

# NWMO Citizen Panels Report, Phase II: Panel Three

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**March 2008**

Navigator Ltd.

**nwmo**

NUCLEAR WASTE  
MANAGEMENT  
ORGANIZATION

SOCIÉTÉ DE GESTION  
DES DÉCHETS  
NUCLÉAIRES



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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.

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### Disclaimer:

This report does not necessarily reflect the views or position of the Nuclear Waste Management Organization, its directors, officers, employees and agents (the "NWMO") and unless otherwise specifically stated, is made available to the public by the NWMO for information only. The contents of this report reflect the views of the author(s) who are solely responsible for the text and its conclusions as well as the accuracy of any data used in its creation. The NWMO does not make any warranty, express or implied, or assume any legal liability or responsibility for the accuracy, completeness, or usefulness of any information disclosed, or represent that the use of any information would not infringe privately owned rights. Any reference to a specific commercial product, process or service by trade name, trademark, manufacturer, or otherwise, does not constitute or imply its endorsement, recommendation, or preference by NWMO.

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# NAVIGATOR

## NWMO Citizen Panel Report Regina, Saskatchewan

NUCLEAR WASTE MANAGEMENT ORGANIZATION  
REGINA, SASKATCHEWAN CITIZEN PANEL REPORT  
MARCH 2008

## **WHAT ARE CITIZEN PANELS?**

Building on previous qualitative research studies, the NWMO contracted Navigator to initiate Citizen Panels in 8 cities across Canada. The goal of the Citizen Panel project was to further explore the feelings, attitudes and perceptions of Canadians toward the long-term storage of Canada's used nuclear fuel.

The Citizen Panel project is markedly different than the qualitative research projects that have preceded it. The intent of the Citizen Panel format used in this project is to allow for the discussion to be formed and driven by the views of the individual Panelists. These Panelists have completed Phase One of the Citizen Panel project where they were introduced to the NWMO and are aware of rudimentary facts surrounding Canada's used nuclear fuel such that an informed discussion can occur.

Phase Two of the Citizen Panel project occurred in Regina, Saskatchewan, in January 2008.

## **WHAT IS NAVIGATOR?**

Navigator is a research-based public affairs firm that works with companies, organizations and governments involved in the public policy field.

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.

Our strategic approach can be summed up as: *“Research. Strategy. Results.”*

# **PANEL REPORT OUTLINE**

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## **1. NWMO CITIZEN PANEL BACKGROUND**

### **a. Citizen Panel**

The Regina, Saskatchewan Phase Two Citizen Panel was held on January 16, 2008 at Canwest Opinion, a neutral third party facility in Regina.

The Panel was held over three hours from 6PM – 9PM with 17 Panelists in attendance. Jaime Watt, a Navigator research professional, acted as Discussion Leader.

A general outline of discussion objectives, as well as a discussion document intended to guide the work of the Panel were prepared in advance of the Citizen Panel. Reproductions of the document shown to the Panel can be found at the end of this report as appendices.

### **b. Panelist Profile**


















In order to ensure that Panelists speak openly and freely over the course of this research, the individual identities of Panelists will remain protected and not revealed to the NWMO at any point of the project. Contact with Panelists is managed exclusively by a dedicated Panel Manager and each Panelist has been given an identifier code to ensure anonymity in all accessible Panel documents. All personal information and contact reports are stored separately and controlled by the Panel Manager.

While verbatim comments are used through this report, the identification will be only by Panel or by unique Panelist identifier code, but never by name.

Panelists have agreed to offer additional information, including their gender and one additional fact about their lives to make the Panel reporting richer for the reader.



Below are the profiles of the Regina Panelists by Panelist identifier code:

	City: Regina Age: 25-34 Gender: Female Occupation: Employed, telephone operator		City: Regina Age: 45-54 Gender: Male Occupation: Employed, credit rep
<b>Panelist: R-1A</b>		<b>Panelist: R-2A</b>	
	City: Regina Age: 25-34 Gender: Female Occupation: Employed, TA at university		City: Regina Age: 45-54 Gender: Male Occupation: Employed, interior designer
<b>Panelist: R-3A</b>		<b>Panelist: R-4A</b>	
	City: Regina Age: 45-54 Gender: Male Occupation: Employed, insurance underwriter		City: Regina Age: 65+ Gender: Male Occupation: Retired
<b>Panelist: R-5A</b>		<b>Panelist: R-6A</b>	
	City: Regina Age: 55-64 Gender: Female Occupation: Employed part-time, joint advocacy		City: Regina Age: 45-54 Gender: Male Occupation: Employed, IT manager
<b>Panelist: R-7A</b>		<b>Panelist: R-8A</b>	
	City: Regina Age: 25-34 Gender: Female Occupation: Employed, human resources		City: Regina Age: 45-54 Gender: Female Occupation: Retired
<b>Panelist: R-10A</b>		<b>Panelist: R-19A</b>	
	City: Regina Age: 55-64 Gender: Male Occupation: Employed, director		City: Regina Age: 55-64 Gender: Male Occupation: Retired
<b>Panelist: R-12A</b>		<b>Panelist: R-13A</b>	
	City: Regina Age: 45-54 Gender: Male Occupation: Employed, CEO of NFCw		City: Regina Age: 35-44 Gender: Female Occupation: Unemployed
<b>Panelist: R-14A</b>		<b>Panelist: R-15A</b>	
	City: Regina Age: 45-54 Gender: Female Occupation: Self-employed, business		City: Regina Age: 35-44 Gender: Female Occupation: Employed, sales clerk
<b>Panelist: R-16A</b>		<b>Panelist: R-17A</b>	
	City: Regina Age: 45-54 Gender: Male Occupation: Employed, business manager		
<b>Panelist: R-18A</b>			

### **c. Panel Methodology**

These Citizen Panels have been designed, as much as possible, as collaborative discussions facilitated by a Discussion Leader. They are separate and apart from focus groups in that they empower individual Panelists to raise questions and introduce new topics. The role of the Discussion Leader, in this format, is merely to introduce new topics of discussion and lead the Panel through a number of discussion exercises.

As well, additional measures were incorporated into this Citizen Panel format to empower individual Panelists. Each Panelist was made aware of their independence and responsibilities to both contribute to, and lead, the Panel discussion. A transcriber, traditionally taking contemporaneous notes behind one-way glass or in another room, was, in this case, placed inside the discussion room. Panelists were empowered to direct him or her to take special note of elements of the Panel discussion they felt were important, or ask him or her to recap any part of the discussion upon request. A commitment was made by the Discussion Leader that the notes taken would be sent to Panelists for review, possible revision and approval, to help Panelists have faith they are in control of the proceedings and ensure their contribution is reflected accurately.

Potential Panelists were originally selected through random digit dialling among a general population sample in the wide area in which each Panel was held. Individuals called 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. Individuals were screened to include community-engaged opinion leaders in at least one of these topics: community, environment, and/or public/social issues. Those that passed the screening process were asked to participate in a traditional focus group on the perceived trust and credibility of the NWMO, which allowed an introduction to the topic of used nuclear fuel and topics such as Adaptive Phased Management. The discussions were neutral in tone and did not presuppose any outcome on issues such as nuclear power generation and siting for used nuclear fuel.

At the end of this research study, participants were asked if they would be willing to continue in discussions on the topic of used nuclear fuel. Those that expressed interest were placed on a “short list” of potential Panelists for the four-phased Citizen Panel project. Research professionals at Navigator subsequently used this pool to select Panelists that would ensure a diversity of age, gender and experience in the Panels. Only participants who demonstrated both a willingness and ability to contribute to group discussion and complete exercises were included in the pool. The content of each participant’s contribution in the focus groups was not reviewed by Navigator professionals. Rather, the only qualifiers were that individuals could speak clearly and were able to grasp concepts introduced to them at a basic level.

A target Panel population of 18 was determined for each location in the interest of ensuring the long-term viability of each Panel over the course of four discussions.

Phase One Citizen Panels occurred in late Fall 2007. Although successful in terms of the richness of data collected in all 8 Panel locations, it was clear upon completion of the Panels that it would be necessary to hold Supplementary Citizen Panels in four locations (Toronto, Montreal, Regina and Sault Ste. Marie) due to smaller than expected Panel populations, as well as a difficulty experienced by some Panelists to honour their commitment to attend, as was confirmed on the day of the Panel.

Supplementary Citizen Panels occurred in early January 2008 and consisted of 6 new recruits, selected by random digit dialling, to replicate the experience by which all other Panelists had been selected. New recruits were sent a reading package in advance and then had a one hour “lobby” session immediately prior to the Supplementary Citizen Panel. This session replicated a condensed version of the Preparatory Phase research and allowed for any questions Panelists might have had about the NWMO. Following the “lobby” session, the Supplementary Citizen Panel continued, adding Panelists who had confirmed but, for a myriad of reasons, could not participate in the Phase One Citizen Panels.

Following the completion of the Supplementary Citizen Panels, those that demonstrated a willingness and ability to continue were added to the pool for Phase Two Citizen Panels.

Phase Two Panels occurred in mid to late January 2008. The Panel discussion began with the Discussion Leader asking Panelists if they had thought any more about the NWMO since the last Panel, or if they had just gone back to their daily routines and not given the organization much additional thought. The Discussion Leader then distributed a document for discussion, the Executive Summary of the NWMO’s study *Choosing a Way Forward: The Future Management of Canada’s Used Nuclear Fuel*. The document was given both individual consideration, as well as collective consideration. Individually, Panelists were asked to mark the documents with red and green pens, green indicating they felt a certain point was helpful to their understanding, and red indicating that they did not find the point helpful. The intent of the individual document review was to serve as a launching point for further collective consideration and discussion of the more complex strategic objectives of the NWMO. The Panel discussion concluded with Panelists reviewing the answers provided by the NWMO to the questions Panelists had posted in the Parking Lot in Phase One.

Again, Panels were successful in the richness of the data gathered. Furthermore, Panelists have begun to demonstrate a higher degree of ownership in the process with impressive attendance, commitment to the discussion and, in some cases, engaging in extra work, such as assembling their thoughts on paper and seeking out additional information.

This Panel Report is, to the best of Navigator’s abilities, a faithful rendering of the discussion held in Regina and stands alone as a record of the Citizen Panel discussion on January 16, 2008. A larger Aggregate Report on this wave of Panel discussions, including the Panels in Montreal, Kingston, Sault Ste. Marie, Scarborough, Saint John, Toronto, and Saskatoon has also been submitted to the NWMO.

## 2. PANEL NOTES

### a. Disclaimer

The attached are contemporaneous notes taken by a transcriber positioned in the room with the Panelists. The transcriber was taking direction from the Citizen Panel on specific points of interest. The following is not an official transcript, but a best effort to capture the sense of discussion with some granularity.

Panel notes will be reviewed by all Panelists, with each having an opportunity to revise (add or subtract) their individual contributions such that it the notes then stand as a clearer rendering of the Panel discussion.

The transcriber for this panel was Courtney Glen, a Navigator research professional.

### b. Panel Notes

Report of the Regina NWMO Citizen Panel  
Second Meeting  
16 January 2008

#### Parking Lot Question and Answers Discussion

**[Discussion Leader]:** How did the NWMO do in answering the questions that you asked?

- |       |  |
|-------|--|
| R-18A | The ones I take ownership of were answered specifically and to the point.  |
| R-10A | A lot of the answers are what were in the booklet before hand. It was a lot of information for us and we might have read it so quickly we didn't know.                         |
| R-18A | Some of the information was on their website.  |
| R-5A  | You want to be open, but it doesn't give you many details. You don't want to create fear with the answers but, question 25, in my mind they didn't really answer it very well. |
| R-14A | Particularly when it's referenced in a lot of the other answers.   |
| R-1A  | Why wouldn't you just give it to us for easy reading?  |

- R-18A Crowded room, hard to maneuver around here. With the comments for question 25, did anyone get the feeling that they were trying to “soften it”, which is our biggest fear?
- R-5A Yes. If there’s a host community, people want safety and it was kind of vague about the potential.
- R-18A Maybe point out the risks and how they’d manage them.
- R-5A Any day on the news, people would know but because this is unknown to the majority of Canadians, that is why this question was raised.
- R-6A Where do we stand in comparison to other countries? There are many reactors around the world. Give us a sense of where we stand in relation to other countries.
- R-14A They answered the questions reasonably well. For some of them it was begging for more background, really the person was asking more than just the stated question.

**[Discussion Leader]:** I’m wondering if after the last group. You thought any more about the NWMO or just went back to everyday life?

- R-8A I talked to my son about it for about an hour and a half trying to explain to him all the things were covering and tried to give my best assessment of what you’re asking of us. The environment is interesting to him so he went and checked out the website after.

**[Discussion Leader]:** Anyone read or hear anything about the NWMO in the media?

- R-13A I checked the website a few times looking for news or new releases and didn’t find something.
- R-18A Heard something about Chalk River, someone got in trouble this morning.
- R-15A The guy fell asleep.
- R-13A Big story as been the shutting down of isotope facility and head of the regulatory authority was fired. I’m assuming the woman that was fired was supposed to appear today as well. They’ve had hearings and both people were supposed to come in front of the committee and explain themselves.

- R-2A She was trying to say it was government interference and they were saying they weren't doing their job. I haven't read as much about it as I should.
- R-7A When you watch CPAC, during some of the house discussions, you heard them talking about the closure of it. Shows that government needs to stay out of it because they're too invested in it. You heard more about how much money was being lost, not the dangers and reasons the facility was shut down.
- R-6A I'm wondering if her dismissal was a little abrupt.
- R-13A I guess it has implications as to how this will be handled in the future. They're trying to set up a system that will be community friendly and if regulators can be overruled by governments in any countries it has serious implications. I ran into geologists where part of their jobs was going around cleaning up different sites and one was very interested in this so I shared the website.
- R-19A With the isotopes, they're kind of trading off that people need them for tests but the people that are working with those, are they in danger by starting up this reactor again? Are we trading off one for the other. I would think they were. If it shouldn't be running, it shouldn't be running.
- R-13A A lot of the information became too political so it was impossible to tell what was going on. We want a body that will tell information you can trust. In this case, we're being led to believe that the regulatory also had a vested political interest so we're really being left with nothing.
- [Discussion Leader]:** That is because the core data, the information became politicized.
- R-13A Beyond politics, we know that a lot of people weren't getting serious medical treatment. It was a very serious decision on the part of the government and the regulator.
- R-10A That makes me kind of worry as to what kind of power the government has over this organization and what kind of decisions they can make that might not be in the best interests.
- R-2A My feeling on that is that these are two entirely separate issues. There's pressure from the government that the isotopes to get to the hospitals but we're looking at is the

waste. There isn't that pressure or rush like the other. There's a different pressure on the isotopes.

- R-13A But we would not have to spend much time thinking of situations that could arise with the dissemination.
- R-2A But they're two separate issues.
- R-13A But a regulatory authority versus political pressure, not only in Canada but around the world...
- R-12A Are we not talking about two different structures and organizations.
- R-2A I don't think this Board is political appointed. You probably want more government involvement.

### **Choosing a Way Forward Exercise**

**[Discussion Leader]:** Did you find the document clear and informative? Or confusing? Not helpful?

- R-16A I'm comparing it to the brochure, I found this a little more straightforward, not as much technical data. If you're looking for details, it might not be so good but it's easier to understand. The writing of it was a little more summarized, not as much technical. In a sense it's good because it's less data to go through but in another sense, if you're looking for more technical data, it's not as good as the first one. It depends on what you're looking for.
- R-5A I thought it was generally, fairly well done. I have a few points that I thought were vague or confusing. An example, page 6, last paragraph – "...appropriately designed mitigation measures." To me it meant virtually nothing. To me that was really vague. Also, the second column on page 7 – "...continuous monitoring and contingency against unforeseen events." How can they have a contingency if it's unforeseen? In my mind that should be variable. They should foresee all contingencies.
- R-17A I found it very easy to read. Easier to understand than the first booklet. Flows very nicely. On page 6 under the implementations, it says "our visions will continue to guide us as we gain the confidence of Canadians," so they haven't yet? Why only speaking with thousands of Canadians, not everyone? Before this focus group, I had

never heard of it. It's not on the news everyday, not in the papers everyday. If no one had called me for this group, I wouldn't have known about this stuff. Could it not be mentioned more often or be a little more available to all these billions of people?

R-6A I don't believe enough Canadians have been reached or are being reached. I believe the owners have made a conscious decision not to disseminate better and it should be. I don't think that's too difficult a thing to do.

R-18A You asked earlier if I spoke to people at work and I did and they said "a focus group on who?" and I work for a power company.

R-17A I listen to the news every day, I read the paper once a week and I've never heard of this. There's a nuclear plant here at the university. I don't know and I bet the students don't even know.

R-18A I think you're right, people choose not to engage unless they're an accident.

R-13A I check the website and it's a very unusual website and the latest thing on it is from July. That doesn't seem like anyone who is breaking their neck and speeding towards informing the public.

**[Discussion Leader]:** What have they got on the website?

R-13A A lot of info we got in these books, how it was approved by the government. You can go back and see some of the old reports but there is just very little about day to day operations or very little that would entice people to come to that site and ask questions and interact

**[Discussion Leader]:** What would you be looking for?

R-13A Maybe some things that would entice people?

R-17A Someone typing on the website every day.

**[Discussion Leader]:** What kind of information though?

R-13A Up to date information.



R-3A You say this organization is in the news, it would be interesting if they linked to news stories on the website, that would be helpful.

**[Discussion Leader]:** It seemed to me after the last time, a lot of folks had a tough time getting their head around what APM actually was. Did this document do anything to help clarify your thinking? Was it useful?

R-8A Who's the target audience? I thought it was awful. You write something for the lowest grade level – the lower the better it's written. Grade 8s wouldn't get this. It's almost like you had a political speechwriter writing this, it was just a bunch of nothing. Page 3 – "...science cannot speak to the probability...science cannot speak to the tolerance." You ask someone at the grade 8 level and they would be like "what do you mean?"

R-3A I liked it, but I agree with R-8A. This is not accessible language. The ideal is for grade 5. It was fine, there were very few parts where I didn't know what you were talking about what you mean.

R-8A I felt it was much better than the last document, I just mean for others...the other one felt like a PR document. Reading through this text I got the gist of it better than last time. The last one was so fluffy I got bored with it.

R-4A I found it easy to read and understand. I still think there are a lot of things they haven't been able to cover yet. They haven't gotten to the point yet where they have a site and all things in place and that might be why there isn't as much out in the public. You don't see things on TV. They're not there yet. A lot of it is probably regurgitated information, they really can't say much more. What is NFWA on page 3?

**[Discussion Leader]:** Acronyms are tough.

R-2A I think this works way better than the other one. I think someone in grade 10 or 11 could read this. The only question I have is that we're doing this for 30 years and then shallow storage for 30 years after that...what's taking so long? Why that step of shallow storage?

**[Discussion Leader]:** People often say that it seems like a long time. Is that something that people agree with?

R-2A It's a long time but when you think of the life of this stuff it's not. But that middle step of 30 years – why is it there? Couldn't you just go to the last step? 60 years is a long time, especially when you're just talking construction, we already have the science in place. Why is it taking so long to get there?

R-13A They're looking to in that 60 years look for something completely different so they don't have to go to that last step. To me that's why they could go and do it in 5 years but...

**[Discussion Leader]:** Is it fair to say that for those who think this brochure did a reasonable job, it didn't really deal with the why there is this extra stage, this 30 years. Is that fair?

Panel consensus that yes, it is fair.

R-6A This 30 years and 30 years, it's just silliness

**[Discussion Leader]:** This is a complex proposal about something we generally don't know a lot about. We're trying to help the NWMO do its best job to communicate. I'd like to keep our comments on that.

R-12A I thought they did a good job in telling us why they are not making a decision but the end of page 3, last paragraph, they talk about if you make that commitment with this generation, the impact is in the future. They're trying to mitigate effective decisions now. I really like that one statement about "while science can speak to the probability of occurrence." I thought it spoke to the social challenge. I do wonder if we've become a more educated group so it's well stated for this group.

**[Discussion Leader]:** Does everyone agree with R-12A?

Panel consensus that yes, they agree.

R-13A Why did we review a current document then go back to one that is more than 2 years old? I think it's significantly lacking in clarity of English. I would also hold this organization to a different standard than Sony. I want to hear everyone's side of the story, not just their side of the story and I don't think they've really done that. You have to step back and say yes, this is our mandate and this is what I think we have to do. Now I will put myself in the

shoes of others and what kind of preconceived notions will they have and how can we educate them?

R-2A Like a third party voice.

R-3A I think that was the intent of the other document they gave us.

R-1A It's too much stuff on these few pages and unless you really wanted to get into this...pages 4 and 5 are pretty frank and easy to understand but these first pages were pretty wordy and not really saying anything...just a lot of words. I did give it some greens...but it's very small print and it didn't really suit me.

R-15A I think the NWMO are spending way too much time on what the citizens think and not enough time on scientific research, or else they're not portraying it in here. It's too much about the citizens. They talk about how they have financing but in the other brochure they're a billion dollars short. They talk about how dangerous it is but I think they should set up some other kind of organization to look at the nuclear plants going forward. They say they have lots of research but they're not really telling you what. Page 3 they say "we've benefited from a vast base of research" but they don't say what.

**[Discussion Leader]:** Would you expect that in a summary document though?

R-15A This whole document is about how you feel about it but get the scientists to tell me how I feel about it. I want more information. It's citizens all over. The citizens are a very important part but once they've done all their research. Too much fluff. Page 6 – "detailed implementation plans will be designed to dialogue with communities of interest." How do these communities know what these should be? We aren't scientists, we don't know. Why are they putting so much emphasis on the citizens?

**[Discussion Leader]:** Does anyone else agree?

R-5A I agree to the extent that the average citizen can only make an informed decision or opinion if they have the scientific knowledge. I brought this topic up after our last session and people just said it was the government's problem, it just wasn't foremost in their life. You do need the professionals

first. The citizens need that before they can give their opinion.

R-10A I think they're doing what we're always complaining they're not doing.

R-12A Call me naïve but I think the science has been done and I trust that it has been done. They are not wanting to talk to the science of it in this document.

R-5A It's not going over rock density, you just assume the research has been done.

R-2A Isn't it just like everything else? 15 years ago people were smoking in offices. This is why I think no one cares about this today because there's not issue about it. Global warming is another one, power plants had no regulations years ago and now environment is at the top of everyone's agenda. This would be no different. If there was an accident at a storage site, you bet people will talk about it. I never heard about Chalk River before they shut it down.

R-18A People don't care unless it affects them directly. I thought it was laid out very well for a summary. I thought you could look at it quickly and I liked that. It did explain APM better for me. The financial part was a bit fuzzy – they talked about raising money but what more do they need? For a summary it was not too bad a document.

R-19A I didn't have trouble understanding it, it was very informative. On page 5 they talk about transporting fuels to the facility, I think they should give more information as to how it would be safe. We have train wrecks, semis, how would they keep it safe so it wouldn't contaminate if there was an accident.

R-13A I think they've done a really good job of reworking the goals and objectives and provided a reasoned approach to outlining what they would like to accomplish but it is a little short on implementation, participation opportunities. Needs to punch it up a bit.

**[Discussion Leader]:** Do you have an idea why that is?

R-13A: Easier to articulate what you're working towards but when you explain how you're going to do it, that's where the work is.

**[Discussion Leader]:** What APM is a long term approach which will take place over a long period of time. What the organization is now turning its mind to is how to actually implement that. The reason they are not in the brochure is because they're not in place yet. Now they are starting the near term planning, their business plan for the next however many years so that's when they're getting into how they will do these things, how they will proceed. That isn't decided. That's what they're consulting with Canadians on.

R-13A So the things I want are going to be in the next development phase.

**[Discussion Leader]:** One of the things they are going to focus on is citizen engagement so Canadians that want to be involved can be involved in this process as it moves forward. What sort of people should they involve? How would they live up to their commitment? How would we know? How could they proceed as the implement this plan?

R-13A The other thing about the booklet is that it did a good job of showing their objectives and outlining that. We had more of a reference in the other booklet to some of this focus on the international community and best science. I think that needs to be filled out just a bit.

R-7A I agree with the majority of the comments but I want to go back to what R-8A was talking about. I found myself, when statements were being made like when R-5A was talking about what things really meant, I had to go back and reread it to get an understanding of what was being said and if people have to continue to go back, they're going to put the document down. On page 6 when they're talking about the financing, it raised questions to me as someone who wants to know more, it didn't provide any assurance to me that these owners are going to feel obligated to continue to support this, there is not anything there to tell me this. Today, when people are watching corporations walk away, this document does not assure them that there will be any continued support. The other is page 6 and 7, it's almost like it was dumped in here, it addresses cultural effects but I didn't see anything about it. It's like the brochure when aboriginals were but in there because it was politically correct, that's how I felt about the mention of cultural effects. I like how it said where you could go and receive more information, but it was sure a lot easier than the last one.

**[Discussion Leader]:** If we look on pages 6 and 7, a number of NWMO objectives are

laid out. As they being their implementation plan, under the heading of citizen engagement, they make commitments to involve a broad range of citizens and experts in decision they make in terms of the implementation of the plan. I'm wondering, for them to follow through on that, who should they involve and how might they involve those people so you feel they've honoured that commitment?

R-8A To me, it starts with the site. If you don't have a site picked, and you ask citizens around the country, you're going to get a variety of opinions and for some it's not in their backyard so they will say whatever they want so for me you have to pick the site first. Then get someone from the scientific community. I thought the opposite of R-17A – when you say thousands of Canadians, that's very big. You look at all the statistics in the paper, they only speak to about 1800 people out of the whole country. It's rather ambitious to think you could even get 10000 people.

R-18A I agree with R-8A by identifying the site but we already know what provinces are being considered and they've done research on the Canadian Shield so why don't you start throwing out those locations. People in those areas will immediately become engaged.

**[Discussion Leader]:** But they need to design a process...and their plan is to engage Canadians to choose that site.

R-2A Is that why there are no Panels in BC?

**[Discussion Leader]:** They are concentrating their efforts in those provinces that produce, that's why they are looking at the provinces they are. Any sense of them engaging regular people – what it might look like?

R-14A You announce an engagement process, you go out and do a tour, then you begin a process of education. Go through the four province, break it out into regions so you get geographic coverage. You need to do a walk of the north. You announce that you'll be doing it so people are aware and then when you get there, you put out before hand material but you give them background information so if they're interested, they can look into it themselves. Once people are educated, you get into a consultation process and then you make a decision. I don't think it's that difficult to design this and just make it a transparent process.

R-3A I got the sense from this document that this was there plan.

**[Discussion Leader]:** What would that plan look like?

- R-5A Have they really done the other way where either scientific publications, local papers and stuff like that take out ads and refer them to their website, which is terrible. Instead of them seeking out who they think they should talk to, have them invite people and have interested people seek them out. That way citizens that respond are the ones that are interested as opposed to a mass mail out where people don't care. Even if you wanted a third party to regulate the questions and peoples in put back to the website was my thought with citizen engagement.
- R-8A At first, it almost sounded like it was too broad a scope. You think down to the host community then it's too narrow a scope. I just think you need to announce it in each province and you're going to have some open forums for people to discuss it.
- R-1A I think with this isotope scare, if they wanted to attack it from a positive side, now it's a time that it's on every ones mind. You could get the public and media interested in a more positive way.
- R-7A I don't think it's as simple as one solution. You have to look at the difference audiences and how to approach them. If you're looking at how to get people to the table, you have to have multiple strategies to do that. I think some of the target groups should be some of the people here, the people who are already doing research and coming out and talking about the dangers of nuclear waste. There are groups that you could contact that are already involved with trying to have their voices heard.
- R-16A One thing I have been hearing over and over again is that you need to put the cart before the horse. A lot of people don't know about this. They want to have information on it but they do not feel like they are qualified to have a say. I think if it's going to be in my backyard, they would – I would want to know everything, that will get people involved. When I was reading this document, it was raising a lot of concerns for me, I want to know that the best scientists in the world are working on this and giving us the best direction. I want to leave it to the professionals and the only way you're going to engage me is if it's going to affect my life. I don't feel confident the best scientists are working at this.

**[Discussion Leader]:** Do you imagine the organization would have recommended something that wasn't suggested by the best scientists?

R-16A There are a lot of politics and the rhetoric in this document is scaring me. It should be more directed on the fact that the decisions are being made because the best people in the world are recommending that direction be taken. When they start talking about a 30, 60 year plan, I think that my children are going to be affected or my grandchildren.

**[Discussion Leader]:** When it says Canadians expect the best technical and scientific knowledge...

R-16A They should say they have that.

R-18A Also assurances that they're an independent body.

R-4A I don't know why they can't just load it into a space shuttle...

**[Discussion Leader]:** Do folks know why?

R-8A Think about how many accidents they have had and man, that's probably the worst transportation method.

**[Discussion Leader]:** One thing I can tell you that people should feel comfortable with is that, for sure, this is predicated on the very best science in the world. It's based on the very best science, not in Canada but in the whole world.

R-13A They could put that information on an ongoing basis on their website.

R-2A It is in the minutes.

**[Discussion Leader]:** Another objective the NWMO has committed itself to is the have made a commitment to integrate continuous learning and new research into their plan. How would you know they were living up to that commitment? What would that include or look like?

R-7A I'm not concerned as much about where they're going to plant it but rather what happens when it gets there and how many times have we seen trains or transports going off the road. These are going to be concerns. It's more than my backyard, it's across the country. I'd like to see the research being done on that right now.

**[Discussion Leader]:** Would they really put something on an unsafe train?



R-7A Who's to say a car won't slide into the train?

**[Discussion Leader]:** I actually think that the engineers and scientists actually breathe the same air that we do so they're as screwed as we are if there's an accident. I find it interesting to think that people would believe that they would sanction something that was unsafe.

R-8A You have to have some faith that if they are transporting it by semi, there will be a whole different criteria than if they were shipping gas down the highway. If they're doing their due diligence, they're not going to blindly put it in a package and ship it by UPS.

R-18A That's the whole point – due diligence.

R-3A It would just be nice, and I'm sure they're planning on doing this, in future documents talk about how they're planning to do this. Tell me how you're not going to screw this up.

**[Discussion Leader]:** That's work that to be done. I'm trying to hear from folks that we've got this plan, now they've got to go and get all the pieces of that plan together. They're going to have a series of plans, so now as they go forward, how will they create a transportation plan, for instance, that will give Canadians confidence? What would that plan have to look like so you have reasonable confidence? What would you want to know, what should they be thinking about so you would agree that they have their act together?

R-3A For me, I just want to see an integrated plan that includes this organization like when you're involved in emergency response planning so it's all the different levels. Everyone knows what's going on and everyone is part of the plan. That would make me feel more comfortable rather than knowing the exact details of the plan.

R-5A As far as the transportation goes, I'd like to see Transportation Canada or the Transportation Board, they crash test things. Something along those lines. They crash test it so that they can say this train car withstood a semi crashing into it at whatever speed but the centre remained in tact. There'd have to be a lot of provisions. As far as transportation goes, they could take a lot from the automotive industry.

R-15A It would be nice to know along what transportation lines they're thinking of but I don't want it to be public

knowledge, it will be mental. It would be nice to know what they're thinking of.

R-18A Along the lines of what R-14A said, but more of an ad campaign – a full page ad and put first three paragraphs of the summary on there and put a series of places where people can go and get informed.

R-6A I was just thinking of how frightful it would be to have Amtrack involved in something like this.

R-13A You talked about how you would go about doing consultations. I think quite a few of us have had good or bad, whether we were the people doing it or were the recipients of. The first rule I've learned over the rest is don't go out and consult with people if you already know the answer. I don't think the NWMO is doing that. You really have to go out with meaningful questions and you are actually going to take people's input. If that words properly, you can really get provinces, cities, communities on board.

**[Discussion Leader]:** The central premise around the approach the NWMO has made is the idea that it's adaptive because this issue will last for a very long time and it is imagined that along the life of things, things will change. So central to the whole thinking is that this is adaptive. How can the work that they're doing demonstrate to you that they're paying attention to tat adaptive component.

R-8A You need an annual review process to see if there are enhancements, etc. Sort of an audit and you have to do it annually.

R-5A You might have new data from other countries.

R-18A You have to show people where you were and where you are to show people you listened.

R-2A I think a lot of the distrust comes form the make up of the board, too many stakeholders. I'd like to see more people from the scientific and cultural community on there. As well, you could talk about transporting now but by the 90 years are up, you could beam this stuff away.

**[Discussion Leader]:** Other ideas on how the organization could demonstrate it's incorporating the adaptive component?

R-13A                      Could identify critical areas and set up groups where people could interact and research – set up a transportation group, a group to talk about what the best method is to put this in the rock. That would be the group working, consulting and advising out of those groups. That’s where the adaptations would come from. I don’t think it would be that expensive but it’s important enough that you need to do something like that.

**[Discussion Leader]:** What would the organization need to do in its planning so that you would continue to have confidence that they were doing a good job? As it proceeds, what would they need to do to make you think that they’re getting it?

R-8A                      A report card. Hold itself up to worldwide standards by comparing itself to other countries and trying to assure the Canadian citizens that they’re doing the best that they can.

R-12A                      Organizations that get in trouble self regulate. Need assurances that this organization is not self regulated. You need some kind of watchdog. Or define what a citizen’s panel could do on a permanent basis. I think the organization would benefit from formalizing some form of citizen input.

R-13A                      One of the work groups could be an international group. You’d be looking at the industry globally and best practices in other countries.

R-10A                      I’m sure after 3 months of it being on the news, when are you going to lose people’s interest. It just seems like a long time and I’m not sure you’ll get people who will be interested in the long run.

R-6A                      One of the Board members should sit down with Peter Mansbridge, Lloyd Robertson for 30 minutes of brain picking and we’ll get somewhere.

**[Discussion Leader]:** R-14A, you said you hold this organization to a different standard than Sony. How would they show you they are behaving differently than Sony?

R-14A                      Making the things we’ve talked about today to show that you are behaving the way people expected you to behave, put them in a document. Show people you are going beyond the way people expect you to behave. You need to go way beyond the minimum level of expectation.

**[Discussion Leader]:** What was your take on the organizations view on transparency?

R-14A

Yes, I didn't believe they were being transparent. It was obvious that there were more to the question than the 6 words they listed. Go beyond in the answers, that shows that you're thinking "what does this person really want to know? How do I get them to the point where they have confidence, the next time you want to do something, that they will be like 'yes, go ahead and do it'"

R-3A

Someone mentioned a watchdog and that's where I'm coming from. I'd like a panel of people who have a lot of knowledge in many areas who will ask the questions that I won't think to ask. Rather than people who have been involved in the industry...I was trying to remember the conversation about the advisory board.

### **3. PARKING LOT QUESTIONS**

Again in Phase Two, Panelists were empowered to outline any questions they might have that was outside of the current discussion, about a specific matter the Discussion Leader could not address or simply brought up for future consideration on a Post-it note provided and post their question in the “Parking Lot.”

Answers to the Parking Lot questions posted in Phase One Citizen Panels were provided to Panelists in each Phase Two Citizen Panel. Questions asked ranged in terms of quality and appropriateness, but were all answered to the best of the NWMO’s ability.

Again, Panelists were informed that all questions put in the Parking Lot would be answered by the NWMO and provided to Panelists at a future session. The intention of the Parking Lot exercise is to continually empower and encourage Panelists to think of their contributions longitudinally over the life of the Panel.

#### **a. Phase Two Parking Lot questions**

Parking Lot questions from Regina Phase Two Citizen Panelists were the following:

- Do the NWMO meet globally? How often? Is there a study or a memorandum regarding minutes?
- Still have concerns about funding these phases. How can the NWMO truly ensure those who create the waste will continue to fund the phases and future storage requirements?
- NWMO, how do you determine funding when there are so many variables?
- Radioactivity decreases with time; how much time? Do scientists already know?
- “Used fuel will remain a health risk for a long time.” How long?
- Why will it take so long to get all of this done and the waste in the deep storage?
- I saw on the NWMO website that the last brochure that we reviewed and critiqued (as bad) is available to order to the public. Why?
- Why not make up the board or directors with more scientists?
- Can the NWMO recommend the end of nuclear usage? If problems with disposal/storage.
- How long is a reactor good for?
- Where do we (Canada) stand in the whole world as to disposal of NW? Are we trailing or leading?

# APPENDICES

- i. Personnel
- ii. Discussion Leader's Guide
- iii. Discussion document: Executive Summary

## I. PERSONNEL

### **JAMES STEWART WATT, SENIOR DISCUSSION LEADER**

Jaime Watt is Chair of Navigator, a Toronto-based research consulting firm that specializes in public opinion research, strategy and public policy development.

Prior to relocating to Toronto, he was, for ten years, Chair of Thomas Watt Advertising, a leading regional advertising agency and communications consulting firm based in London, Ontario.

A specialist in complex communications issues, Jaime has served clients in the corporate, professional services, not-for-profit and government sectors and has worked in every province in Canada, the United States, the United Kingdom, France, Central America, Korea and Kosovo.

He currently serves as Chair of Casey House, Canada's pioneer AIDS hospice, as well as Casey House Foundation and is a Vice President of the Albany Club. He is a director of the Dominion Institute, Woodrow Wilson Center's Canada Institute, TD Canada Trust's Private Giving Foundation, The Canadian Club of Toronto and The Clean Water Foundation. As well, he is a member of the President's Advisory Council for the Canadian Red Cross and is a member of the Executive Committee of Canadians for Equal Marriage. He was a founding Trustee and Co-chair of the Canadian Human Rights Trust and the Canadian Human Rights Campaign.

### **CHAD A. ROGERS, SUPPORTING DISCUSSION LEADER**

Chad Rogers is a Consultant at Navigator providing strategic planning and public opinion research advice to government, corporate and not-for-profit clients.

He has recently returned to Canada after working abroad with the Washington, DC based National Democratic Institute as director of their programs in Kosovo and Armenia respectively. Chad oversaw multi-million dollar democracy and governance assistance programs directed at political parties, parliaments and civil society organizations in newly democratic nations. He conducted high-level training with the political leadership of Armenia, Bosnia Herzegovina, Iraq, Kyrgyzstan, Macedonia, Moldova and Serbia.

Having previously worked on Parliament Hill as both a legislative and communications

assistant to Members of Parliament and Senators, he has an in-depth knowledge of Canada's Parliament and its committees, caucuses and procedures.

He is a board member of the Kosova Democratic Institute and is a member in good standing of the Public Affairs Association of Canada (PAAC) and the Market Research & Intelligence Association (MRIA). Chad has trained at the RIVA Qualitative Research Training Institute.

### **COURTNEY GLEN, PROJECT MANAGER**

Courtney Glen is a Consultant at Navigator assisting in public opinion research, strategic planning and public policy advice for government, corporate and not-for-profit clients.

Courtney most recently 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*.

Prior to that, Courtney 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 Masters in International and European Politics from the University of Edinburgh in Scotland and a Bachelor of Arts Honours degree in Political Science from the University of Guelph.

### **JOSEPH LAVOIE, PANEL MANAGER (FRANCOPHONE)**

Prior to joining Navigator, Joseph Lavoie worked at Citigroup Global Transaction Services where he improved communications within the Transfer Agency Systems department. Joseph achieved this objective via Web 2.0 technologies, which he previously leveraged in developing Santa's Journal, a successful viral marketing campaign that introduced Santa Claus to the world of blogging and podcasting.

Joseph has been active in numerous provincial and federal election campaigns; has provided political commentary for various websites and television/radio programs; and has served as the recruitment director for the Ontario Progressive Conservative Youth Association. In March 2007, Joseph was selected *Canada's Next Great Prime Minister* by Canadians as part of a scholarship program sponsored by Magna International, the Dominion Institute, and the Canada-US Fulbright Program. He currently serves on the Public Affairs/Marketing Team for the Toronto Symphony Volunteer Committee.

### **STEPHEN LEONARD, PANEL MANAGER (ANGLOPHONE)**

Prior to joining Navigator, Stephen attended the University of Guelph where he graduated with a Bachelor of Arts Honours degree in History. Throughout his undergraduate career, Stephen was an active member of the Canadian Forces Army Reserve in Toronto, which he left in June due to medical reasons as a Corporal.

Stephen is head Panel Manager and plays a vital role in the management and organization of the Citizen Panel project.



## II. DISCUSSION LEADERS GUIDE

### PHASE TWO CITIZEN PANELS

#### DISCUSSION LEADER'S GUIDE

##### 1. OPENING OF PANEL SESSION (0:00 – 0:10)

- Welcome back
- Reminder: Explanation of Panel methodology
- Confidentiality of session
- Explanation of NWMO disclosure of proceedings
  - Re-cap of Panel notes distribution and amendment
  - Feedback from Panel on process of reviewing notes
- Re-introduction of Transcriber
- Re-introduction of Parking lot

##### 2. RE-INTRODUCTIONS (0:10 – 0:20)

- Very brief re-introductions

##### 3. AGENDA & EXPECTATIONS (0:20 – 0:30)

- Reminder: Role of Discussion Leader
- Introduction of Panel Managers

##### 4. GENERAL DISCUSSION (0:30 – 1:00)

- I am wondering if you thought more about the NWMO after our last session, as many people tell me that, despite their best intentions, they just go back to their daily routines without giving it another thought.
- Did any questions you would like to ask come to mind?
- Has anyone read, seen or heard anything about NWMO in the media since our last discussion?

## 5. CHOOSING A WAY FORWARD (1:00 – 1:45)

- You will remember from our last discussion that we looked at the NWMO brochure *Moving Forward Together*. This time, I'd like to share with you an NWMO document which summarizes the key findings from a three year study the NWMO conducted at the request of the Government of Canada called *Choosing a Way Forward*.
- I would like everyone to take a few moments to review the document.
- Did you find this document informative? Clear? Does it include information that you find helpful?

## 6. EXPLORING THE OBJECTIVES OF THE NWMO (1:45 – 2:30)

- On pages 6 and 7 of the Executive Summary, you will see a series of objectives of the NWMO.

### Citizen Engagement

- In the Summary, under the section *Citizen engagement*, NWMO commits to continue to involve a broad range of citizens and experts alike in key decisions in the implementation of Adaptive Phased Management.
  - What do you think a collaborative process between the NWMO and citizens might look like?

### Adaptability

- Adaptive Phased Management is built in part around the concept of adaptability – being able to recognize and respond to changes in society and in our environment more generally.
  - How can NWMO best respond to changes and incorporate new developments into its planning?

### Social and Technical Research

- What, in your mind, might it be important for the technical and social research program to include?

### Trust and Credibility of NWMO's Implementation Plans and Process

- As implementation proceeds, what might cause you to have confidence, and/or lose confidence in the work of the NWMO and its implementation plans or process?

## **7. PARKING LOT QUESTIONS AND ANSWERS (2:30 – 2:50)**

- We committed after the last discussion to get you answers to the questions placed on our parking lot.
- We have done so and are sharing with you not just the answers to your questions, but also from your fellow Panelists in the other 7 Panels.
- Do these answers meet with your expectations?
- Do any other questions come to mind? If so, please jot them down on one of the Post-it notes in front of you and put it in the parking lot.

## **8. WRAP-UP (2:50 – 2:55)**

- As we end our session does anyone have any remaining issues to discuss or questions to raise?
- Panel Management issues

## **9. NEXT SESSION (2:55 – 3:00)**

- Approximate date of next meeting(s)
- Adjourn

### III. DISCUSSION DOCUMENT: EXECUTIVE SUMMARY



# Choosing

# a Way

The Future Management  
of Canada's Used  
Nuclear Fuel

# Forward

A Summary

# Summary

Three years ago, the Nuclear Waste Management Organization (NWMO) launched a mission of developing collaboratively with Canadians a management approach for the long-term care of Canada's used nuclear fuel. We envisaged an approach that would be socially acceptable, technically sound, environmentally responsible and economically feasible. We are convinced that it is time to act decisively.

Canadians believe that our generation must assume responsibility now for the long-term management of the nuclear waste that is produced to supply our energy needs. This is an ethical obligation. Canadians want to be assured that they and their environment will be safe. And, they want a flexible approach that can accommodate new knowledge. The NWMO's assessment of the options, based on the best science and technology at home and around the world, gives us confidence that we have the necessary knowledge to meet these expectations.

The NWMO is recommending that Canada proceed in a deliberate and collaborative way to isolate the used fuel in a deep underground repository. The waste would be safely and securely contained by engineered barriers and the surrounding geology. It would be monitored and remain retrievable over time. Our recommendation recognizes that how the technical method is implemented is crucial. We intend to seek an informed willing host community. The process will be phased and transparent with explicit decision points where citizens are provided with genuine opportunities to influence progress and outcomes. We call our recommendation Adaptive Phased Management.

## The Challenge of Nuclear Waste

For decades Canadians have been using electricity generated by nuclear power reactors in Ontario, Quebec and New Brunswick. We have produced almost 2 million used fuel bundles – about 36,000 metric tonnes of uranium – a number which will double if our 22 existing reactors operate for an average of 40 years each. When used nuclear fuel is removed from a reactor, it is considered a waste product, is radioactive and requires careful management. Although the radioactivity decreases with time, chemical toxicity persists and the used fuel will remain a potential health risk for a very long time.

Ensuring safety and security for material that will remain hazardous for longer than recorded history is a significant challenge – technically and socially. Any decision taken today will be implemented over many decades. Undoubtedly the program will encounter major changes in science and technology, institutions, values and political perspectives, and economic and financial conditions.

Canada's used fuel is now safely stored on a temporary basis at licensed facilities located where the waste is produced. Like many other countries with nuclear power programs, Canada has yet to decide what to do with this used fuel over the long term. That is why the Government of Canada passed a law requiring the owners of used nuclear fuel to create the NWMO. Consistent with the *Nuclear Fuel Waste Act (NFWA)* we engaged interested citizens including specialists, stakeholders and Aboriginal peoples in research and dialogue to assess the options for long-term management.

## Listening to Canadians

Our study was built on a firm foundation – a mission statement integrating the elements of sustainable development; a pre-eminent focus on safety and security; a perspective that takes a long view; a framework of ethics and values; and recognition of the requirement for citizen engagement.

Canadians expect that the best scientific and technical knowledge will be used to understand the risks and identify the technical methods appropriate for used fuel management. However, scientific and technical evidence and analysis, while essential, cannot be the sole basis of our choice. While science can speak to the probability of an occurrence of an event, science cannot speak to social tolerance for its occurrence. The views of Canadian society in judging benefits or risks, and assessing the social implications of various approaches are critical to the development of a socially acceptable recommendation.

Our study was a dynamic and interactive dialogue with thousands of fellow citizens and specialists. Each phase of our analysis was shaped by those conversations and reported in public documents. Through a wide variety of techniques we sought to understand the values of Canadians, have a dialogue with Aboriginal peoples, explore future scenarios, and continually test what we were hearing.

There was common ground. Two important requirements became evident: **the approach must be safe and secure** – for people, communities and the environment; and **it must be fair** – both to current and future generations.

We came to understand that these requirements of safety and fairness have important implications. They mean:

- Our generation needs to take active responsibility to achieve a safe, long-term response to our waste problem – it is imprudent and unfair to wait any longer;
- The plan needs to have a definitive outcome, but also needs to provide flexibility along the way for future generations to make their own decisions;
- We, and future generations, need to be able to monitor the waste to ensure continued safety and be able to access it if safety is compromised or science provides better advice.

Citizens also made their views known about energy policy. The NWMO did not examine or make a judgement about the appropriate role of nuclear power generation in Canada. We suggest that those future decisions should be the subject of their own assessment and public process. Used fuel exists today and will continue to be produced to the end of the lives of Canada's existing nuclear facilities. The focus of our study was to recommend a responsible path forward for addressing its long-term management. Our study process and evaluation of options were intended

neither to promote nor penalize Canada's decisions regarding the future of nuclear power.

#### Assessing the Options

As required by the *NFWA* we compared the benefits, risks and costs of three technical methods: deep geological disposal in the Canadian Shield; centralized storage above or below ground; and storage at nuclear reactor sites. We benefited from the vast base of research conducted in Canada and around the world over more than 50 years.

The framework for our comparison of options emerged from the objectives that Canadians believe to be important: fairness, public health and safety, worker health and safety, community well-being, security, environmental integrity, economic viability and adaptability. It was also informed by the knowledge and expertise of specialists. Our ethical framework resulted in social and technical aspects of safety and risk being treated in a holistic and integrated way throughout the assessment.

Our analysis concluded that while each of the approaches had distinct advantages, no one perfectly addressed all of the objectives which citizens said were important.

The storage options were expected to perform well over the near term; however, existing reactor sites were not chosen for their technical suitability as permanent storage sites. Furthermore, the communities hosting the nuclear reactors have an expectation that used nuclear fuel will eventually be moved. The NWMO believes that the risks and uncertainties concerning the performance of these approaches over the long term are substantial in the areas of public health and safety, environmental integrity, security, economic viability and fairness. A key contributing factor is the extent to which storage approaches rely on strong institutions and active management to ensure safe and effective performance. The NWMO expects that these capacities will be strong over the foreseeable future but uncertain over the very long term.

The deep geological disposal option was judged to perform well against the objectives in the very long term because of the combination of engineered and natural barriers to isolate the fuel. The key weakness, however, is its lack of adaptability, which is an important objective in the minds of citizens. Over the short term, the approach was judged to be less flexible in responding to changing knowledge or circumstances. There is some uncertainty about how the system will perform over the very long term because we cannot obtain advance proof of actual

performance over thousands of years. This approach also provides comparatively little opportunity for future generations to influence the way in which the used fuel is managed. Its lack of adaptability is a weakness that may affect the performance of the system over time on other objectives such as public health and safety and environmental integrity.

This examination led us to develop another approach that incorporates the most significant advantages of the options assessed and is supported by a phased decision-making process designed to actively and collaboratively manage risk and uncertainty.

#### Adaptive Phased Management

The NWMO recommends an alternative approach – Adaptive Phased Management. It consists of both a technical method and a management system. Its key attributes are:

- Ultimate centralized containment and isolation of used nuclear fuel in an appropriate Geological formation;
- Phased and adaptive decision-making;
- Optional shallow storage at the central site as a contingency;
- Continuous monitoring;
- Provision for retrievability; and
- Citizen engagement.

The table that follows describes the concept in greater detail.

#### Representative Conceptual Design Activities for Adaptive Phased Management

Concept	
	<p>A staged management approach with three phases of implementation:</p> <ul style="list-style-type: none"> <li>• Phase 1: Preparing for Central Used Fuel Management</li> <li>• Phase 2: Central Storage and Technology Demonstration</li> <li>• Phase 3: Long-term Containment, Isolation and Monitoring</li> </ul> <p>Phase 1 (approximately the first 30 years): Preparing for central used fuel management would comprise the following activities:</p> <ul style="list-style-type: none"> <li>• Maintain storage and monitoring of used fuel at nuclear reactor sites.</li> <li>• Develop with citizens an engagement program for activities such as design of the process for choosing a site, development of technology and key decisions during implementation.</li> <li>• Continued engagement with regulatory authorities to ensure pre-licensing work would be suitable for the subsequent licensing processes.</li> <li>• Select a central site that has rock formations suitable for shallow underground storage, an underground characterization facility and a deep geological repository.</li> <li>• Continue research into technology improvements for used fuel management.</li> <li>• Initiate the licensing process, which triggers the environmental assessment process under the <i>Canadian Environmental Assessment Act</i>.</li> <li>• Undertake site characterization, safety analyses and an environmental assessment for the shallow underground storage facility, underground characterization facility and deep geological repository at the central site, and to transport used fuel from the reactor sites.</li> <li>• Obtain a licence to prepare the site.</li> <li>• Develop and certify transportation containers and used fuel handling capabilities.</li> <li>• Obtain a licence to construct the underground characterization facility at the central site.</li> <li>• Decide whether or not to proceed with construction of a shallow underground storage facility and to transport used fuel to the central site for storage.</li> <li>• If a decision is made to construct the shallow underground storage facility, obtain a construction licence and then an operating licence for the storage facility.</li> </ul>

Representative Conceptual Design Activities for Adaptive Phased Management	
<p><b>Concept (cont'd)</b></p>	<p>Phase 2 (approximately the next 30 years):                      Central storage and technology demonstration would comprise the following activities:</p> <ul style="list-style-type: none"> <li>• If a decision is made to construct shallow underground storage, begin transport of used fuel from the reactor sites to the central site for extended storage.</li> <li>• If a decision is made not to construct shallow underground storage, continue storage of used fuel at reactor sites until the deep repository is available at the central site.</li> <li>• Conduct research and testing at the underground characterization facility to demonstrate and confirm the suitability of the site and the deep repository technology.</li> <li>• Engage citizens in the process of assessing the site, the technology and the timing for placement of used fuel in the deep repository.</li> <li>• Decide when to construct the deep repository at the central site for long-term containment and isolation.</li> <li>• Complete the final design and safety analyses to obtain the required operating licence for the deep repository and associated surface handling facilities.</li> </ul> <p>There may be a need for transportation containers and facilities to produce them; processing facilities to load the fuel into transportation containers; production facilities for storage containers; and processing facilities to transfer the fuel from transportation to storage containers.</p> <p>Phase 3 (beyond approximately 60 years):                      Long-term containment, isolation and monitoring would comprise the following activities:</p> <ul style="list-style-type: none"> <li>• If used fuel is stored at a central shallow underground facility, retrieve and repackage used fuel into long-lived containers.</li> <li>• If used fuel is stored at reactor sites, transport used fuel to the central facility for repackaging.</li> <li>• Place the used fuel containers into the deep geological repository for final containment and isolation.</li> <li>• Decommission the shallow underground storage facility.</li> <li>• Continue monitoring and maintain access to the deep repository for an extended period of time to assess the performance of the repository system and to allow retrieval of used fuel, if required.</li> <li>• Engage citizens in on-going monitoring of the facility.</li> <li>• A future generation would decide when to decommission the underground characterization facility and any remaining long-term experiments or demonstrations of technology, and when to close the repository, decommission the surface handling facilities and the nature of any postclosure monitoring of the system.</li> </ul> <p>There may be a need for production facilities for used fuel containers; processing facilities to transfer the fuel from storage to the deep repository; and production facilities for sealing materials.</p> <p>The current owners of used fuel would continue to be responsible for its interim management at the reactor sites. The NWMO would assume management responsibility of the used fuel when it is transported from the reactor sites to the central facility for long-term management.</p>



### Implementation

The NWMO will be responsible for implementing the approach chosen. The insights gained and relationships established during our study phase will provide a firm foundation for implementation. Our vision and values will continue to guide us as we strive to gain the confidence of Canadians. Canada has an extensive system of oversight. At a minimum the NWMO will meet all applicable regulatory and licensing requirements; our goal is to exceed them. We must ensure that our security provisions and safeguards are compliant with Canada's nuclear non-proliferation policy and international agreements.

### Citizen engagement

Detailed implementation plans will be designed through dialogue with the many communities of interest who will have important roles to play. We expect to hear a diversity of voices as we seek advice and receive direction on the design of the process and the issues to be explored. In a democratic society, the inclusiveness and the integrity of the process by which decisions are taken are key.

The NWMO will be required to apply for licences to prepare a site, construct, operate, modify, and decommission a nuclear fuel waste facility. We will be required to demonstrate compliance throughout. At each step, there will be opportunity for further public scrutiny.

### Financing

Financial surety means determining what costs can reasonably be expected to be incurred over the lifetime of the project, along with some contingency for unexpected events, and putting in place the financial mechanisms to ensure the necessary money will be available when it is required. The NWMO has an ongoing obligation to assess the accuracy of the cost estimates for the selected management approach and the sufficiency of contributions to cover cash flow obligations for the life of the project.

The *NFWA* sets out requirements for the establishment of trust funds to finance the long-term management of Canada's nuclear fuel waste. A total of \$770 million has been deposited by the waste owners to date. The legislation incorporates explicit provisions that these trust funds will be maintained securely, reported on and used only for the intended purpose.

### Choosing a Location

Although the NWMO is not proceeding with site selection as part of this study, there has been intense interest in the considerations and principles that might influence the process. The NWMO intends to seek an informed, willing community to host the central facilities.

In the interest of fairness, we intend to focus within the provinces that are directly involved in the nuclear fuel cycle – Ontario, New Brunswick, Quebec and Saskatchewan. Communities in other regions and provinces may express an interest and should be considered. The NWMO will respect Aboriginal rights, treaties and land claims.

We propose that the siting process be open, inclusive and fair to all parties, giving everyone with an interest in the matter an opportunity to have their views heard and taken into account. The process will ensure that groups most likely to be affected by the facility, including those through transportation, are provided with the forms of assistance they require to present their case effectively.

Placing all of Canada's used nuclear fuel in a single central location will require moving it from current decentralized locations. We will need to demonstrate the safety of any transportation system to the satisfaction of citizens. On the basis of the work which the NWMO has conducted, including commissioning background papers, discussions with nuclear waste management organizations in other countries, and our understanding of regulatory requirements, we are confident that used fuel can be transported safely. The design and development of transportation plans, the mode of transport, routes, security and safety measures and emergency preparedness will require the collaborative efforts of many communities of interest.

### Addressing Social, Economic and Cultural Effects

Implementation presents a significant opportunity to recognize and support a host community's vision for its social, cultural and economic aspirations. There will also be a broader set of interests beyond the immediate host community. Reactor site communities will figure prominently. All potentially affected parties must be afforded fair and equitable treatment in assessing and managing potential significant socio-economic effects.

It will be important to design implementation in such a way as to avoid or minimize disruptive impacts on the many affected communities. Where adverse impacts cannot be avoided, implementation must recognize the

contributions and costs borne by the community through appropriately designed mitigation measures. Risks can be mitigated not only by a variety of physical design features, but through institutional, informational and social measures. That will require developing the capacity for community oversight and empowering the communities to have influence in the process.

#### Research and Intellectual Capacity

As the NWMO implements the Adaptive Phased Management Approach, we will be committed to integrating continuous learning and adapting the plan to new ideas and technology. To do this, there needs to be a vibrant and robust research and development effort during the development and execution of the program.

#### The Recommendation

Adaptive Phased Management tries to find an optimal balance of competing objectives. It embraces the precautionary principle and adaptive management. Societal goals and objectives and successful technology demonstration will determine the pace of implementation. We believe Adaptive Phased Management is the strongest possible foundation for managing the risks and uncertainties that are inherent in the very long time frames over which used nuclear fuel must be managed with care.

- It commits this generation of Canadians to take the first steps now to manage the used nuclear fuel we have created.
- It recognizes that over the long term, it would be imprudent to rely on a human management system alone with its changing forms of institutions and governance.
- It will meet rigorous safety and security standards through its design and process.
- It allows sequential and collaborative decision-making, providing the flexibility to adapt to experience and societal change.

- It provides genuine choice by taking a financially conservative approach, and providing for capacity to be transferred from one generation to the next.
- It promotes continuous learning, allowing for improvements in operations and design that would enhance performance and reduce uncertainties.
- It builds confidence in the technology and supporting systems before the final phase is implemented.
- It provides a viable, safe and secure long-term storage capability, with the potential for retrievability of used fuel which can be exercised until future generations have confidence to close the facility.
- It provides for continuous monitoring and contingency against unforeseen events, either natural or man-made.
- It is rooted in values and ethics, and engages citizens allowing for societal judgements as to whether there is sufficient certainty to proceed with each step.

On the following page is the NWMO's recommendation to the Government of Canada. With a decision about the basic approach the NWMO will then be able to move forward to meet the objective of safely managing Canada's used nuclear fuel for the long term.

The path we propose, built on sound science and technology, is responsible and responsive. Nuclear waste is not a legacy issue we wish to leave to future generations. A decision to act must not be postponed.

*November, 2005*

### NWMO's Recommendation

Our recommendation for the long-term management of used nuclear fuel in Canada has as its primary objectives safety – the protection of humans and the environment – and fairness to this and future generations.

Therefore we recommend to the Government of Canada Adaptive Phased Management, a risk management approach with the following characteristics:

- Centralized containment and isolation of the used fuel in a deep geological repository in a suitable rock formation, such as the crystalline rock of the Canadian Shield or Ordovician sedimentary rock;
- Flexibility in the pace and manner of implementation through a phased decision-making process, supported by a program of continuous learning, research and development;
- Provision for an optional step in the implementation process in the form of shallow underground storage of used fuel at the central site, prior to final placement in a deep repository;
- Continuous monitoring of the used fuel to support data collection and confirmation of the safety and performance of the repository; and
- Potential for retrievability of the used fuel for an extended period, until such time as a future society makes a determination on the final closure, and the appropriate form and duration of postclosure monitoring.

The Nuclear Waste Management Organization would implement this comprehensive approach, in compliance with the *Nuclear Fuel Waste Act (NFWA)* of 2002, and would:

- Meet or exceed all applicable regulatory standards and requirements for protecting the health, safety and security of humans and the environment;
- Provide financial surety through funding by the nuclear energy corporations (currently Ontario Power Generation Inc., Hydro-Québec and NB Power Nuclear) and Atomic Energy of Canada Limited, according to a financial formula as required by the *NFWA*;
- Seek an informed, willing community to host the central facilities. The site must meet the scientific and technical criteria chosen to ensure that multiple engineered and natural barriers will protect human beings, other life forms and the biosphere. Implementation of the approach will respect the social, cultural and economic aspirations of the affected communities;
- Focus site selection for the facilities on those provinces that are directly involved in the nuclear fuel cycle;
- Sustain the engagement of people and communities throughout the phased process of decision and implementation; and
- Be responsive to advances in technology, natural and social science research, Aboriginal Traditional Knowledge, and societal values and expectations.

The NWMO invites all interested individuals and organizations to review our public engagement activities, discussion documents, reports and research on our website at [www.nwmo.ca](http://www.nwmo.ca).

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