

Engaging Communities: Qualitative feedback on the Nuclear Waste Management Organization's exhibit

NWMO SR-2010-13

December 2010

Navigator

nwmo

NUCLEAR WASTE
MANAGEMENT
ORGANIZATION

SOCIÉTÉ DE GESTION
DES DÉCHETS
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Nuclear Waste Management Organization

The Nuclear Waste Management Organization (NWMO) was established in 2002 by Ontario Power Generation Inc., Hydro- Québec and New Brunswick Power Corporation in accordance with the *Nuclear Fuel Waste Act (NFWA)* to assume responsibility for the long-term management of Canada's used nuclear fuel.

NWMO's first mandate was to study options for the long-term management of used nuclear fuel. On June 14, 2007, the Government of Canada selected the NWMO's recommendation for Adaptive Phased Management (APM). The NWMO now has the mandate to implement the Government's decision.

Technically, Adaptive Phased Management (APM) has as its end-point the isolation and containment of used nuclear fuel in a deep repository constructed in a suitable rock formation. Collaboration, continuous learning and adaptability will underpin our implementation of the plan which will unfold over many decades, subject to extensive oversight and regulatory approvals.

NWMO Social Research

The objective of the social research program is to assist the NWMO, and interested citizens and organizations, in exploring and understanding the social issues and concerns associated with the implementation of Adaptive Phased Management. The program is also intended to support the adoption of appropriate processes and techniques to engage potentially affected citizens in decision-making.

The social research program is intended to be a support to NWMO's ongoing dialogue and collaboration activities, including work to engage potentially affected citizens in near term visioning of the implementation process going forward, long term visioning and the development of decision-making processes to be used into the future. The program includes work to learn from the experience of others through examination of case studies and conversation with those involved in similar processes both in Canada and abroad. NWMO's social research is expected to engage a wide variety of specialists and explore a variety of perspectives on key issues of concern. The nature and conduct of this work is expected to change over time, as best practices evolve and as interested citizens and organizations identify the issues of most interest and concern throughout the implementation of Adaptive Phased Management.

Disclaimer:

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ENGAGING COMMUNITIES

NUCLEAR WASTE MANAGEMENT ORGANIZATION

DECEMBER 2010

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INTRODUCTION

In October 2010, Navigator conducted 4 focus group sessions with 51 Ontarians to solicit feedback on the Nuclear Waste Management Organization's (NWMO) siting process exhibit. The exhibit, made up of 5 modules, contains information and material the NWMO has begun to assemble to ultimately help inform communities looking to learn more about Adaptive Phased Management, Canada's plan for the long-term management of used nuclear fuel. Sessions were divided into two parts: independent browsing of the exhibit and a group discussion. Each session allowed participants to provide feedback on content, techniques and approaches being used by the NWMO, as well as offer suggestions for additional materials to help residents of a community build understanding. Findings and recommendations outlined in this report will assist the NWMO in its communications as it begins the site selection phase of its mandate.

METHODOLOGY

Four focus group sessions, comprised of 51 participants were conducted on Saturday, October 30 at a neutral third-party facility in Scarborough, Ontario. Each session was two hours in duration with the number of participants ranging from 12-14 per group.

Focus group participants were selected using random digit dialing. Contacted individuals underwent a standard research screening survey in which they indicated that they were interested and able to participate in a discussion about a general public policy issue with no advance notice of the specific topic. In addition, the screening process took into account the following criteria:

- **Gender:** We recruited a mix of genders proportional to the population. Groups 1 and 2 were divided by gender to allow for nuanced differences in perspective between the genders to become apparent.
- **Age:** Eligible participants were required to be 18 years of age or older, as experience has shown that these individuals are better able to have an educated conversation about the topic of used nuclear fuel.
- **Support of or opposition to nuclear power as a source of energy:** Participants in groups 3 and 4 were asked to rank their preexisting support or opposition for nuclear power on a 10-point scale. Neutral opinions were rejected, and stronger proponents (group 3) and opponents (group 4) were kept.
- **Civic awareness and news consumption:** Participants were required to answer a series of questions demonstrating their news consumption habits, had to accurately name and discuss some current topics in the news, and indicate that they had demonstrated some form of community involvement such as attending public meetings, writing letters to the editor, or displaying support for an issue online or otherwise.
- **Education:** A mix of education levels was required to allow for a representative cross section of society with varying degrees of sophistication in their support of and opposition to nuclear power and waste.
- **Ability to read and converse in English (for purposes of group dynamics).**

Each group was different, comprised of participants that fit into one of the following four categories:

- One group of men of varying ages;

- One group of females of varying ages;
- One group of supporters of nuclear power with varying degrees of educational attainment; and
- One group of opponents of nuclear power with varying degrees of educational attainment.

Individuals who worked directly for the nuclear or energy industry were screened out so that there was a similar knowledge level in the room, allowing for discussion and learning. As well, quotas were placed on participant ages to ensure a good mixture in all groups, as well as on the number of retirees, unemployed and students in each group. An incentive of \$90 was provided to each participant to ensure attendance.

The groups were well attended, with about 60 participants recruited in total. It is our standard practice to over-recruit in order to account for no-shows.

Focus group sessions were divided into two parts: 25 minutes to independently view the NWMO's siting process exhibit and a 90 minute group discussion led by a moderator.

Before escorting participants to the exhibit room, the moderator gave a brief introduction of the NWMO, its mandate and the purpose of the exhibit they would be viewing to set the context. Participants were then given 25 minutes to browse independently and were encouraged to peruse the display any way they liked.

After 25 minutes, participants were asked to sit down at an adjacent table for a 90 minute discussion conducted by a moderator. In each group, the moderator used a guide, developed and agreed-upon in advance together with the NWMO. A copy of the moderator's guide can be found as Appendix III.

The discussion began by seeking participants' overall impression of the exhibit, specifically what they found helpful, interesting and difficult to understand. The discussion then moved to content on each individual module. In the first two groups, this discussion took place at the table with participants indicating which module they were referring to by pointing. In the second two groups, however, the moderator and group left the table to discuss at each individual module.

The discussion then focused on techniques and approaches, priorities for future work and, lastly, allowed participants to voice any final thoughts they might have for the NWMO. Finally, participants were invited to jot down three questions or comments for the NWMO, which can be found in Appendix I of this report.

OVERALL IMPRESSION OF EXHIBIT MESSAGE

The group discussion began with the moderator asking participants to sum up the overall message, in one or two sentences, they took away from the exhibit. Despite many specific comments and suggestions – both positive and negative – about particular elements, participants demonstrated a nuanced higher-level impression of the exhibit.

PARTICIPANTS TENTATIVELY GRASPED MESSAGE, THOUGH MESSENGER IDENTITY AND CONTEXT NOT ALWAYS CLEAR

Regardless of their point of view, many participants appeared to leave the exhibit with a sense that the NWMO's proposed solution is a pragmatic response to an existing problem requiring a solution. Most of the participants we spoke to had not heard of the NWMO before, nor were they fully aware of the scope of the storage issue at hand. Although many questioned how exactly the NWMO arrived at their proposed solution, most participants appeared to trust that the NWMO's solution was acceptable and timely. A younger male participant who described himself as an opponent of nuclear power explained that the NWMO's mandate was about an existing situation, and not a theoretical one:

They are saying we have a lot of waste and this is the best idea we have, and we need to deal with this as soon as possible.

This same line of thinking led a female participant in an earlier group to explain that the existence of a large buildup of used nuclear fuel was a reason to move forward with a safe and acceptable solution as soon as possible:

We've got this waste and its sitting at the plants, and it really should be stored as soon as possible safely. That's what I took away.

Participants felt the exhibit described a sensible and solution-oriented approach to answering the question of how to best store nuclear waste.

STRAIGHTFORWARD PRESENTATION OF ISSUE BY NWMO BUILT SOME GOODWILL AMONGST PARTICIPANTS

The NWMO has consciously attempted to avoid using sales-like language in any of its communications about the deep geological repository (DGR). Instead, it has worked to present information neutrally and as objectively as possible. In the recent exhibit focus group sessions, we believe that this effort has alleviated much of the suspicion among participants that the NWMO aimed to “convince” rather than “explain.”

We found that participants exposed to the concept of the DGR for the first time had quite a few questions, but ultimately appeared to be quite amenable to trusting the veracity of the information presented by the NWMO in the exhibit. Some participants noted that the future-focused justifications for the exhibit helped build that trust. We believe that the NWMO's commitment to future generations implies honesty about risk and a sense of responsibility which participants, like this female, appreciated,

The impression I got is good. This organization seems very responsible and proactive about not just this generation but generations to come.

We believe that this willingness to “work with” the NWMO is earned through careful presentation of balanced information and a genuine focus on future generations and that presenting information in this way prevented many participants from being “turned off” by the exhibit.

RECOMMENDATIONS

The following recommendations are intended to assist the NWMO as it continues to strengthen and refine the exhibit so it may ultimately inform interested communities. Each of the 11 recommendations below are informed by suggestions provided by participants in the focus group sessions, as well as by observing participants as they navigated and interacted with each module in the exhibit. The following recommendations are intended to assist the NWMO in delivering its message as effectively as possible:

1. An introduction to the NWMO is required;
2. Include more context about “how we got here”;
3. Add more touch screen interactive elements;
4. Include voices from outside experts to add credibility;
5. Make sure all text is readable;
6. Number each module;
7. Give participants clear instructions and “permission to play”;
8. Consider the addition of an NWMO representative or community docent;
9. Consider adding a sixth module;
10. Consider adding a component for young people; and
11. Consider adding a reading area.

1. AN INTRODUCTION TO THE NWMO IS REQUIRED

As mentioned, most participants had never before heard of the NWMO so were often overheard asking questions about the organization. This was also a topic of discussion in the focus group session – participants wanted to know more about the organization behind the exhibit. One participant, while looking at the introductory module, asked,

There are people's pictures [on this module] but who are they? Are these the NWMO leaders?

Forthright disclosure of the following is recommended, either as part of Module 1, a sixth module (to be discussed) or a separate handout distributed to participants:

- NWMO's mandate;
- How the NWMO is funded and its relationship to government;
- Number and roles of NWMO employees;
- The history of the NWMO and of nuclear waste in Canada;
- The NWMO's progress over time; and
- How to contact the NWMO.

Similar to the NWMO's full and frank discussion of the DGR, we believe that full disclosure in this regard will be similarly rewarded with goodwill.

2. INCLUDE MORE CONTEXT ABOUT “HOW WE GOT HERE”

As in an actual exhibit environment, participants entered the display area without any guarantee of prior knowledge of nuclear power or the waste that is produced as a byproduct. The establishment of some context for the NWMO's project is therefore essential. While there was some background established in Modules 1 and 2, participants repeatedly spoke of wanting a greater emphasis on context.

That desire for context included:

- **Historical:** When, how, and by whose authority Canada chose the DGR as the preferred method of storage. A male participant explained his questions in this way:

Maybe there should have been some sort of history. I mean, who decided this was going to happen? There is no indication.

- **International:** Participants sought to learn more about which other nations have started to build a DGR of their own, or what other methods were available.
- **Scientific/Environmental:** Some Participants were curious about what other options scientists had considered for the used fuel storage, or what the perspective or endorsement from third-party environmental groups or experts on the topic. A female participant explained her desire for hearing other perspectives:

[I'd like] A history of the DGR, what other countries have a precedent, and what perspectives of the environmental and scientific communities?

Additional context could be provided through handouts that participants could read on their own time. Short handouts with high-level information would provide a takeaway to help them remember what they learned and where to find answers to any questions they may have.

3. ADD MORE TOUCH SCREEN INTERACTIVE ELEMENTS

The two interactive touch screens were the most powerful tools in the exhibit. Although there was some initial confusion over how to proceed, there was consensus in every group that this interactive element was well-designed and informative.

We recommend using as many touch screen devices as possible. Participants were given the freedom to learn how they wanted through their chosen modality. In particular, we believe that additional installations of Module 5 would give more participants the ability to interact with this powerful tool in greater depth.

As well, we believe a touch screen targeted at young people would be an excellent way to involve a younger generation. Some participants recommended the NWMO add an interactive touch screen at a lower height and with narration for newer readers, and a series of picture-heavy modules smaller in scale that young people could navigate independently from their parents.

4. INCLUDE VOICES FROM OUTSIDE EXPERTS TO ADD CREDIBILITY

In all focus group sessions, participants spoke of a desire to hear from outside experts on topics related to the scientific and environmental impact of the DGR project. They believed that hearing a variety of perspectives from voices outside the NWMO and, for some, even outside the environmental and scientific community (e.g. military representative or ethicist) would add credibility. This was not because of an implicit mistrust of the NWMO, but rather for another point of reference. A female participant explained that she preferred to learn about the topic from many different perspectives,

I'd like to hear from environmental groups. Scientists, geologists. I want to hear from the people in the company.

Others expressed a preference for local meetings as a way to share that information and an ideal way to communicate with interested communities. This female participant explained,

[I'd like] a town hall meeting. I'd like to hear from local leaders who will be involved in the work.

As we have heard in prior qualitative research for the NWMO, including external voices that support the conclusions of the NWMO would go a long way to building confidence in and reinforce the organization's chosen course of action.

5. MAKE SURE ALL TEXT IS READABLE

While participants were grateful for the amount of information provided, there were sections of text that participants were unable to read. Some participants struggled with light-coloured text on light backgrounds, while others were unable to read information on the upper and lower panels, as it was far too high or too low to read without a great difficulty. Others also struggled with the density of the text in some places, finding it very hard to follow.

Going forward, it is recommended that the NWMO keep all information at a suitable reading height for people of all sizes. Furthermore, all text used should be in contrast with the background and laid out in a way that is clear and easy to follow.

6. NUMBER EACH MODULE

Participants told us that they were unsure of how to approach the NWMO exhibit, as there were no clear visual cues or path to guide their progress in moving between the modules. While it is not necessary to explore each module in order, a clear path would ensure that all points of the exhibit were covered. Participants may start at Module 3, but would know to loop back when finished.

Some participants told us that they felt some anxiety over following an incorrect path. While most told us that, when completed, they felt confident that they had explored the exhibit “correctly”, a clear path would eliminate anxiety and allow participants to focus more closely.

Participants, like this boomer-aged male, nevertheless told us that they felt they “got” what they needed to know even if they were unsure about whether they were approaching it correctly,

Ultimately it came together. But I entered the maze in the wrong order to avoid people. But I was confused for much of it.

Whether the omission of module numbering was intentional or unintentional, we heard a great deal of interest from participants to include some sort of guide in the future.

7. GIVE PARTICIPANTS CLEAR INSTRUCTIONS AND “PERMISSION TO PLAY”

Participants in all groups appeared hesitant to interact with the “touchable” parts of the NWMO exhibit. Instructions were not clear and, as a result, participants, in particular female and older participants, were most reluctant to touch parts of the display. The touch screens, in particular, caused a great deal of confusion. Participants were not sure how to proceed as no clear direction was given.

When asked by the moderator why they were hesitant, the responses centered around a deeply ingrained reluctance to touch objects that do not belong to them. An older female participant noted,

Remember, we were raised not to touch things.

Another female participant in a later group explained that she missed the opportunity to interact with the exhibit because she simply did not know that the video element was something that could be interacted with,

I went right by ... I didn't know it would do anything.

8. CONSIDER THE ADDITION OF AN NWMO REPRESENTATIVE OR COMMUNITY DOCENT

Participants made many references to their support for the idea of having a human being on site to guide their progress through the exhibit. Many, like this female participant, made a number of references to their desire to have questions answered,

I didn't like that I walked away with more questions: Alpha? Gamma? Wet storage? Dry storage? Decay? If you're going to present that, it has to be followed up with more [information]. I think there needs to be a person there to give people the booklets, and to answer questions. I walked away with questions, and I'm sure that [other] people will.

Others, like this male participant, added that they would appreciate a consistent line of narration as in a documentary. He imagined that a common voice could run through the exhibit,

A narrative would be helpful – a voice – something to guide me.

Whether through an NWMO technician on hand to answer questions, or through the “virtual” voice of a recorded exhibit narration track, there was a stated desire from many participants for a “story line” of some sort.

The NWMO might consider using a volunteer from the community, a docent, who could, over time, become a voice of the NWMO in the community. Training a volunteer would allow the NWMO to have someone on site to guide their peers through the exhibit, answer basic questions and provide information to those who wish to contact the NWMO with further questions. In using a community docent, the NWMO would further demonstrate its commitment to fully engaging a community.

9. CONSIDER ADDING A SIXTH MODULE

The moderator asked participants whether they had any suggestions for what topic a “sixth module” might feature. Participants did not question the premise of adding another module, and offered a number of suggestions. Specifically, participants suggested that a sixth module could include more information about:

- **Transportation:** The proposed method(s) of transporting the existing supply of used nuclear fuel to and from the eventual DGR site.
- **Consultation:** The consultation process, opportunities for input, who has been spoken to so far, and who the NWMO will be speaking to next.
- **Economic Benefits:** Many questioned why there was no mention of economic benefits or jobs that would likely fall to the eventual willing host community. Many suggested information about the regional economic benefits of constructing the project would be suitable for a module.
- **The NWMO:** Answer the question “Who is the NWMO?” including your mandate, history and employees.

These ideas were cited in several of the groups by multiple participants and provide fertile ground to develop another information module in the future. While there was no near-unanimous voice that emerged for the content of a sixth module, there was a definite appetite among participants to see more information. If the NWMO decides against adding a sixth module, it must be made clear where additional information on topics such as the ones listed above can be found.

10. CONSIDER ADDING A COMPONENT FOR YOUNG PEOPLE

A number of participants felt the NWMO should add a “kid friendly” component to the module as parents in interested communities will often have to bring their children with them to the exhibit. A component targeting younger Canadians would allow children to feel like they are participating in the same experience as their parents, and would allow the NWMO to reach a younger generation.

Some recommended the NWMO include a play area to entertain smaller children while their parents tour the exhibit.

11. CONSIDER ADDING A “READING AREA”

Those participants that chose to pick up materials from the accordion tower, or from Module 1, spent a considerable amount of time reading independently. Frequently, after having become engrossed in the booklets, we observed that participants would sit down at the focus group table and continue to read.

Additionally, there were a number of participants who, after tiring, sat at the focus group table in order to rest. This table would not be present at an actual exhibit installation.

By creating a “reading area” with chairs and reading materials, the NWMO would invite participants who were interested in more fully engaging with written material to spend time with these materials, and would encourage those participants who had simply become tired to continue to learn while they rest.

DISCUSSION OF EXHIBIT CONTENT

MODULE 1: MOVING FORWARD TOGETHER

Module 1 functioned as a *de facto* starting point for many of the participants.

Many participants began with this module, and almost all spent some time at this module over the course of their time exploring the exhibit. However, while many began at this module, participants often were quick to move on to modules with interactive elements. A female participant told us,

I would have walked right by that one to the TV.

Those who visited this module told us that it was extremely valuable and contained a great deal of information in the booklets, but in contrast to other modules, its lack of interactivity led fewer participants to engage fully.

PARTICIPANTS UNDERSTOOD MODULE'S ROLE IN ESTABLISHING CONTEXT

We found that participants, despite not always spending significant amounts of time with this module, came away with a clear understanding of its message. One male participant, part of the group who indicated that they opposed nuclear power in principle told us,

Canada has made a decision... and this is what we are going to do.

Even in groups in which participants opposed nuclear power, they understood the module's message and did not attempt to argue with the premise on ideological grounds.

PARTICIPANTS WERE ATTRACTED TO THE FUEL BUNDLE MODEL

Although this first module had fewer tactile components than others, many participants were interested in the fuel bundle that accompanied this module. However, some participants told us that they were not sure whether they could touch the model, something we commonly observed with all interactive elements. However, even those that did not touch the model felt greater comfort and comprehension of the project after seeing the bundle. A male participant told us,

I saw the bundle and realized what was involved and not unwilling to work together [with the NWMO].

Seeing the bundle helped participants grasp the immediacy of the NWMO's challenge.

PROVIDED REFERENCE BOOKS DIDN'T "JUMP OUT" TO PARTICIPANTS

A minority of participants discovered and read the booklets that accompanied Module 1. Some felt that the location of the books within the module was not obvious.

Participants who picked up the reading materials found them to be helpful. They spoke highly of them and often chose to invest a significant amount of time reading the booklets. A female participant noted that,

I looked through the book and that was quite a good tool.

Many participants who picked up reading material chose to take them to the focus group table in order to sit while they read.

MODULE 2: WHY DO WE HAVE USED NUCLEAR FUEL?

Module 2 explained why Canada has used nuclear fuel that requires management. It featured written information, an interactive touch screen, and an interactive model.

As in previous research, there were participants who questioned the viability of nuclear power in general and this module tended to be a focal point for these questions. It should be noted that although these questions came up, participants were able to understand—as noted above in reference to Module 1—that this exhibit was not intended to address the question of nuclear power, but to deal with the specific issue of nuclear waste.

SOME FELT THE PELLET STORAGE INTERACTIVE ELEMENT WAS SUPERFLUOUS

This module had both a screen and the pellet storage interactive elements. With the pellet storage element, in particular, some participants were unaware that they could interact with the pellets.

Most of Module 2's interactive elements were well received, even in those cases where participants were not immediately aware that they could interact with them. The “pellet storage” activity was, therefore, an outlier in this regard. We encountered a combination of apathy and incomprehension toward this interactive component. Participants did not understand what they were meant to take away. A male participant said,

The putting the pellets in the rod is sort of irrelevant. I'm not going to be doing that. Nobody in my community is going to do that. I guess I can understand why some people are interested in it. But is it worth using the space for that? Why not show it in a 10 second video clip?

A female participant added,

I can see how many pellets, but I didn't “get it.”

In short, the lesson of the pellets-and-rod exercise was unclear to several participants and could have been explained another way.

“HEAVY” BUNDLE MORE ENGAGING THAN PELLETS

While participants questioned the utility of the pellet storage element, they felt that there was value in seeing, touching and lifting the fuel bundle model. A number of participants told us that their chief reaction was that the bundle model was considerably heavier than they expected. One woman told us,

*My husband, who is an engineer would have loved this...
[but] the average person wouldn't get it.*

While a male participant told us,

[The bundle] is heavy. It doesn't look heavy.

Others appreciated seeing what the used fuel would be stored in and found the solid structure of the bundle to be somewhat reassuring. It appears to us that some participants gained a better understanding of the material through tactile interaction with the model than they would have gained by reading or seeing pictures.

MODULE 3: WHAT IS RADIATION?

Module 3 was perceived by participants to be the module which led them to understand the challenge of managing used nuclear fuel. They also told us that this module provided a good introduction to and explanation of radiation. When asked to sum up what they learned from Module 3, a participant in the group opposed to nuclear power told us that this module was surprising to him,

This [module] says everything is radioactive, and so this [waste] isn't a big deal.

Participants spent a considerable amount of time with this module, especially reading the portions about radioactivity in daily life.

DISPLAYS HELPED PEOPLE UNDERSTAND RADIATION AND SET CONTEXT FOR FURTHER DISCUSSION

A male participant, when asked about the message of this module told us,

The last one told me, "relax, you're already swimming in it." I saw what a nuclear plant worker was allowed to get [i.e. radiation dose], and I saw how much I was getting. The sound is a scary sound, but it isn't such a bad thing, and if every day household items have this then maybe I shouldn't be so worried.

The written information helped to contextualize the alarming noise of the Geiger counter, by comparing doses of radiation that people are exposed to in a variety of settings.

While they could understand the comparisons, the units—mSv—were foreign to them. A male participant explained,

This is a good comparison, but I don't know what 1.8 mSv means.

Some participants expressed frustration in assessing the measurement and wanted to see it described in terms anyone could understand.

GEIGER COUNTER TOOL CONSIDERED BY SOME TO BE UNNECESSARILY ALARMING

The Geiger counter that compared radiation levels of a number of naturally occurring elements and household items was of interest to many of the participants. However, the sound that the Geiger counter made was both alarming and irritating to many participants. A male participant told us,

That sound, alone, is a scary sound. But it's not such a bad thing. That machine is very sensitive already. That was a little too sensitive.

Other participants agreed. The sound made its point, but once that point was made, they found the noise irritating. A male participant in the pro-nuclear power group told us,

When I was in other parts of the room I still heard the sound. I thought the point was great, but the sound was really

annoying... maybe there could be a light or some sort of visual cue.

In spite of their alarm and irritation, the Geiger counter was valuable to participants insofar as it demonstrated that the scary and iconic sound created by a Geiger counter could be created by a number of common objects.

We should, however, note that a less intrusive noise of a lower volume, or perhaps even the option to “mute” the sound on demand may be the answer.

MODULE 4: MULTIPLE BARRIERS

Module 4 explained the ways in which Adaptive Phased Management (APM) would ensure the safety of the site and limit radioactive exposure to people. Almost all the participants in every group visited this module. While there was considerable interest in the various interactive elements of the module, the “puzzle” like the touch screen televisions was an element that many participants were unsure that they could interact with.

MODULE RAISED MANY “WHAT IF” SCENARIOS AMONG PARTICIPANTS

Module 4, in particular, was notable for its examples and more technical discussions. This, in turn, generated more technical questions from participants.

Participants were highly attuned to language that left room for further examination. For example, one female participant told us, in reference to the bentonite clay,

*They said in one place that the clay will “limit” the radiation.
But they didn’t 100% guarantee it. They need to say that.*

Additionally, the highly technical description of the DGR raised questions about how waste is stored now and the relative benefits of each.

*It didn’t really explain to me how much better it is than how
it is being stored now. So I can’t judge the benefit to me.*

Module 4 forced participants to consider the technical aspects of the actual waste site, which caused them to ask more technical questions.

“CONTINUOUS MONITORING” LANGUAGE SENDS MIXED MESSAGES

Participants felt that much of the language in the exhibit was comforting to them; they were told that this deep geological repository was as safe as possible, that the NWMO has carefully considered all the aspects involved in APM, and that this issue was being managed competently. Therefore, the introduction of language around “continuous monitoring” raised questions for participants.

*I don’t understand when you say that nuclear fuel remains
hazardous. Yes, you’re storing it where it does not always
need active supervision. In another location, you say you
continue with monitoring.*

Participants wondered why the facility would require continuous monitoring if, in fact, the facility was so well thought out.

THE MENTION OF “SHALLOW” STORAGE IS CONFUSING AND UNSETTLING

Like the discussion of “continuous monitoring” participants felt that the discussion of “shallow” storage introduced another element that was perceived to be inconsistent. A female participant told us,

I was confused by the “option for shallow ground storage” I don’t think there should be an option, because here they are talking about deep underground storage and why it’s important, and then, they are talking about shallow storage!

While a male participant in a different group said,

They say they have shallow storage too. They say they have all this taken care of, but then mention shallow storage.

The mention of shallow storage seemed to contradict what was otherwise consistent messaging regarding a DGR.

MODULE 5: EXPLORE THE DEEP GEOLOGICAL REPOSITORY

This module had a large interactive touch screen. Once the video was activated, it proved to be the most “sticky” module, maintaining participant interest longer than many others.

Although most participants did not fully comprehend the depth and breadth of information contained in this module, upon demonstration by the moderator, there was a consensus that this was amongst the most powerful. One participant, having listened to the questions of fellow group members said about the screens,

I think it fills in one of the voids.

Participants frequently suggested that an actual exhibition contain more televisions.

PARTICIPANTS APPRECIATED SELF-DIRECTED AND NON-LINEAR NATURE OF VIDEO

Participants told us that they liked the ability to navigate the information as they saw fit. Some participants told us that they wished that there had been some narration of the video, as they felt that if a fast reader were controlling the pace of information it would discourage slower readers when multiple people were looking at the screen. A male participant explained,

The TV is determined by the fastest reader and you should be able to go back if you didn’t read it.

Participants that engaged with the screen found it rewarding. In the words of one participant,

I “got it” [that it was a touch screen.] And then I spent all my time there!

Those that had not realized it was a touch screen were disappointed that they had not spent more time there. One disappointed participant, following a demonstration from the moderator, said, “I wish now that I had touched the screen.”

FEW KNEW HOW TO APPROACH THE TOUCH SCREEN MONITOR

A recurring challenge in all modules with interactive elements was that participants were unaware of what they were intended to touch. This challenge was especially evident with the touch screen. Once participants entered the exhibit room, we recorded how long before they began to engage with the touch screen (start the video):

Group 1 (women)	16 minutes
Group 2 (men)	6 minutes
Group 3 (mixed gender nuclear supporters)	12 minutes
Group 4 (mixed gender nuclear opponents)	N/A (did not activate the touch screen)

One female participant, who did not activate the touch screen told us,

*I didn't realize I had to touch the places on the screen.
Somewhere on that screen it needs to say "touch the
screen"... you were raised not to touch things, right? So it
has to say "Touch this screen!"*

When discussing reasons why people didn't realize they were meant to touch the screen, a female participant told us that there was a generational difference in the way people interact with technology,

*This is where the generation gap comes in. The younger
people understood.*

YOUNGER PEOPLE IDEALLY SUITED FOR THE VIDEO, BUT YOUNGEST WOULD NOT BE ABLE TO REACH IT

Frequently, participants told us about how children would interact with modules or the need for kid-friendly elements to the exhibit. Module 5 was especially notable for comments made in regards to how younger people would interact with the touch screen. On one hand, many participants felt that touch screen technology and non-linear navigation would be more intuitive to younger people, but, given its placement on the module, it was felt that younger people would be unable to reach the touch screen.

A male participant added that while that may be true, the youngest generation would not be able to physically reach the screen to be able to interact with it,

It's too tall for kids

The NWMO may wish to examine whether it will develop some technology or areas of the exhibit that are geared toward younger viewers or children.

TECHNIQUES AND APPROACHES

The moderator explored participant reactions to the NWMO's exhibit, asking for comments about the modules and the way the information was presented. After the browsing period concluded, the moderator asked participants to explain what about the exhibit method itself was helpful and what might have been more difficult to understand. We made the following observations about participant interaction with the exhibit and the viewing process overall.

PARTICIPANTS WERE VIRTUALLY SILENT DURING BROWSING

Before being led to the exhibit room, participants were told that they would be given about 25 minutes to browse the exhibit independently and at their own pace. After spending approximately 15 minutes together in an assembly room where a great deal of discussion and interaction took place, participants were virtually silent once they entered the exhibit.

While the focus group sessions cannot perfectly replicate the scenario of a similar exhibit being brought to a community and interested citizens arriving voluntarily, it was clear to us that the experience of entering the exhibit room caused participants to remain silent. We believe that the silent "resting" state of the exhibit may have led to this, as once the DGR video was enabled and sound was coming through the speakers, participants were somewhat more inclined to speak to one another.

EXHIBIT SHAPE AND SIZE CAUSED SOME DIFFICULTIES FOR SOME

Several participants, including at least some in every group, commented on the physical shape and size of the modules. Most of the comments concerned its very large shape and size causing or aggravating problems with legibility.

A female participant commented that the height of the exhibit making viewing difficult when wearing bifocal lenses,

I found a problem with the graphics with reading the stuff up high with my bifocals.

Another male participant echoed that concern, commenting that the actual text was placed quite high in many cases,

A lot of the signs are too high. Did they design this for basketball players?

Similar comments were made about text placed on the lowest panels of the modules, which required crouching or bending down to read. Many suggested using those top and bottom portions of the towers for labeling or directional purposes only, or simply trying to centre the text toward the vertical centres of the towers instead of the higher and lower portions that required crouching down to standing tall to read.

PARTICIPANTS REACTED TO JARGON AND COMPLEXITY OF LANGUAGE USED ON EXHIBIT TOWERS, SAW VIDEO AS AN "EQUALIZER"

Many participants – of varying gender, age and educational backgrounds – made comments about the language used in the NWMO exhibit. They told us that many of the

more technical words used on the modules were foreign to them, and as a result presented them with a steep learning curve. This participant explained his frustration,

I don't what some of these words are. Like "Adaptive Phased Management". If I'm from a small town I'm never going to remember that! [Also,] I don't know what bentonite clay is – I'm sorry.

While many expressed difficulties with the language of the modules' printed text, the video component of the exhibit was seen to be something of an "equalizer" when it came to explaining technical concepts, if only because of the helpful visuals and animations. Some viewed the video as a way to alleviate this perceived "complexity gap,"

For my parents, English isn't their first language. But they can still watch the news instead of reading the newspaper. The video seems to be more what they would be interested in.

Others went further, explaining that they felt the video was practically capable of being a "standalone" replacement for the rest of the exhibit. They believed that the video, as presented on the touch screen monitor, gave them a sufficient impression of the NWMO's project.

ABOUT NAVIGATOR

Navigator is a unique, Toronto-based consulting firm that provides strategic counsel to organizations facing complex communications challenges.

Navigator was created in 1999 by public affairs practitioners who recognized a market need for a firm that truly understood how to develop a winning over-arching plan, bringing together research, planning and communications tactics.

Since then, Navigator has grown to become a diverse firm with consultants from a variety of backgrounds who have excelled in the fields of journalism, public opinion research, politics, marketing and law. We have worked all around the world, not only in Canada and the United States but also Kosovo, Jordan, the West Bank and Gaza, South Korea and throughout Europe.

Navigator's approach to communications planning can be summarized as follows:
Research, Strategy, Results.

This motto is more than just words: it's how we do business. We firmly believe in basing our strategies on what we know about public opinion, not what we think we know.

At Navigator, we have tackled many challenges and have a refined approach to designing and implementing effective solutions.

Navigator has the ability to work within an organization's existing communications infrastructure to provide the best results. We design and, as needed, execute strategy.

Our approach integrates research, issues management, communications, stakeholder relations and advertising to maximize value to our clients. In addition to using in-house expertise, we work with specialist firms to help our clients succeed.

YOUR NAVIGATOR TEAM

JAIME WATT, CHAIR

Jaime Watt is Chair of Navigator, a Toronto-based consulting firm that specializes in the measurement, evaluation and movement of public opinion, corporate and communications strategy and public policy development.

A specialist in complex communications issues serving both domestic and international clients in the corporate, professional services, not-for-profit and government sectors. Jaime is recognized as Canada's leading qualitative public affairs researcher. A trusted advisor to business and political leaders and cabinet ministers at all levels of government, he has led ground-breaking election campaigns that have transformed politics because of their boldness and creativity.

Jaime is a past chair of Casey House and Casey House Foundation, Canada's pioneer AIDS hospice, and is deeply involved in efforts to promote equality and human rights issues. He serves on the boards of numerous organizations including St. Michael's Hospital Foundation, Historica Dominion Institute, Woodrow Wilson Center's Canada Institute, Booth Centennial Healthcare Linen Services, The Canadian Club of Toronto, The Clean Water Foundation, The Albany Club and is a Toronto Heritage Companion.

In 2003, he was awarded the Queen's Jubilee medal for service to the community. Most recently, he was awarded Egale Canada's inaugural Leadership Award for lifetime achievement in human rights work.

A highly regarded speaker, Jaime appears weekly on CBC News Network's popular Point of Order on Power and Politics, and regularly in the media as a commentator on public affairs issues.

MARTHA DURDIN, PRINCIPAL

Martha Durdin has more than 25 years' experience in marketing, communications and government, and has provided counsel to Board of Directors and senior management in financial services, package goods, the public sector and in politics. She joined Navigator as Principal in 2008.

Martha spent more than a dozen years at BMO Financial Group. She served as Head of Marketing and Communications for BMO's billion dollar global investment banking business, responsible for all marketing, internal and external communications, brand management and social responsibility. She rebranded the business in 2007 focusing on raising its profile through advertising and media campaigns across the US.

Previously she was BMO Financial Group's Vice President of Corporate Affairs and stewarded all Corporate Communications and Government Relations activities for the company during a period of rapid growth. Her international experience in Mexico, Asia, China and the US offers clients a unique perspective on cross-cultural matrix management in a wide range of regulatory environments.

Martha was also Vice President of Media Profile, a leading Toronto communications agency where she managed a wide variety of corporate, government and not-for-profit clients.

Martha has extensive knowledge of government in Ottawa and at Queen's Park. She served as Media Relations Officer in the Office of the Prime Minister under Pierre Trudeau. Her government experience also includes appointments as Chief of Staff to two federal ministers and media relations officer on national and provincial election campaigns through the 1980s. Martha was policy advisor for Status of Women Canada at the UN End of the Women's Decade Conference in Nairobi, Kenya.

Fully bilingual, Martha holds a BA (Hon) from the University of Western Ontario, an MSc from the London School of Economics, and an ICD.D (Institute of Corporate Directors) from the Rotman School of Management. She is also a graduate of the Executive Development Program at the North Carolina Centre for Creative Leadership.

Martha is also heavily involved in community activities and the arts. In 2006 Premier Dalton McGuinty appointed her Chair of the Ontario Arts Council and she was renewed for a second term in 2009. She is a Director of the Ontario Cultural Attractions Fund, the Writers' Trust, the Council for Business and the Arts in Canada and the Runnymede Health Care Centre. She has also served as a Director of Opera Atelier, Factory Theatre, Homes First Foundation and was a member of the Corporate Fundraising Committee for Casey House.

LANNY CARDOW

Lanny Cardow joined Navigator in 2008 and provides qualitative and quantitative research services to Navigator's corporate and not-for-profit clients.

Lanny most recently served in the Office of the Prime Minister as the Executive Assistant to the PM's Chief of Staff. Lanny had previously served in the Office of the Leader of the Opposition in various capacities, including Manager of Outreach (Operations).

Lanny graduated with a master's degree from The George Washington University's Graduate School of Political Management, specializing in both Campaign Management and Polling course concentrations.

While completing his degree, Lanny performed research at GWU's Institute for Politics, Democracy and the Internet, contributing to numerous studies and events that explored the crossroads of online technology and advanced campaigning techniques.

Lanny earned his bachelor's degree in Political Studies at Queen's University in 2002.

COURTNEY GLEN

Courtney Glen joined Navigator as a Consultant in 2006. She provides strategic communications and qualitative research services to Navigator's corporate and not-for-profit clients.

Prior to joining Navigator, Courtney worked at the Fraser Institute as a junior policy analyst in health and pharmaceutical policy. In her time at the Institute, Courtney co-authored a major pharmaceutical policy paper and contributed to their monthly policy journal, The Fraser Forum.

Courtney has also worked as a researcher for the Scottish Labour Party in Edinburgh, Scotland, conducting an audit of the Parliament's Cross Party Group on International Development.

Courtney has a master's degree in International and European Politics from the University of Edinburgh in Scotland and a bachelor's degree in Political Science from the University of Guelph.

ALEX CALLAHAN

Alex Callahan joined Navigator in 2008. At Navigator Alex has worked closely on large research projects for clients in energy, development, media and healthcare. His experience also extends to strategic communications and issue management for Navigator's corporate and non-profit clients.

Prior to joining Navigator, Alex worked in radio broadcasting as the production director at CHMA-FM in Sackville, NB. Alex also worked as a gold miner and prospector for several seasons in Dawson City, YT. He is a graduate of Mount Allison University having completed a bachelor of arts with a major in Political Science and Honours in Religious Studies.

JONATHAN LOWENSTEIN

Jonathan Lowenstein joined Navigator in 2010. He possesses a proven record of engaging and mobilizing interests through carefully tailored social media campaigns.

Prior to joining Navigator, Jonathan honed his sales and marketing skills in a variety of contexts. Most recently, he assisted a Toronto-based company expand nationally, developing strategies to penetrate the BC marketplace.

A graduate of Queen's University, in Kingston, Ontario, Jonathan earned a Bachelor of Arts (Honours) degree while studying politics and business. Throughout his time at Queen's, Jonathan was actively involved with the Alma Mater Society's student clubs where he served in a number of roles including Treasurer and President.

APPENDIX I – FINAL COMMENTS

Before ending the focus group sessions, the moderator asked participants to jot down some comments for the NWMO. Participants left the comments on the table and they were not discussed in the group. Below are some commonly repeated comments:

EXHIBIT ORDERING

“Make the display [sic] in order” (Group 1)

“Flow needs to be better. Where should I start?” (Group 4)

YOUNGER AUDIENCES

“Include a ‘kid-friendly’ section at the beginning of each display.” (Group 1)

MODULE DESCRIPTIONS

“Include headings on each part that describe what’s on each.” (Group 1)

“Put headers in black text that is easy to read.” (Group 1)

INTERACTIVE DISPLAYS

“[It] would be helpful to have clearly marked signs on displays closer to the interactive items, inviting viewers to touch them.” (Group 3)

“Add more interactive screens.” (Group 3)

TAKEAWAYS AND HANDOUTS

“I would have liked some take-home information.” (Group 2)

“Would like a take-a-way [sic] brochure with the website.” (Group 3)

READABILITY

“The font [size on the modules] should be reviewed to make it stand out more.” (Group 4)

“Grey on white [text] does not show up very well.” (Group 4)

INFORMATIONAL VALUE

“The information was clear and concise.” (Group 4)

“[I] really like the examples from daily life.” (Group 3)

OTHER COMMENTS

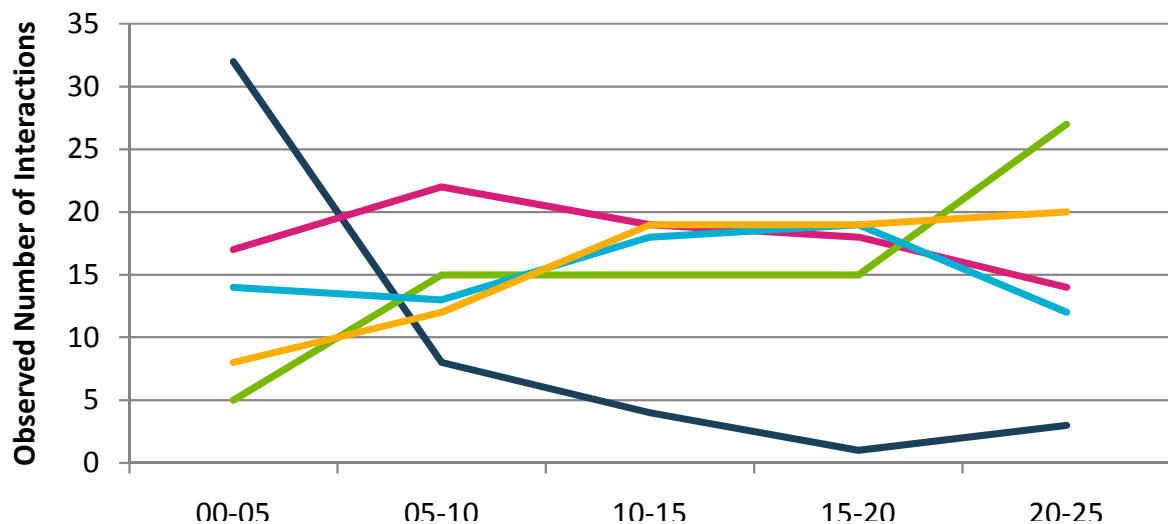
“What does ‘optional step of shallow underground storage’ mean?” (Group 3)

“Need some comparison between how radioactive the samples are versus nuclear waste.” (Group 2)

APPENDIX II – OBSERVED PARTICIPANT VIEWING PATTERNS

During the self-guided exhibit viewing phase, participants were able to wander through the exhibit. Stationed discreetly in two places in the exhibit hall, Navigator researchers recorded participant interaction with the modules on staggered time intervals. We have charted these interactions over time for the four groups in aggregate below. Some observations from the exhibit-viewing session are discussed in greater depth below.

Participant viewing pattern over time



- Participants were led into the room near Module 1 and therefore tended to cluster near the module for the early portion of the viewing period.
- Most participants moved through the exhibit more or less “front to back,” viewing in the modules in some semblance of order, but with much mobility between Modules 2,3, and 4.
- Participants that discovered that they could activate video playback on the touch screen TV monitor took between 6-16 minutes to do so.
- Most participants spent 20-30 minutes browsing the exhibit. Participants began to “wrap up” after about 20 minutes, with a steady increase in numbers ceasing to browse after that point.
- Very few participants claimed that 25 minutes was not enough time to become familiar with the exhibit.
- We expect that in a “real-life” scenario, there would be participants who would engage only minimally, however we believe that these patterns reflect that portion of the population that would chose to engage.
- When participants gathered around the touch screen to watch the DGR video, they tended to linger for longer in that place than at other modules.
- Because of higher participant traffic near Module 1 at the beginning, many participants deferred viewing the “Moving Forward Together” module until later in the viewing period, with some circling back to that point of the exhibit.

APPENDIX III – MODERATOR’S DISCUSSION GUIDE

WELCOME AND CONTEXT SETTING

[In Sign in room before entering research area]

In June 2007, the Government of Canada announced Canada's plan for the long-term management of used nuclear fuel in Canada. Used nuclear fuel is a hazardous material which is created from the generation of electricity in a nuclear power plant.

The Government of Canada tasked an organization, called the Nuclear Waste Management Organization, to implement Canada's plan.

Canada's plan is called Adaptive Phased Management. Adaptive Phased Management involves bringing all the used fuel in Canada to a central location to be contained and isolated in a specially engineered facility over the very long term. The Nuclear Waste Management Organization has committed to only siting the Adaptive Phased Management facilities in a willing host community.

In order to be considered for this project, a community must voluntarily come forward and express interest in it. This launches a multi-year process in which the community learns about the project, conducts studies to see if it is suitable, and ultimately decides if it wishes to host the project. The community can withdraw from the process at any time.

Why are you here today? The NWMO has begun to assemble information and materials that it might take to a community to help the residents in that community begin to learn about the project. The Nuclear Waste Management Organization is still in the process of developing materials and would like your help in understanding how it might begin to inform interested communities.

Today, we would like you to look at examples of some of the work which NWMO has completed to date to help inform communities. We would like your impressions of this material, how it might be improved, and what more the NWMO might do to create material which will help residents of a community build their understanding about the project. You will see a suite of materials, including interactive displays, videos and take home brochures.

In order to do this, we would like you to imagine, for the purposes of this research, that your Mayor and Council has asked the NWMO to come to the community with an exhibit which will begin to help inform residents like you.

Before you walk in to the research room to view this material, you may wish to jot down a few questions that you, as a resident of this community, hope might be answered. You may want to refer to these when we sit down for our discussion.

We will also give you a pen and paper to jot down any thoughts you have as you wander through the displays. We will meet at the large table in the room in about 25 minutes to discuss your thoughts.

AT THE DISCUSSION TABLE

WELCOME, INTRODUCTION AND PRIVACY STATEMENT

Before we begin, I just wanted to remind you of our commitment to ensuring your privacy:

- Tape being made for note-keeping purposes – destroyed afterward
- Nothing you say or do will be associated with your names
- Atmosphere of respect at all times with each other's comments
- Introduce ourselves around table
 - Large group, so please keep very brief
 - First names only please

OVERALL IMPRESSION

If you had to sum up the overall message you took away from viewing this material in a sentence of two, what would that be?

What can you tell me about what you found particularly:

- Helpful
- Interesting
- Difficult to understand or confusing
- Worth recommending to a neighbour
- Overall, what should the NWMO keep and do more of?
- Overall, what should be changed and how?
- Overall, what should be added?
- Overall, what else should NWMO do or keep in mind?

FOCUS ON CONTENT

[Approach each module as a group, one by one, and address the questions below.]

For each module:

- Did you look at this module? Why or why not?
- What was your initial reaction?
- If you had to sum up the main message in a sentence or two, what would it be?
- What works well?
- What, if anything, might be improved?
- Is this an interesting/helpful module for you personally?

FOCUS ON TECHNIQUES/APPROACHES

In these modules, you can see examples of a variety of techniques and approaches.

- What can you tell me about what you found particularly
- Helpful?
- Interesting?
- Difficult to understand or confusing?

PRIORITIES FOR FUTURE WORK

The NWMO is continuing to develop material of this type.

- What advice do you have for the NWMO about what it should do next?
- Topics?
- Can we put them in order of importance or priority?
- Can we provide some advice on what this might look like?

FINAL THOUGHTS

- Before we end the discussion, please jot down three comments for the NWMO. You can leave these questions on the table to be collected.
- [Optional: if you leave your name and phone number, someone from the NWMO will call you, if you'd like]
- Any final words of advice to the NWMO about how it might communicate about the project to communities which may be interested in hosting this project?

CONTACT INFORMATION

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