approaches. Each community has different needs, priorities and aspirations. Differences in geology mean some of the technical assessment work required is not the same.

Questions from communities surrounding potential sites.

The survey responses told us that people who live near – but not directly in – the potential siting areas wanted to know more about Canada's plan. We heard the questions about the effects of transportation, the safety of water, the impact of increased employment in the area and the long-term safety of the repository.

GLOSSARY

Adaptive Phased Management (APM) is the name of Canada's plan for the safe, long-term management of used nuclear fuel. APM is both a technical approach and a management system. The end point of the technical method is the centralized containment and isolation of Canada's used fuel in a deep geological repository, in an area with suitable geology and an informed and willing host. APM also involves the development of a transportation system to move the used fuel from the facilities where it is currently stored to the new site. The management system involves realistic, manageable phases, each marked by explicit decision points. It allows for flexibility in the pace and manner of implementation, incorporation of new knowledge, and fosters the sustained engagement of people and communities throughout its implementation.

A deep geological repository is a facility for the placement of used nuclear fuel deep underground where both natural and engineered barriers contain and isolate it from humans and the environment. There is the potential for retrieving the used nuclear fuel.

A fuel bundle for CANDU nuclear reactors is manufactured by sintering uranium oxide powder into pellets. The pellets are loaded into Zircaloy (an alloy of the metal zirconium) tubes, which are then welded into a bundle of tubes – a fuel bundle. Each bundle contains about 1,000 uranium oxide pellets.

Land access is a process the NWMO initiated in 2019 to reach agreements with landowners in South Bruce, Ont., to allow sufficient access to land for studies at a potential deep geological repository location, and to confirm a potential repository site could be identified. The agreements include a combination of options and purchase arrangements that enable the NWMO to conduct studies while allowing the landowners to continue using the land.

Long-term management of used nuclear fuel involves containment and isolation of the radioactive material. The radioactivity decreases substantially with time, due primarily to the decay of short-lived radionuclides. The radioactivity of used nuclear fuel decreases to about one per cent of its initial value after one year, decreases to about 0.1 per cent after 10 years, and decreases to about 0.01 per cent after 100 years. After approximately one million years, the radioactivity in used nuclear fuel approaches that of natural uranium.

Safety in this report refers to the protection of individuals, society and the environment from the harmful or dangerous effects of used nuclear fuel, now and in the future.

Small modular reactors (SMRs) provide an alternative to large-scale nuclear reactors. SMRs can be purchased and constructed in a modular way. The NWMO would be responsible for the long-term management of used nuclear fuel created through new or emerging technology if it is implemented in Canada.

Used nuclear fuel is the irradiated fuel removed from a commercial or research nuclear fission reactor. Used nuclear fuel is classified as a high-level radioactive waste.

Willingness is fundamental to the siting process. From the very beginning, the NWMO outlined a number of principles regarding willingness. These include a commitment to only site the project in a community that is informed and willing, time and resources for communities to learn about the project before making a decision, and a compelling demonstration of community willingness. Community residents, at the grassroots level, must be involved in that demonstration of willingness.

Beyond the demonstration from the community, the NWMO also needs to ensure the other requirements and commitments outlined in the siting process can be met in order to implement the project in an area.

Note about terminology: In this document, we use the terms Indigenous, First Nation, and Métis. Our intention in the writing is to honour and respect peoples, nations and communities, as well as historical and contemporary understandings.

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NUCLEAR WASTE MANAGEMENT ORGANIZATION

SOCIÉTÉ DE GESTION DES DÉCHETS NUCLÉAIRES