NWMO Public Attitude Research and Dialogue – Integrated Report

NWMO-SR-2017-01 October 2017

Hill + Knowlton Strategies

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ABSTRACT

Title: **NWMO Public Attitude Research and Dialogue – Integrated Report**
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Abstract
The NWMO commissioned Hill + Knowlton Strategies to lead a series of focus groups, workshops and a public dialogue on transportation planning for the long-term care of Canada's used nuclear fuel. Activities included, 20 in-person focus groups (10 in Ontario, six in Quebec, and four in New Brunswick); a day-long public dialogue session; and two workshops with individuals involved in the site selection process in Ontario, one bringing together representatives from municipalities and indigenous communities.

These activities aimed to solicit participant input and engagement on five questions outlined in NWMOs Planning Transportation for Adaptive Phased Management (2016) as follows:

1. What basic requirements or factors should form the starting foundation for the APM transportation plan?
2. Which objectives, principles and key questions should guide development of an APM transportation plan?
3. How can we ensure the design and implementation of the APM transportation plan is sufficiently inclusive to ensure good decisions are made?
4. What information will we need from technical specialists to develop the plan and support decision-making?
5. What factors should be considered in future decisions about modes and routes?

The NWMO Public Attitude Research and Dialogue – Integrated Report presents an integrative summary of public perspectives and feedback which emerged from the three streams of activity, and corresponding reports as follows:

1. NWMO Public Attitude Research and Dialogue: Focus Group Technical Report. This report outlines findings from focus groups held in Ontario, Quebec, and New Brunswick.
2. NWMO Public Attitude Research and Dialogue: Workshop Technical Report. This report documents findings that emerged from two workshops held in Ontario.
3. NWMO Public Attitude Research and Dialogue: Public Dialogue Workshop Technical Report. This report documents findings that emerged from one public dialogue held in Ontario.

Research findings as well as ongoing conversations with communities involved in the siting process and others that are interested, will be used to develop the NWMO's draft transportation planning framework for the APM process.

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NWMO PUBLIC ATTITUDE RESEARCH AND DIALOGUE

INTEGRATED REPORT

OCTOBER 4, 2017

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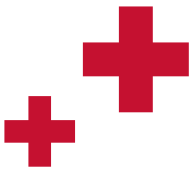

1. EXECUTIVE SUMMARY

The Nuclear Waste Management Organization (NWMO) was established in 2002 to conduct a study of options and recommend a preferred approach for the long-term management of used nuclear fuel in Canada. Following extensive dialogue with Canadians, the NWMO has advanced the implementation of Canada's Plan, known as Adaptive Phased Management (APM), with seven Ontario communities actively engaged in the site selection process.

A. Objectives and Methodology

The NWMO sought to broaden its understanding of the range of public attitudes and perceptions towards transportation planning for used nuclear fuel. The overarching objective of this research project was to engage a cross-section of citizens in discussions about the five questions outlined in *Planning Transportation for Adaptive Phased Management – Discussion Document* (the Discussion Document) encompassing: the basic requirements of a plan; objectives, principles and key questions that should guide plan development; how best to ensure inclusiveness; necessary support from technical specialists; and criteria for the selection of transportation modes and routes. Perspectives and feedback from these discussions, as well as ongoing conversations with communities involved in the siting process and others that are interested, will be used to develop the NWMO's draft transportation planning framework for APM.

Table 1: Overview of the Five Questions[1]

1. **Basic requirements of any plan** – Requirements have already been identified by regulatory bodies. Best practice and experience also suggest some requirements. These basic requirements will need to be addressed in any plan and provide a starting point for discussion.	**Question 1:** What basic requirements or factors should form the starting foundation for the APM transportation plan?
2. **Principles, objectives and key questions** – Safety is paramount. This principle is overarching to all APM activities. Other important principles, objectives and key questions for guiding decision-making may also emerge from discussion.	**Question 2:** Which objectives, principles and key questions should guide development of an APM transportation plan?
3. **Ensuring we are inclusive** – Early conversations suggest that it will be important to be inclusive in designing and implementing the transportation plan. APM suggests the best knowledge and expertise should be taken into account, and a broad and inclusive approach to understanding citizen values and priorities be used to guide design and implementation. Some commitments are already in place, and discussion may suggest other opportunities.	**Question 3:** How can we ensure the design and implementation of the APM transportation plan is sufficiently inclusive to ensure good decisions are made?
4. **Technical research, technology development and demonstration** – The APM transportation plan will need to be informed and supported by a robust program of technical research, technology development and demonstration. Reflection on the information we will need to support decision-making may identify opportunities to expand the program.	**Question 4:** What information will we need from technical specialists to develop the plan and support decision-making?
5. **Modes and routes** – In the future, decisions will need to be made about modes, such as road and rail, and routes in developing the plan. Early discussion will help identify some initial considerations to prepare for these future decisions.	**Question 5:** What factors should be considered in future decisions about modes and routes?

[1] *Planning Transportation for Adaptive Phased Management: Discussion Document*, NWMO, September 2016.

To meet this objective, a quantitative-qualitative research program was implemented in Ontario, Quebec and New Brunswick. It included a survey of over 2,500 residents across the three provinces; 20 in-person focus groups (including 10 in Ontario, six in Quebec and four in New Brunswick); a day-long public dialogue session; and two workshops with individuals involved in the site selection process in Ontario, one bringing together representatives from municipalities and indigenous communities. Workshop and focus groups attendees were provided with fact-based information over the course of the session and given the opportunity to ask questions and participate in a facilitated discussion about the transportation of used nuclear fuel.

This report summarizes and integrates feedback received from focus group, public dialogue session and workshop participants corresponding to each of the five questions outlined above.

B. Key Findings

Basic Requirements of the APM Transportation Plan

When discussing what needs to be included or addressed in the APM transportation plan, safety emerged as a foundational component and one that should guide all others, most notably criteria and logistical considerations for route selection and mode of transportation. Participants highlighted the importance of risk assessment and the development of emergency protocols, evacuation procedures and crisis communication plans to respond to a broad range of incidents caused by environmental factors or human activity. Security – associated largely with deliberate actions, e.g. terrorism or sabotage – was deemed equally important and participants often discussed the merits and risks of measures such as police or military escorts, as well as implications related to transparency and information sharing.

The need for effective communications, including targeted Indigenous and community engagement and public education and awareness campaigns, was a top priority for participants. It was also viewed as one of the NWMO's most significant challenges in terms of addressing misconceptions about the transportation of used nuclear fuel and building public trust in the NWMO and the project as a whole. Other key considerations for the development of the APM transportation plan included analyzing and integrating best practices and lessons learned from Canadian and international experience in nuclear waste management; greater emphasis on environmental protection; and the need for oversight, accountability and a clear division of roles and responsibilities to support collaboration and to ensure the project meets all regulatory requirements.

Finally, there was wide agreement that the project should be managed cost-effectively, but not at the expense of safety or security. Many participants also indicated that Canada's plan for used nuclear fuel must have sufficient funds earmarked to ensure timely completion and to not impose financial liability on future generations of tax payers.

Principles, Objectives and Guiding Questions

Focus group and public dialogue participants reacted positively to the NWMO's list of possible principles, objectives and key questions for the transportation of used nuclear fuel. In general, they noted that the list addressed critical

themes for transportation planning and recommended that future discussions consider the following: provisions for monitoring and measuring the plan's objectives and for exceeding rather than simply meeting regulatory requirements; incorporating environmental protection as a stand-alone principle; and challenges associated with determining who should be involved in the planning process and how.

Familiar with the project and site selection process, workshop participants highlighted the importance of safety, and widely agreed that security should be incorporated as a separate principle or objective (versus a facet of safety). Consistent with earlier reflections regarding the need for proactive and effective communications and engagement, participants in both workshops discussed at length the principle of inclusiveness, suggesting that the NWMO clearly articulate how decisions pertaining to transportation planning will be made, and by whom. To this end, some participants asked that the NWMO recognize more explicitly the needs and role of municipalities, Indigenous communities and the federal government in the planning framework.

Lastly, while participants as a whole held varying views on the relative importance of the project's cost and economic viability, most emphasized the need for flexibility in the plan to accommodate change, "new technology,...regulations, and social expectations," in particular.

Ensuring the Development of the Plan is Sufficiently Inclusive to Facilitate Good Decision-making

Participants recognized that defining who needs to be involved in the development of the transportation plan to ensure good decisions are made is a particularly complex exercise. Most initially indicated that "everyone" should be involved and some believed that communities along prospective routes should be granted an opportunity to "consent" to the plan. However, as discussions progressed, the majority of participants in all sessions concluded that this approach was unfeasible given the nature and scope of the project, and agreed that:

- All Canadians should have some measure of awareness and understanding about the transportation plan;
- Those who are more directly affected should have greater opportunity to understand the plan and to be heard;
- Relevant government officials, municipal leaders, first responders and scientific and technical experts should be involved to ensure good decisions are made;
- The "right to be informed" does not necessarily translate into decision-making power; and
- The interest and rights of affected communities must be balanced with pragmatism and the greater public good.

Notably, non-Indigenous members of the public were often divided on how the transportation plan should address Indigenous rights, treaties and unresolved land claims. Some believed there were compelling legal, historical and moral reasons to ensure that the views of Indigenous people living along the route be respected, even to the point of veto. Others, argued that Indigenous communities should be "treated in the same manner as any other community," both as a matter of fairness (i.e. to other communities along the route) and for practical reasons (e.g. to avoid protracted negotiations, legal challenges and costly route alterations).

Notwithstanding the diversity of views, there was an understanding that Indigenous communities would play a role in the development of the transportation plan. Some participants noted that decision-making must take into consideration the Government of Canada's duty to consult with First Nations, and that local decision-makers (Indigenous and non-Indigenous) have a duty to duly represent the needs and interests of their constituents. In the end, while participants emphasized the importance of engagement and consultation, they also advised that consent could not be a condition for proceeding.

The Science behind the Plan

Public dialogue and workshop participants were asked to consider how research and technological development can inform planning and decision-making; and as a whole, supported the program components and activities that the NWMO has committed to completing to facilitate the development of Canada's plan.

They also provided the following suggestions for APM transportation planning: more exhaustive, "Canadian model" container testing; provisions for an "environmental response plan;" analysis of jurisdictional capacities and regulatory frameworks; transparent budgetary reports to address recurrent questions regarding the project's cost and sources of funding; economic impact analysis for modes of transportation; a funding program for communities to support emergency preparedness and response; and a comprehensive communications plan to build awareness about the project and to "clarify misconceptions" about the transportation of used nuclear fuel.

Considerations for the Selection of Modes and Routes

While research and discussions focused on the criteria for selecting transportation modes ("how we transport") and routes ("where we transport"), some focus group and public dialogue participants expressed a spontaneous preference for one mode of transportation over another, at the same time acknowledging their lack of expertise in the matter. As such, they expected the NWMO to thoroughly analyze the pros and cons of various modes and routes and make the best possible decisions based on science, with a primary focus on safety and security.

Initial considerations for mode and route selection entailed operational history and risks associated with potential accidents, accessibility for emergency services and emergency response time, adequacy of transportation infrastructure and proximity to population centres. As discussions continued, participants highlighted the following specific to modes: assessment of potential environmental impacts; analysis of merits and risks of operating larger loads with fewer trips and vice versa; the frequency and nature of required material handling and transfers; and adaptability to future innovations in transportation. Regarding routes, participants noted proximity to sensitive environmental areas, potential for traffic congestion and impacts on commuters, and the trade-off between longer routes that traverse less densely populated areas versus shorter routes that go through more densely populated areas. In both cases, participants also recommended that the NWMO include an assessment of political and social acceptance as part of the selection criteria.

Final Comments – Is the NWMO on the Right Track?

Participants indicated that topics raised in the Discussion Document were a helpful starting point for discussion and that the NWMO was generally heading in the right direction with respect to the development of a draft transportation

plan. Focus group and public dialogue participants were particularly cognizant (many impressed) with how well the NWMO's considerations reflected their own unprompted suggestions, though reiterated questions and some concern regarding long-term oversight, accountability and funding. In addition, workshop participants stated that while the NWMO "has done a good job at engaging communities," further efforts are required "now, not later" to build the NWMO's profile, counter fear and misconceptions about used nuclear fuel, and obtain enough public "buy-in" to move efficiently through the planning phase into implementation.

Most participants were relatively confident about the prospects for success, commenting openly on the utility of discussion. More specifically, participants indicated that together, information and discussion helped them to better understand issues related to the transportation of used nuclear fuel and significantly increased their comfort level and confidence in Canada's ability to transport nuclear waste safely and securely.

C. Conclusions

1. There was a notable level of alignment across participant audiences in all three provinces.
2. While the public opinion environment appears challenging, there are opportunities for future engagement.
3. The Discussion Document appears to reflect public values, principles and concerns.
4. Information and discussion increased understanding and acceptance.
5. There was a desire for clarity around the sustainability of the transportation plan.
6. The matter of inclusiveness was recognized as both critical and complex and must be balanced with pragmatism and the greater public good.
7. Notwithstanding a diversity of views, there was an understanding that Indigenous communities would play a role in the development of the transportation plan.
8. Securing a reasonable level of social acceptance was viewed as the NWMO's greatest challenge – one that can be overcome.

2. OBJECTIVES AND METHODOLOGY

2.1. OBJECTIVES

As the NWMO's Discussion Document notes – while it will be many years before used nuclear fuel is transported to a community repository site, it is not too early to begin phased and iterative outreach to the public and other stakeholders to initiate a broader conversation about transportation planning[2]. The NWMO sought to broaden its understanding of the range of perspectives that could inform the development of the transportation planning framework for APM.

The overarching objective of the research program was to engage a cross-section of citizens in a discussion about the five questions outlined in the Discussion Document: the basic requirements of a transportation plan; objectives, principles and key questions that should guide plan development; how best to ensure inclusiveness; necessary support from technical specialists; and criteria for the selection of modes and routes. The program was designed to complement ongoing engagement activities led by the NWMO.

2.2. METHODOLOGY

The objective was met through the design of a quantitative-qualitative research program implemented in Ontario, Quebec and New Brunswick. The program included surveys, 20 focus groups, one public dialogue session, and two workshops.

2.2.1. Surveys

Conducted through a panel, a public survey was used to initiate the research program in each of the three provinces. In Ontario, 1,089 people were surveyed in late April 2017; 1,030 Quebecers were surveyed in mid-June 2017; and 500 residents of New Brunswick were surveyed in mid-August 2017.

The surveys served the following purposes:

- Quality control measure to guide the recruitment of focus group and public dialogue session participants (i.e. to ensure that, collectively, participants reflected the broader population, both demographically and attitudinally);
- Assessment of public perceptions of several key issues (e.g. trust in institutions, perceptions of nuclear power generation, the transportation of used nuclear fuel, etc.); and
- A benchmark against which the results of post-session participant survey results could be compared to assess the impacts of information and discussion on participant views.

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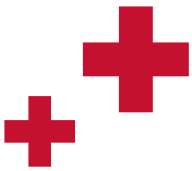
2 *Planning Transportation for Adaptive Phased Management: Discussion Document*, NWMO, September 2016.



An overview of public perceptions regarding issues surrounding the transportation of used nuclear fuel, and the impacts of information and discussion on participant views can be found in the Focus Group Technical Report.

2.2.2. Focus Groups

A series of 20 two-hour long focus groups were conducted in Ontario (i.e. 10 in the GTA and Ottawa), Quebec (six in Montreal and Quebec City conducted in French) and New Brunswick (i.e. four in Moncton and St-John) between May 23rd and September 13th, 2017. A total of 156 people participated in the focus groups. Participants were randomly recruited from the panel based on socio-demographic and attitudinal screening criteria developed from the survey results to ensure that a wide cross-section of views were represented[3].

The focus groups concentrated on a narrower set of questions compared to the public dialogue session and workshops, i.e. the basic requirements of the plan, objectives, principles and key questions that should guide plan development, and how best to ensure inclusiveness. An H+K facilitator used a semi-structured moderator's guide, as well as two handouts and two videos to provide participants with fact-based information about used nuclear fuel and transportation planning. At the end of the session, participants completed the post-focus group questionnaire.

2.2.3. Public Dialogue Session

The public workshop was held on June 17, 2017 at a community centre in North York. A total of 39 people participated in the full-day session. Participants were randomly recruited based on the same socio-demographic and attitudinal screening criteria used to recruit focus group participants.

Participants were randomly assigned to tables of six to seven people and following an introductory presentation and "Nuclear in Ontario" trivia exercise, were tasked with discussing the five key questions outlined in the Discussion Document. Each topic began with a brief context-setting presentation – including a combination of informational videos and handouts – followed by a Q&A with NWMO representatives. An H+K facilitator then guided participants through a mix of individual reflection, table brainstorming exercises and plenary discussion. Before leaving, participants completed a post-workshop questionnaire.

2.2.4. Workshops

Two workshops were conducted for this research component, one held in Toronto on June 15th, 2017, and the second in the community of Ripley in Bruce County on June 23rd, 2017. Participation was by invitation and the sessions brought together a cross-section of individuals who are or have been actively involved with the NWMO through the siting process.

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[3] Compared to the general population, session participants were somewhat less likely to have strongly negative views of nuclear energy. This was done deliberately to help ensure that focus group and workshop discussions could focus on the transportation of used nuclear fuel versus a debate about the use of nuclear energy in Canada.

The Toronto session was attended by 18 representatives from Northern Ontario siting communities and surrounding areas, including municipal leaders, Community Liaison Committee (CLC) members, representatives from First Nations and Métis communities, and members of the NWMO Municipal Forum. The Bruce County workshop brought together 13 representatives from the surrounding area, including municipal staff and interested members of the Huron-Kinloss and South Bruce CLC.

Both workshops followed a similar design, though the Bruce County session was abridged to a half-day. Participants were assigned to tables of six to eight people and following an APM transportation overview, were tasked with discussing the five key questions outlined in the Discussion Document. Each topic began with a brief context-setting presentation – including a combination of informational videos, handouts and references to the Discussion Document – followed by a Q&A with NWMO representatives. Similar to the public dialogue session, an H+K facilitator then guided participants through a mix of individual reflection, table brainstorming exercises and plenary discussion to explore the five questions.

2.3. ORGANIZATION OF THIS REPORT

This report summarizes and integrates findings from the focus group, public dialogue session and workshop components of the research program. The following sections detail participant feedback corresponding to each of the five questions in the Discussion Document, as well as comments gauging whether the NWMO is on the right track with respect to setting the stage for APM transportation planning. The final section summarizes key conclusions from this research and outlines a number of challenges and opportunities for engagement that could support the development of the transportation plan for Canada's used nuclear fuel.

Further information regarding each research component, including data collection instruments and session materials, is available in respective technical reports.

3. DETAILED FINDINGS

3.1. BASIC REQUIREMENTS OF THE APM TRANSPORTATION PLAN

3.1.1. Initial Reactions and Questions

One of the main purposes of the research program was to identify the principles and objectives that Canadian citizens would want included in the NWMO's APM transportation plan. Prior to developing and discussing their own list of key elements, participants were provided with fact-based background information and given the opportunity to ask questions about used nuclear fuel, APM and the transportation planning framework[4].

Some participants were shocked by the scale and technical complexity of transporting Canada's used nuclear fuel, a project they had never considered. Others expressed concern and even fear: "Ça me fait vraiment peur. C'est un grave problème de sécurité et pour l'environnement."[5] For the most part, however, participants were reassured, especially by what they considered to be the thoughtfulness of Canada's plan for the long-term management of used nuclear fuel: "I'm very careful to criticize this, and I like that someone is actually thinking about it. I wasn't aware of this problem and I'm glad someone is thinking about a pragmatic approach to dealing with it."

Participants raised questions pertaining to international best practices for the management of used nuclear fuel, site selection, the storage process and options to retrieve the material, as well as the cost of Canada's plan. Many focus group and public dialogue participants also asked about oversight, accountability and governments' role in the project vis-a-vis the private sector: "Look at what happened with that railroad company that was responsible for Lac Mégantic, they were supposed to pay millions and they just declared bankruptcy." Among initial questions, there were also concerns, particularly in Quebec, that in their effort to maximize profits and reduce costs, private sector organizations might try to "cut corners" if involved in implementing APM: "On avait dit que les anciennes mines seraient décontaminées et ça ne s'est jamais fait… Qui va garantir qu'on va toujours bien faire les choses, même dans 100 ans?"[6] These statements suggest that participants would prefer government "experts," "scientists," "professionals" and "engineers" to lead the project: "This should be out of politicians' hands. They don't know enough." "There are people that have biases and vested interests. What do independent experts think about this?"

The majority of focus group and public dialogue participants had not heard of the NWMO and participants agreed that, given the importance, cost and complexity of dealing permanently with Canada's used nuclear fuel, the NWMO should strive to increase its profile over the coming years to build public trust.

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4 Session materials (e.g. handouts and videos) were consistent across all research components. During the public dialogue session and workshops, NWMO representatives also presented information and answered participant questions.

5 Translation: "It really scares me. This poses serious threats to security and the environment."

6 Translation: "They said that decommissioned mines would be decontaminated, but it was never done… Who is going to ensure that things are always done properly, even in 100 years for now?"

3.1.2. Key Elements to Include In the APM Transportation Planning Framework

Following initial questions and discussion, participants were invited to brainstorm possible components for the transportation plan. As part of their deliberation, participants were asked to think about what needs to be included in the plan, as well as the types of questions and concerns that should be addressed and Canadian and international experience that should be reviewed in developing the plan.

Participants had no difficulty identifying components for the plan; in fact, there was a high degree of alignment among workshop participants – those familiar with the site selection process – and participants learning about Canada's plan for the first time in focus groups or the public dialogue session.

Safety was widely viewed as the foundational driver of the plan and as a component that should permeate and guide all others, such as route and mode selection. Security – including both the threat of terrorist activity and local risks such as protesters – was deemed equally important. The need for effective communications, including targeted community engagement and broad public education and awareness campaigns, was also a top priority for participants and viewed as one of the NWMO's most significant challenges. Other key components for the APM transportation plan included environmental protection, learning from other jurisdictions and drawing on best practices, and the need for oversight, accountability and transparency. Each of these components is discussed in greater depth below.

Safety

Participants identified safety as the starting point for any discussion on transportation; a multi-faceted issue that affected virtually all components of the plan. In addition to emphasizing the pre-eminence of safety as the guiding principle for the selection of routes and modes, participants discussed the following:

- **Emergency preparedness, response and incident mitigation:** Participants highlighted the importance of ensuring adequate planning and capacity to respond to a broad range of incidents (e.g. accident, terrorist attack). This included the development of emergency protocols, evacuation procedures and crisis communications plans; provisions for the equipment and training required to manage various scenarios (including in remote locations); and a clear division of responsibilities (e.g. between levels of government, first responders, the military).
- **Risk assessment and reduction:** Participants cited examples of risks that should be documented, monitored and mitigated in the APM transportation plan, including those posed by extreme weather, wildlife, human activity (e.g. high volume of tourists on local roads, protesters along the route) and human error (e.g. driver behaviour, operator fatigue). Participants also noted a need to assess risks associated with using private sector organizations or companies in the transportation process.
- **Logistical considerations:** This includes a range of items, such as the timing and frequency of transportation (e.g. weighing the pros and cons of nighttime driving); the safety of inter-modal transfers (e.g. truck to train to truck); vehicle specifications; package design, testing and certification; driver/worker training and certification; and the safety of workers (e.g. minimizing exposure to radiation).

Security

Most participants viewed security and safety as equally important aspects of Canada's plan for used nuclear fuel. While safety was often discussed in terms of accidental events, participants associated security with deliberate actions, such as acts of terrorism or sabotage.

Participants suggested that security was also key to decisions regarding the selection of routes and modes, i.e. to mitigate "vulnerability to attack." There was also consensus around the need for measures such as tamper-proof transportation containers, route variations (e.g. ensuring that shipments take place at different times of day on different routes), the implementation of a container tracking system, and the careful vetting of employees and contractors.

The need for police and/or military escorts was often discussed by participants. Some indicated that such measures are critical, while others questioned the need, often pointing out that hazardous materials have for years been transported through communities without the public's knowledge, much less armed escorts. Some participants also suggested that escorts of any kind could prove counter-productive, increasing security risks by bringing undue attention to the shipment of nuclear waste.

A similar discussion evolved around the security implications of information sharing, particularly with communities along the route. Participants generally agreed that the NWMO and its project partners would have to strike the "right balance" between the public's "right to know and make informed choices" (e.g. knowing the frequency, time and route of shipments so they could choose to leave the area) and the need for secrecy to mitigate the risk of attack or sabotage.

Communications, Engagement and Education

Communications, including public education, was widely viewed as central to the transportation plan's success. Participants argued that without some degree of public and stakeholder acceptance or "buy-in," implementing the plan would be difficult. Collectively, participants identified a number of target audiences ranging from the Canadian public at large, to stakeholders and communities along the route, including Indigenous communities.

Participants stressed the need for good communications and coordination among all those involved in the transportation of used nuclear fuel (e.g. federal, provincial and local governments, first responders, hospitals, military personnel, transportation companies, employees and contractors). In particular, workshop participants familiar with the project, emphasized the importance of coordinating with local governments: "We have to provide a level of comfort to municipalities, [the] municipality has to be comfortable with the safety case."

Participants, especially those with experience in the site selection process, also identified a need to "educate people" to demystify the project and dispel myths and misconceptions about used nuclear fuel and the transportation of nuclear waste. It is important to note that participants in the focus groups, public dialogue session and workshops spontaneously compared the transportation of used nuclear fuel to the transportation of oil by pipeline, most predominantly, expressing fears of the impacts of "spills" and citing community opposition to pipelines. They noted

that the NWMO, like pipeline companies, will have to contend with "fear mongering and misinformation" in the public realm, particularly through social media. They therefore urged the NWMO to communicate proactively and broadly to debunk myths and build public trust early in the process.

There was general consensus that people living and working in proximity to a possible route should know about the plan well in advance of the first shipment: "If you try to keep this from people and they find out, you're going to have a disaster." As noted above, however, there was less agreement about *how much* people should know. For example, some expected that shipment dates and times would be published, while others argued that this could compromise security: "There is a need for communication, but there is also risk with communication. Like terrorism, you don't want people to know exactly when and where it will be moving." "Moi, je ne voudrais pas savoir!"[7]

Participants suggested that the fact that transportation is not anticipated to begin for about 25 years works in the NWMO's favour, providing the organization with sufficient "lead time" to communicate, engage and educate effectively: "La pédagogie, c'est extrêmement important… et 25 ans d'avance, c'est le temps de commencer! Commencer d'avance, c'est le moyen le plus efficace et économique de favoriser l'acceptabilité sociale."[8]

Lastly, a significant number of participants initially expected that people living along a potential route would have to "consent" or "agree" to the project. However, as discussed later in this report, over the course of further group discussion, most of these participants indicated that affected communities needed to be adequately informed and heard – but not given the option of "vetoing" transportation. To this end, workshop participants suggested placing "resources and contact people on the ground" in communities along the route to engage with community members, answer questions and disseminate information.

Engaging Indigenous Communities

While one workshop explicitly included Indigenous participants, the role of Indigenous communities along the selected transportation route was raised throughout the research sessions. This topic generated by far the broadest diversity of perspectives. Some participants, believed that Indigenous communities should be engaged in the same manner and afforded the same "influence" as all other communities along a route. Other participants spontaneously included engagement with Indigenous communities along the route as a "must" on their list of APM transportation plan components, stating that the repository would "likely end up in a remote part of Ontario close to or on Indigenous land" and "It's the right thing to do in light of the harsh way that governments in Canada have dealt with Indigenous peoples in the past." Workshop participants had a much deeper understanding of the Government of Canada's responsibilities and expected that Indigenous communities along the route would be actively engaged at every step of the process.

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7 Translation: "Me, I wouldn't want to know!"

8 Translation: "Education, it's really important… and with 25 years of lead time, now is the time to start. Starting early, that's the most effective and economical way to obtain social acceptance."

Drawing on Canadian and International Lessons Learned and Best Practices

As a whole, participants emphasized the need for Canada to learn from other national and international experience in the transportation of used nuclear fuel. Indeed, many participants asked early and often about "what other countries have done." In terms of *who* NWMO could learn from, participants suggested that experts should be consulted with respect to mode selection, package design, the transportation of other dangerous goods (particularly oil), as well as risk mitigation, emergency preparedness and emergency response. There was also an expectation that lessons be drawn from past incidents, such Fukushima, Chernobyl, Three Mile Island, and especially Lac Mégantic.

In addition, workshop participants suggested that the NWMO could learn from the transportation of other large/heavy equipment (e.g. wind turbines and blades) and from the transportation of nuclear materials elsewhere in Canada (e.g. the regular transportation of medical isotopes; the "lack of consultation with First Nations" over "liquid waste" from Chalk River; opposition to the transportation of radioactive steam generators from Bruce Power along the Great Lakes and St. Lawrence River; and the transportation of materials to and from the Port Hope Uranium Conversion Facility).

Oversight and Accountability

Many focus group and public dialogue participants believed it was important for the transportation plan to include clear and robust oversight and accountability measures to ensure that the project is properly managed and meets all regulatory requirements. Participants often asked, "Who decides?" emphasizing the importance of defining the role and responsibilities of the various jurisdictions involved (federal, provincial, municipal and Indigenous), how these authorities will work together, and the NWMO's position within this nexus. Moreover, participants sought clarity on who is ultimately accountable for APM: most participants wanted to know who would be in charge of making the tough decisions and be held to account in the event of an incident. Some assumed that this was the NWMO's responsibility, while others indicated that only the Government of Canada could play this role.

Project Costs and Funding

Participants also stressed the need for transparency and public reporting (e.g. budgets, progress, Key Performance Indicators). There was wide agreement that the project should be managed cost-effectively, but not at the expense of safety or security. Many also indicated that Canada's plan for used nuclear fuel must have sufficient funds earmarked to ensure timely completion and to not impose financial liability on future generations of tax payers.

This was loudly echoed by workshop participants who also suggested that the APM transportation plan must include a clear and transparent funding formula, along with guarantees that necessary funding will be protected in the long-term (e.g. from political interference or the vagaries of the economy). To some participants, including those with experience in the site selection process, accountability also meant that there would be insurance or a fund in place to compensate individuals and businesses in the event of an incident (e.g. for land reclamation/restoration or for a prolonged road closure).

Environmental Protection

Many participants highlighted environmental protection as a key consideration for APM transportation planning. Some subsumed it as part of safety, while others suggested it be a stand-alone component. In either case, participants were concerned that an accident or act of terror could cause used nuclear fuel to enter the soil, water and/or contaminate the air (again, equating a transportation incident to an oil spill). Participants thus indicated that the plan should include measures to prevent environmental damage, as well as appropriate and specialized resources and response mechanisms to mitigate and repair damage to the environment should an incident occur.

Finally, workshop participants asked whether transportation would be included in an eventual environmental assessment (EA) of the host site, noting that the EA process would provide another opportunity for the public and stakeholders to express their view on transportation planning for used nuclear fuel.

3.2. PRINCIPLES, OBJECTIVES AND GUIDING QUESTIONS

After discussing key components to be considered for APM transportation planning, participants were asked to review a handout of possible principles, objectives and questions for guiding the plan's development[9].

3.2.1. Workshop Participant Views

To a large extent, participants well informed about the project reiterated considerations put forward during initial discussions, highlighting the importance of safety, security, education and communication. There was also agreement that security should be treated as a separate principle or objective, as opposed to a facet of safety.

Workshop participants also viewed the principle of inclusiveness as critically important. This discussion led some to grapple at length with the notion of "consensus." While this term does not appear in the Discussion Document, many understood inclusiveness to mean that "the NWMO said it would seek consensus." Unsure about the accuracy of this interpretation, workshop participants suggested that the NWMO clearly articulate how decisions on transportation will be made, and by whom – with most participants believing that achieving consensus along a transportation route was both unlikely and unfeasible: "What is the threshold for consensus? You will never get everyone saying yes." "You need to inform and consult, but in the end, someone has to decide for the public good."

Indigenous participants emphasized the importance of "respecting First Nations' connection to the land" through dialogue and learning from Indigenous traditional knowledge. Similarly, non-Indigenous participants discussed the need to tap into local community knowledge. A small minority of participants suggested that the NWMO "had to respect a community's right to refuse the plan" and some noted that First Nations had more rights and power to influence decisions on if and how used nuclear fuel could be transported through their land.

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9 Participants were shown the principles and objectives guiding APM as a whole, and asked which, if any, apply to transportation planning, or if others should be added.

Collectively, workshop participants also suggested that consideration should be given to integrating the following ideas in the guiding principles:

- The principle of Reconciliation with First Nations communities;
- Protection of the environment as a standalone principle;
- The notion of "adaptability" to "new technology, new regulations, and social expectations," in keeping with the APM philosophy;
- The idea of "fairness," that for some, belonged among the guiding principles rather than in the objectives;
- Recognize more explicitly the needs and role of municipalities;
- Clearly articulate the federal government's role; and
- State the NWMO's commitment to ongoing consultation and engagement.

3.2.2. Focus Group and Public Dialogue Participant Views

The majority of focus group and public dialogue participants reacted positively to the list of possible principles, objectives and key questions, notwithstanding a tendency to conflate principles with objectives and caveats about "the devil being in the details." Participants generally felt that these items covered the important themes: "I think the principles are very comprehensive, they seem to cover everything I would want covered." "This is about 90% perfect. This is a very good blueprint." "Aboriginal rights may not be as respected as they should."

The following points were raised during discussion:

- **Regulatory requirements and oversight:** There was strong support for exceeding, rather than simply meeting regulatory requirements in all areas. Participants reiterated questions about "who has ultimate responsibility" for monitoring regulatory compliance and for "quality control."
- **Inclusiveness:** This principle was viewed as key to securing the degree of social acceptance needed to implement Canada's plan for managing used nuclear fuel. It also raised many questions, primarily: "How do you determine who is most likely to be affected?" Who should be included (and excluded)? And what methods should be used to communicate with communities? These questions often reignited discussion about the possibility of conflicting views and interests among communities (e.g. "nimbyism") and whether any community, group or individual would have the authority to force the NWMO to alter a transportation route (i.e. away from their community or land). This led several participants to suggest that the principles of inclusiveness and respect for Indigenous rights, treaties and land claims might be incompatible, while others suggested they could be combined.
- **Environment:** Participants generally agreed that environmental protection (e.g. of "wildlife" and "water") was insufficiently addressed and should thus be incorporated as a standalone component.

- **Measurement and evaluation:** A significant number of participants asked how the plan's objectives will be monitored and measured. Some recommended the development of Key Performance Indicators (KPIs); others suggested incorporating "a document to show how all objectives and principles will be met."

3.2.3. A Summary of Participant Comments and Suggestions for Principles, Objectives and Guiding Questions

The bulk of participant feedback regarding the list of possible principles, objectives and questions centered on improving clarity. It is important to note that participants using the French document reported less ambiguity than their English counterparts. Indeed, several focus group participants in Ontario wondered whether the document might be deliberately vague in areas to provide the NWMO with, as one participant described, "as much wiggle room as possible." As a whole, participants recommended writing public-facing documents in clear, accessible language to ensure effective communications and to help build trust.

Participant comments and suggestions are summarized in the following three tables.

Table 1: Principles

PRINCIPLE	SUMMARY
Safety is the overarching principle guiding all APM planning and activities: Safety, security, and protection of people and the environment are central and must not be compromised by other considerations.	+ Wide agreement with primacy of the principle of safety. + Clearly articulated but some questioned the use of "must" as opposed to "will" (with the latter sounding more definite). + Many participants suggested that security should be recognized as distinct from safety and addressed accordingly. + Some recommended that environmental protection should be a stand-alone principle.
Meet or exceed regulatory requirements: The plan must meet, and if possible, exceed all applicable regulatory standards and requirements for protecting the health, safety, and security of humans and the environment, and respect Canada's international commitments on the peaceful use of nuclear energy.	+ Wide agreement on the importance of this principle. Helps address questions/concerns about testing, oversight and the role of government(s). + Some asked whether this refers to current or future regulations, given the long-term nature of the project, and whether they are federal or international. Workshop participants suggested adding "now and in the future." + Note whether these are the highest standards available. + Include a reference to organization(s) charged with monitoring regulatory compliance.
Aboriginal rights, treaties and land claims: The plan must respect Aboriginal rights and treaties, and take into account that there may be unresolved claims between Aboriginal peoples and the Crown.	+ Raised often in discussion (second only to the principle of inclusiveness), particularly in Quebec. + Many supported this principle, suggesting to change "Aboriginal" to "Indigenous," though some worried that it may not be fully applied in practice given the phrases "take into account" and "that there may be." Similarly, some wondered who will interpret "respect," and how. + Some workshop participants suggested incorporating the concept of Reconciliation. + Some participants took issue with acknowledging Indigenous communities: "What about the other communities along the route?" (Conjured road blocks, protests and drawn-out negotiations).

Inclusiveness: The plan must respond to and address, where appropriate, the views of those who are most likely to be affected by the plan.	+ Viewed as particularly important and consistent with participants' emphasis on the need for strong communications and effective engagement. + Participants raised questions about "… where appropriate" ("Who decides what is appropriate?") and suggested that the phrase could be removed without imposing undue levels of engagement or requiring consent. In fact, some recommended clarifying that "inclusiveness" does not mean consent. + Workshop participants suggested including the notions of "collaborative decision-making," "education of all stakeholders," "continuous, open dialogue as the system evolves" and emphasized educating those "directly affected," as well as the importance of engaging youth.
Informing the process: The plan must be informed by the best relevant available knowledge, including science, social science, Indigenous Knowledge and ethics. This information used to develop the plan must also be made public.	+ Wide agreement on the importance of this principle: "NWMO needs to be educated and listen to local experts and first responders." + Viewed as responding directly to participant questions and concerns about best practices, and the pre-eminence of science and expertise (over politics and profit). + Some asked about the type of "Indigenous Knowledge" being referenced.
Ongoing engagement of governments: The NWMO must involve all potentially affected provincial governments in the development and review of the plan.	+ Wide agreement on the importance of this principle. + Municipal/local governments reported as noticeably absent. + Some called for adding "stakeholders."

Table 2: Objectives

OBJECTIVE	SUMMARY
Protect public health and safety from the risk of exposure to radioactive or other hazardous materials, and from the threat of injuries or deaths due to accidents;	+ Participants generally agreed with objective; though did not elicit much commentary.
Protect workers from, and minimize hazards associated with, managing used nuclear fuel;	+ Consistent with core components to be considered in transportation planning (i.e. "need to protect employees"). + Some workshop participants suggested incorporating protection "through adequate training and support."
Ensure fairness in the distribution of costs, benefits, risks, and responsibilities;	+ Elicited greatest response. + While deemed relevant, raised questions and generated skepticism about the arbiter of fairness: "Fairness is in the eye of the beholder. Who decides what is fair?" + General acknowledgement that this is a complex issue.
Ensure the well-being of all communities with a shared interest;	+ Well-being of communities viewed as a worthy objective, though many questioned the meaning of "shared interest." For example, is this different than communities who are "most likely to be affected by the plan?"
Ensure the security of facilities, materials and infrastructure;	+ Consistent with core components to be considered in transportation planning (i.e. the threat of terrorism and other crimes).
Ensure that environmental integrity is maintained over the long term;	+ Consistent with core components to be considered in transportation planning (i.e. "need to protect the environment"). + Many asked why it speaks of "integrity" rather than "protection," a more familiar term.
Ensure economic viability of the used nuclear fuel management system;	+ Addressed prevalent concern that the project somehow ends prematurely (e.g. bankruptcy of the proponents, lack of political will). + Some recommended that objective should by more explicit (e.g. "... until the project is completed according to plan.)

	+ Workshop participants suggested adding a commitment to accountability and the identification of main revenue sources. + Others indicated that it should not be used to rationalize cuts to spending: "Il ne faudrait pas que ça puisse être interprété comme un permission de prendre des décisions motivées par le profit… Il faut plutôt parler d'assurer la pérénité du projet."[10]
Ensure a capacity to adapt to changing knowledge and conditions over time.	+ Clear and viewed as important. + The term *Adaptive Phased Management* was unfamiliar to most; however, the concept was intuitively grasped by participants and raised unprompted early in discussions (e.g. using new science and technology and adapting to change). + Some suggested changing "Ensure a capacity to adapt…" to "Ensure the APM adapts…" + Some asked if there will be a way to measure success/need for course correction (e.g. through KPIs)?

[10] Translation: "This should not be interpreted as license to make decisions based on the profit motive… Rather, we need to emphasize the sustainability of the project."

Table 3: Guiding Questions

ITEM	SUMMARY
+ How will used fuel transportation containers ensure safety of people, plants, animals, land, and water along the route? + How will we prepare for emergencies, and what will security measures look like? + What is the risk to workers, the public, and the environment during transport and during the unlikely event of a breach of containment? + How can this risk be minimized? + What accident scenarios are being considered, and do they cover what is needed? + What oversight, checks and balances are in place?	+ Only specifically addressed in focus groups and less time devoted to obtaining participant feedback for questions. + Feedback provided was uniformly positive. Questions were viewed as relevant and encompassing key issues. + Questions listed respond to several main concerns and questions raised during participant discussions.

3.3. ENSURING THE DEVELOPMENT OF THE PLAN IS SUFFICIENTLY INCLUSIVE TO FACILITATE GOOD DECISION-MAKING

Across all sessions, participants recognized that defining who needs to be involved in the development of the transportation plan to ensure good decisions are made is a particularly complex exercise. Early discussions tended to revolve around semantics and the definition of terms such as "engagement," "consultation," "consent," "educate," "inform," and "involve," often used interchangeably. Participants initially stated that "everyone" should be involved in the development of the transportation plan; however, as discussions progressed, the vast majority concluded that this was not feasible – that the plan "can't involve everyone," especially given the nature and scope of the project.

Participants generally agreed that:

+ All Canadians should have some measure of awareness and understanding about the transportation plan;
+ Those who are more directly affected should have greater opportunity to understand the plan and to be heard;
+ Relevant government organizations, agencies and officials, municipal leaders, first responders, and scientific and technical experts should be involved to ensure good decisions are made;
+ The "right to be informed" does not necessarily translate into decision-making power; and

- The interest and rights of affected communities must be balanced with pragmatism and the greater public good.

The notion of "proximity" was raised throughout discussions, or rather, that the NWMO should ensure that those more directly affected by the transportation of used nuclear fuel have greater opportunity to understand the plan and its potential impacts, and to have their voices heard (e.g. those living and working adjacent to the route). In particular, participants noted that officials from communities along the route (e.g. elected officials, chief administrative officers/city managers and first responders) need "more information [and a] higher level of understanding" as they are responsible for local emergency services and accountable to residents.

Furthermore, there was an expectation among participants that a number of key actors should be involved to ensure the best possible decisions are made for the transportation of used nuclear fuel. These largely included: federal departments and provincial ministries responsible for issues related to energy, transportation, natural resources and the environment; the RCMP and CSIS; the Canadian Nuclear Safety Commission; municipal officials and first responders; and scientists and other technical experts[11].

Notably, non-indigenous members of the public were often divided on how the transportation plan should address Indigenous rights, treaties and unresolved land claims. Some believed there were compelling legal, historical and moral reasons to ensure that the views of Indigenous people living along the route be respected, even to the point of veto. Others, argued that Indigenous communities should be "treated in the same manner as any other community," both as a matter of fairness (i.e. to other communities along the route) and for practical reasons (e.g. to avoid protracted negotiations, legal challenges and costly route alterations).

Notwithstanding the diversity of views, there was an understanding that Indigenous communities would play a role in the development of the transportation plan. Some participants indicated that decision-making must take into consideration the Government of Canada's duty to consult with First Nations, that "First Nations are equal partners through/based on treaties," and that local decision-makers (Indigenous and non-Indigenous) have a duty to duly represent the needs and interests of their constituents.

There was also general agreement among participants that transportation planning was not solely a technical issue, but required social acceptance – described by participants as "securing public buy-in," "selling the public," and "getting the public onside" – in order to implement effectively. Moreover, while participants emphasized the importance of "informing," "listening" and "consulting," they also decided that achieving consensus along any given route was impractical, if not impossible. In sum, they advised that consent could not be a condition for proceeding: "If you go the consent route, you won't get anywhere." A participant in Quebec expressed a similar view: "Si on veut tout

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11 Participants emphasized the need for close inter-governmental and inter-agency coordination: "Au Québec, il faut que ce soit coordoné avec la sécurité civiles… Il faut pas que ce soit le fédéral qui arrive avec ses gros sabots."

11 Translation: "In Quebec things must be coordinated with the civil authorities… We can't have the federal government show-up and start trampling."

savoir, avoir toutes nos opinons, ça peut poser des limites à l'efficacité. Il faut que le public ait la chance d'être informé, d'exprimer ses opinions, mais ça prend une équipe qui gère, qui prends des décisions et qui rend des comptes."[12]

In addition, participants indicated that securing community approval along transportation routes was unnecessary, based on 1) a belief that used nuclear fuel can be transported safely, and 2) the reality that hazardous materials, such as propane and chlorine, are frequently transported through or near to populated areas without the public's explicit knowledge, much less its approval. As an overarching principle, several participants stated that potential opposition from a relative few should not hinder what they believed to be a greater good.

Lastly, it is important to note that several focus group participants maintained throughout discussions that the NWMO's transportation framework should include provisions for affected communities to give consent (e.g. through plebiscite). At times, these participants argued that affected communities would inevitably suffer economically vis-à-vis declining property values and reduced development/investment: "You are going to affect people's lives, but you're not going to give them a choice? It doesn't seem like something you'd see in Canada." To this end, some suggested that perhaps financial compensation should be offered as a way of promoting acceptance; others challenged the impracticality of this approach and reminded participants that materials are transported everyday on the same or similar routes without any form of compensation to communities or residents.

3.4. THE SCIENCE BEHIND THE PLAN

Public dialogue and workshop participants were asked to comment on a handout outlining program components and activities that the NWMO has committed to completing to support the development of Canada's plan. Participants were encouraged to consider how science can inform planning and decision-making, as well as the kinds of specialists that should be consulted.

As a whole, participants supported the proposed research program and provided the following suggestions for the NWMO's consideration:

- Given the generally positive impact that the container testing video had on participants' understanding and comfort level with the transportation of used nuclear fuel, the video should be updated with more recent examples, preferably of Canadian testing (e.g. testing of the "Canadian model" of container; effects of extreme cold; deeper and longer water submergence; impact of accident scenarios on the used fuel inside the package; and stress "to the point of destruction");
- Provisions for an "environmental response plan" to support restoration and land reclamation;

[12] Translation: "If we want to know everything, and have all our opinions heard, that could hinder the effectiveness of the process. The public has to have a chance to become informed, to express their views, but we need a team that manages the process, that makes decisions and is accountable."

- Analysis of jurisdictional competencies and regulatory frameworks to foster "regulatory harmonization" and protect the plan from "political interference;"
- Transparent budgetary reports to help stakeholders and the public understand the project's costs and sources of funding;
- Economic impact analysis for the various modes of transportation; and
- Funding program for communities to support emergency preparedness and response (e.g. pilot projects).

In addition to scientists and engineers, participants indicated that the plan should be informed by the careful study of public and stakeholder communications needs and related issues. For example, those previously involved in the site selection process suggested that communications specialists (e.g. social scientists) could counter misinformation and organized opposition (e.g. from "well-funded and media-savvy" environmental groups): "We need people who specialize in getting the message out." Similarly, some focus group and public dialogue participants addressed the need for a communications plan to help "clarify misconceptions" about the transportation of used nuclear fuel.

3.5. CONSIDERATIONS FOR THE SELECTION OF MODES AND ROUTES

While focus group participants raised selection criteria for modes ("how we transport") and routes ("where we transport") primarily during initial, unprompted discussions about components to consider in APM transportation planning, public dialogue and workshop participants explored the topic in greater depth. These participants were provided with additional information pertaining to modes and routes, including distances between interim storage locations and potential siting communities, estimated frequency of shipments by mode (rail and road), and the expected timeline for APM transportation.

Participants were asked to reflect on and then discuss the factors or criteria that should be considered in future decisions about modes and routes. In general, participants believed that decisions should be based first on safety and security, and then on an assessment of the cost-effectiveness of various alternatives. Over the course of discussion, some participants expressed a spontaneous preference for one mode over another; however, many participants noted that a "door-to-door" transportation plan may require a combination of modes, including shipment by water for part of the New Brunswick-Quebec trajectory – though those familiar with the project suggested that water transportation would be "politically impossible."

Collectively, participants put forward the following factors and criteria for consideration in the selection of transportation modes:

- Risk of accident (e.g. based on historical accident and operational data);
- Risk of security breach (e.g. relative ease of access);
- Adequacy of transportation infrastructure (e.g. quality of roads and tracks), with some indicating that much of their transportation infrastructure needs maintenance and modernization;

- Assessment of political and public perceptions and levels of social acceptance for each mode;
- Potential environmental impacts (e.g. on wildlife and surrounding terrain);
- Weather and the ability to adapt to seasonal changes (e.g. snow, ice, rain and floods);
- Ease of containment and access by first responders in the event of an incident;
- Analysis of the relative merits of opting for bigger loads and fewer trips versus smaller loads and more numerous trips;
- The frequency and nature of handling and transfers (particularly for worker exposure); and
- Adaptability of modes to future innovations in transportation (e.g. autonomous automobiles).

Participants expected that transportation routes would be selected by experts based on a consideration of trade-offs and pros and cons, including:

- Proximity to population centres and schools;
- Proximity to sensitive environmental areas;
- Response time for first responders/emergency response;
- Potential need to improve existing or build new infrastructure (e.g. extension of rail track);
- Conditions of the route during winter and inclement weather (e.g. days of rain and snowfall);
- Potential for traffic congestion and potential impact on commuters;
- Assessment of political and social acceptance;
- Trade-off between a longer route that goes through less densely populated areas versus a shorter route that goes through more densely populated areas; and
- The need to vary routes for security reasons.

Several participants inquired about the merits and feasibility of route closures during transportation. Some went further, suggesting that it might be a good idea to have "dedicated" routes for the shipment of used nuclear fuel (i.e. that no other vehicles or trains would be allowed to use).

3.6. FINAL COMMENTS – IS THE NWMO ON THE RIGHT TRACK?

At the end of each session, participants were asked to carefully consider everything they had heard and to indicate whether they believed the NWMO is on the right track regarding the development of the transportation framework.

Participants indicated that topics raised in the Discussion Document were a helpful starting point for discussions about transportation planning. There was general consensus (though not unanimity) that the NWMO is heading in the right direction. Focus group and public dialogue participants were particularly cognizant (many impressed) with how well the NWMO's considerations reflected their own thoughts, questions and concerns.

At the same time, participants highlighted a number of caveats regarding implementation: "I'd say it's a good start." "It sounds like they have a good plan and they're doing things like this focus group, which is good, but the devil will be in the details." "To me they're on the right track, but 30 and 40 years down the road, a lot can happen in that time." They also expressed concern about the potential for costs to spiral.

In addition, workshop participants stated that while the NWMO "has done a good job at engaging communities," further efforts are required "now, not later" to build the NWMO's profile, counter fear and misconceptions about used nuclear fuel, and obtain enough public "buy-in" to move efficiently through the planning phase into implementation.

Most participants were relatively confident about the prospects for success, commenting openly on the utility of discussion. More specifically, participants indicated that together, information and discussion helped them to better understand risk mitigation strategies associated with the transportation of used nuclear fuel. In addition, participants pointed to the fact that the NWMO has time on its side, given that the transportation of used nuclear fuel is not anticipated to begin for approximately 25 years.

Finally, participants were encouraged to offer some words of advice to the NWMO. Suggestions included a continued focus on public engagement/education "before and during" plan development, as well as the following:

- It is important for the NWMO to find a way to engage youth in the conversation because "they are the ones who will have to deal with this plan," "You need to educate an entire generation a few years from now;"
- Effective communications must include putting "nuclear science in layman's terms;"
- "La communication… c'est là que tout va se jouer. C'est ce qui a tué les pipelines au Québec;"[13]
- "Prendre nos responsabilités pour les déchets qu'on a créé envers les générations futures, c'est un message positif à vendre pour la SGDN;"[14]
- It is important to conduct a "thorough review of existing technical and safety standards" to ensure that the transportation plan incorporates national and international best practices;
- All aspects of the plan, particularly modes of transportation, should be "flexible" and "adaptable" to new technologies and future "social, political and environmental" risks;
- "This is a really good framework. Consulting the right people is the most important thing;"
- "I think this is a good high-level plan, but they need to consult with people;" and
- "It's on the right track, but make sure they do it properly. No matter the cost, this needs to be done right."

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13 Translation: "Communication… that's where it's all going to play out. It's what killed pipelines in Quebec."

14 Translation: "That we need to take responsibility for the waste that we risk leaving for future generations, that's a positive message that the NWMO can sell."

4. CONCLUSIONS

1. **There was a notable level of alignment across participant audiences in all three provinces:** Participants had no difficulty identifying components to be included or addressed in the transportation plan. Moreover, there were no explicit contradictions and a high degree of consistency among feedback provided by workshop participants – individuals familiar with the project and site selection process – and those learning about Canada's plan for the first time in focus groups or the public dialogue session.

2. **While the public opinion environment appears challenging, there are opportunities for future engagement:** Discussions across sessions revealed that public perceptions regarding the transportation of used nuclear fuel can be adversely influenced by related issues (e.g. oil by pipeline and the shipment of other hazardous materials). However, participant comments also suggest that Canadians may be willing to reserve judgement until they have more information.

3. **The Discussion Document appears to reflect public values, principles and concerns:** Overall, participants indicated that the NWMO is "on the right track" with respect to the development of an APM transportation plan. More specifically, there was a great deal of symmetry between participants' initial, unprompted considerations for the plan, and the list of principles, objectives and key questions outlined in the Discussion Document – a consistency not lost on participants. At the same time, a significant number of participants recommended that "security" and "environmental protection" be given more prominence within a draft plan, perhaps as stand-alone components.

4. **Information and discussion increased understanding and acceptance:** One of the clearest conclusions stemming from this research is that exposure to fact-based information, combined with the opportunity to ask questions and discuss the issues with others, helped participants better understand issues related to the transportation of used nuclear fuel and significantly increased their comfort level and confidence in Canada's ability to transport nuclear waste safely and securely.

5. **There was a desire for clarity around the sustainability of the transportation plan:** Participants indicated that the transportation plan should include clear and robust oversight, accountability and funding measures to ensure that the project is properly managed and meets all regulatory requirements throughout implementation. In particular, participants emphasized the importance of defining who will be responsible for what – including federal and provincial governments, Indigenous communities, municipalities, the private sector and the NWMO; how these jurisdictions and authorities will work together; how decisions will be made and by whom; who will be ultimately accountable for transportation planning (i.e. the NWMO or the Government of Canada); and how funding and implementation will be insured over the long-term or life of the project.

6. **The matter of inclusiveness was recognized as both critical and complex and must be balanced with pragmatism and the greater public good:** Participants deliberated this question at great length. Most initially indicated that "everyone" should be involved in transportation planning and some believed that communities

along prospective routes should have the right to consent (or object) to the plan. However, as discussions progressed most decided that such an approach was unfeasible. Participants believed that the public should be informed and have opportunities to provide input, particularly those more directly affected by the project, and that decisions should be made by individuals and agencies with the authority and/or expertise to do so. While participants emphasized the importance of engagement and consultation, they also advised that consent could not be a condition for proceeding.

7. **Notwithstanding a diversity of views, there was an understanding that Indigenous communities would play a role in the development of the transportation plan:** Non-indigenous members of the public were often divided on how the transportation plan should address Indigenous rights, treaties and unresolved land claims. Some believed there were compelling legal, historical and moral reasons to ensure that the views of Indigenous people living along prospective routes be respected, even to the point of veto, and noted that decision-making must take into consideration the Government of Canada's duty to consult. Other participants argued that Indigenous communities should be "treated in the same manner as any other community," both as a matter of fairness (i.e. to other communities along the route) and for practical reasons (e.g. to avoid protracted negotiations, legal challenges and costly route alterations).
8. **Securing a reasonable level of social acceptance was viewed as the NWMO's greatest challenge – one that can be overcome**: There was general agreement among participants that transportation planning was not solely a technical issue, but required sufficient public "buy-in" in order to implement effectively. Participants noted three primary barriers: nimbyism; public fears and misconceptions about nuclear energy; and the NWMO's lack of profile among Canadians. Despite the extent of these challenges, participants were mostly optimistic that support could be obtained given 1) the amount of time prior to implementation, 2) the positive impact that information and discussion had on participant views, and 3) the fact that the majority of participants believed that it would be irresponsible for this generation to leave future generations with the task of managing Canada's used nuclear fuel.