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NUCLEAR WASTE MANAGEMENT ORGANIZATION
SOCIÉTÉ DE GESTION DES DÉCHETS NUCLÉAIRES

ANNUAL REPORT 2004

Dialogue

From Dialogue to Decision:

MANAGING CANADA'S NUCLEAR FUEL WASTE

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NUCLEAR WASTE MANAGEMENT ORGANIZATION
SOCIÉTÉ DE GESTION DES DÉCHETS NUCLÉAIRES

The Honourable R. John Efford, P.C., M.P.
Minister, Natural Resources Canada
Ottawa, Ontario
K1A 0A6

March, 2005

Dear Minister,

We are pleased to submit to you the third annual report of the Nuclear Waste Management Organization (NWMO).

Fiscal year 2004 marks the second full year of operation for the NWMO.

We submit this report in compliance with sections 16 (1) and 23 (1) of the *Nuclear Fuel Waste Act*.

In fulfillment of our obligations under section 24 of the Act, we are also making this report available to the public.

Respectfully submitted,

K. E. Nash

Ken Nash
Chairman

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President

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From Dialogue to Decision:

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VISION, MISSION AND VALUES

VISION

Our vision is the long-term management of Canada's nuclear waste in a manner that safeguards people and respects the environment, now and in the future.

MISSION

The purpose of the NWMO is to develop collaboratively with Canadians a management approach for the long-term care of Canada's used nuclear fuel that is socially acceptable, technically sound, environmentally responsible and economically feasible.

VALUES

The fundamental beliefs that will guide us in our work include:

INTEGRITY

We will conduct ourselves with openness, honesty and respect for all persons and organizations with whom we deal.

EXCELLENCE

We will pursue the best knowledge, understanding and innovative thinking in our analysis, engagement processes and decision-making.

ENGAGEMENT

We will seek the participation of all communities of interest and be responsive to a diversity of views and perspectives. We will communicate and consult actively, promoting thoughtful reflection and facilitating a constructive dialogue.

ACCOUNTABILITY

We will be fully responsible for the wise, prudent and efficient management of resources and be accountable for all of our actions.

CHAIRMAN'S MESSAGE

The Nuclear Waste Management Organization (NWMO) is pleased to submit its third annual report to the Minister of Natural Resources Canada. In 2004, the NWMO's second full year of operation, the organization made significant progress towards the successful completion of its three-year study.

Through its extensive engagement with Canadians, the NWMO has clarified the shared values and principles which will frame our recommendations on the long-term management of used nuclear fuel. Through rigorous assessment, the NWMO has advanced the understanding of the options under study.

Among this year's milestones was the publication of the NWMO's second discussion document, ***Understanding the Choices***, in September of 2004. This document provided a focal point for the national conversation among Canadians engaging in the NWMO process last year and into early 2005. It presented a framework for assessing the options which reflects the objectives and concerns of Canadians. It also communicated the results of a preliminary assessment of the options, inviting open and full debate. In so doing, the document laid out the challenging issues we face as we come to understand the relative strengths and limitations of the three management approaches explicitly listed in the Nuclear Fuel Waste Act (NFWA).

In 2005, as it works toward its recommendation, the NWMO will review all of the citizen input received, and commissioned research and analysis. Continuing the work begun in 2004, the NWMO will consider the options in the Canadian context, weighing them within the social and ethical framework that has emerged from the study.

The President's approach to the study continues to focus on both public engagement and analytical work that is key to supporting a balanced, objective and comprehensive assessment. The NWMO's outreach process encourages citizens from across Canada to participate in the examination of the issues and to share their thinking. The Board fully endorses the NWMO's engagement program and we believe that the NWMO study compares well internationally in its depth and commitment to reflecting societal views. The Board's commitment to broad and comprehensive discussion arises from our determination to recommend the best possible approach to the Government of Canada. The NWMO's Board of Directors is committed to meeting its mandate as defined in the NFWA and to providing the necessary resources.

Chairman's

CHAIRMAN'S MESSAGE

The NFWA requires that the NWMO make its recommendations to the Government of Canada by November 15, 2005. In support of this timeline, the 2005 business plan is focused on bringing together the NWMO's analytical work and insights with the values closely held and expressed by the Canadian public. The Board is confident that this work will meet the obligations of the NFWA, reflecting societal input and expectations, and that it will provide the government with the foundation on which to consider and decide on the optimal safe, responsible plan for the long-term.

The Advisory Council and the nuclear waste owners have made thoughtful and valuable contributions to the important strides made in 2004. Their dedication and wise counsel has strengthened the study in substance and process. As its legislated mandate provides, the Advisory Council will contribute its independent comments on the NWMO study, to assist the government in its consideration of the report.

In 2004 the NWMO member companies have continued to fulfill their obligations under the NFWA to build the financial capacity to fund the management approach selected by government. The legislation requires Ontario Power Generation, NB Power Nuclear, Hydro-Québec, and Atomic Energy of Canada Limited to make ongoing and substantial financial contributions to the trust funds established by Canada's nuclear energy corporations. These funds represent an important cornerstone of the NFWA, and will be available to implement the government's preferred management approach. $770 million has been invested in the trust funds since the passage of the legislation in 2002.

The NWMO Board seeks to ensure that the study is conducted in the full spirit of the NFWA, and that the organization is equipped to fulfill its ongoing role as envisaged by the legislation. While the NWMO's current focus is completion of the study, the Board is mindful of the NWMO's post-study mandate to implement the government's decision. The Board of Directors has endeavoured to establish the foundation for the NWMO to make the transition into the next phase of its legislated mandate.

On behalf of the Board, I would like to extend our gratitude to all of those whose contributions have shaped the way this study is proceeding, and the eventual outcome. As the NWMO heads into the last phase of its study, I hope that Canadians will continue to contribute their perspectives.

Ken Nash
Chairman

Message

NWMO MANDATE

About the NWMO

In Canada, used nuclear fuel is safely managed by its owners in wet or dry storage facilities at reactor sites, meeting or exceeding regulatory requirements of the Canadian Nuclear Safety Commission. These current storage practices at reactor sites are intended to be interim solutions. Like several other countries, Canada is now carefully considering a long-term management approach for used nuclear fuel.

In November 2002, Parliament passed the Nuclear Fuel Waste Act (NFWA). This legislation is a legal framework that will enable the federal government to make a decision on the long-term management of nuclear fuel waste based on a "comprehensive, integrated and economically sound approach for Canada".

The legislation requires major owners of nuclear fuel waste (Ontario Power Generation Inc., New Brunswick Power Corporation and Hydro-Québec) to establish the NWMO to:

- Consult and investigate approaches for managing Canada's used nuclear fuel;
- Recommend an approach; and
- Report to the Government of Canada.

The NFWA mandates the creation of an Advisory Council to provide independent comment on the NWMO study and management approaches. The Government of Canada will choose the management approach, which the NWMO will then implement. Public engagement will continue throughout the environmental assessment and regulatory licensing processes.

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NWMO MANDATE

About Our Study

The NWMO must submit to the Minister of Natural Resources Canada a study which sets out:

- Proposed approaches for managing used nuclear fuel, accompanied by comments from the Advisory Council and the public; and
- A recommendation from the NWMO to the Minister as to which management approach the Government should adopt.

The study must assess the management approaches from within a variety of perspectives – ethical, social and economic, as well as technical – and in the light of the economic regions in which they may be implemented. However, the NWMO is not to proceed with specific site selection.

The NWMO must consult the general public, and in particular Aboriginal Peoples, on each proposed approach. While the NWMO is free to study any methods it may wish to consider, at a minimum the NFWA obliges us to study the following technical methods:

- Deep geological disposal in the Canadian Shield;
- Storage at nuclear reactor sites; and
- Centralized storage, either above or below ground.

The NFWA provides us with a three-year period in which to complete our study and the process of public engagement. Specifically, the NWMO must submit its study to the Minister of Natural Resources Canada by November 15, 2005; it will be made available to the public at the same time.

You can read more about the Nuclear Fuel Waste Act and the NWMO's legislated mandate on our website, at www.nwmo.ca.

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PRESIDENT'S REPORT

We have been entrusted with a challenging assignment: to recommend how Canada should manage its used nuclear fuel well into the future. This annual report documents the path we have been following and reflects upon the insights we have gained.

Our study plan is built on the premise that a culture of responsibility requires the integration of citizen values and objectives with scientific and technological knowledge, each informing the other. The NWMO provides a platform for this important dialogue between science and society.

The year began with an attempt to discern and understand the values that Canadians hold dear. If we are to design an approach that generates any degree of confidence about the long term, it must resonate with what matters to people fundamentally. The exquisite logic of a scientific description or of an analytical process alone may not be convincing.

We sought genuine dialogue with a cross-section of Canadians. As the participants struggled with the complexity and inevitable tradeoffs, common ground emerged. People clearly articulated that the preeminent objective should always be safety from harm. They conveyed a sense of responsibility to each other, to all parts of the country and to future generations. They spoke of stewardship of our resources and environment. And they expressed an expectation that systems and institutions should be adaptable, accountable and inclusive. On these points, Canadians have been consistent and clear.

In parallel, our analytical work was advanced through the contributions of a multidisciplinary Assessment Team. Our search for a way of managing used fuel that is socially acceptable, technically sound, environmentally responsible and economically feasible suggests the need for analytical insight from many disciplines and perspectives. The complexity, uncertainty and long time horizon characteristic of making policy in this important area further underscore the imperative of a comprehensive, integrative systems view. What differentiated this exercise from so many others was its grounding in the basic issues identified by Canadians. Industry experts provided the technical information but the environmental, economic, social and ethical objectives were drawn directly from the contributions of citizens.

Through rigorous and disciplined thinking about all of the influences that need to be considered, the Assessment Team found that each of the options being assessed had specific, and quite different, strengths and limitations. Their report was a key element of our second discussion document, ***Understanding the Choices***.

This publication served as the basis for over 120 information and discussion sessions convened in every Canadian province and territory. These well-advertised sessions demonstrated the difficulty of convincing citizens in large numbers that this issue is worthy of their attention and that their views actually matter. Nevertheless, we are encouraged by the very thoughtful questions, contributions and conversations we had with almost 900 citizens.

PRESIDENT'S REPORT

I am also pleased to report that the dialogue processes which have been designed and implemented by Aboriginal Peoples are making an important contribution. While signalling caution as they share their expertise, they clearly wish to influence the decision-making process in an effective and positive way. We remain committed to providing opportunities for the active involvement of Aboriginal Peoples.

We continue to seek the advice and counsel of technical and policy experts on the questions Canadians have raised in the course of the dialogues. We want to understand and convey the most current and credible information about risk. We want to be able to assure the public that the approach we recommend can be designed to be safe.

Ours is still a work in progress, but as this report documents, our search for common ground among citizens and those with varied kinds of knowledge - aboriginal, environmental, ethical, sociological, economic, scientific, technical, and governmental – is bearing fruit. All agree that safety must never be compromised. We are convinced that this generation is prepared to assume responsibility for charting a responsible way forward; that any approach should be flexible and adaptive, remaining open to new learning and technology; and that how any decision is implemented may well be as important as the decision itself.

We are under no illusions that answers will come easily. Trade-offs are inevitable and will be difficult. Always, we are humbled by what we do not know and cannot know when faced with the time dimension of this issue. We can have confidence that Canada's regulatory system provides for the safety and security of Canadians. We can take pride in the quality of scientific, technological and engineering advances. But how can one best protect the public interest given that we cannot possibly predict technological innovation or societal behaviour hundreds or thousands of years into the future? Perhaps the key lies in committing to a strategy of excellence that allows us to learn and adjust to change.

Throughout the final year of our study as we test our observations, refine our thinking and present our draft conclusions, we will rely on many. We appreciate the continuing guidance of our Advisory Council and the support of the Board. We draw inspiration from dedicated experts and hundreds of individuals who challenge us to do the best we can to make progress on this controversial issue while respecting genuine differences of perspective and priority. We are committed to that task.

Elizabeth Dowdeswell
President

2004

THE STUDY – A PROCESS OF ENGAGEMENT

In order to develop a long-term management approach for Canada's used nuclear fuel, the NWMO has undertaken a collaborative process, inviting input to the study through a broad dialogue.

There is no question that robust science and engineering are fundamental to the management of used nuclear fuel. The management approach must also be responsive to ethical, social, cultural, environmental and economic considerations, as Canadians feel and express them. Our study has sought to engage individuals and organizations that together bring the necessary breadth of perspective, insight and understanding to the study.

In 2004, the work of a multidisciplinary group of individuals, directed in their analysis by the comments of Canadians, provided a preliminary assessment as a focus for public dialogue. In turn, the comments and learning from public engagement have continued to shape the study. The NWMO has been listening to Canadians, reflecting and reporting back. This interplay between public engagement and expert analysis will continue through to the completion of the study in 2005.

In the following sections, we highlight the range of activities that we undertook in order to inform our study in 2004.

Expanding Our Dialogue – Our Year In Review

We engaged Canadians in our study through a wide range of dialogues, meetings and workshops in 2004:

Citizens' Dialogue on the Long-Term Management of Used Nuclear Fuel. We collaborated with the Canadian Policy Research Networks (CPRN) to bring together 462 citizens for a dialogue about their underlying values and expectations. The goal was to understand how the public at large approaches the complexities involved in the long-term management of used nuclear fuel.

- The dialogue took place between January and March 2004, in 12 locations across the country: Halifax, Moncton, Quebec City, Montreal, Toronto, London, Thunder Bay, Sudbury, Ottawa, Saskatoon, Calgary and Vancouver. Participants were randomly selected by a polling firm to be representative of the Canadian population.
- Using quantitative and qualitative data from the dialogue sessions, CPRN analyzed the results and reported on the core values Canadians would like to see at the heart of decision-making. The full report is available on our website at http://www.nwmo.ca/canadianvalues.

National and Regional Meetings. In March and April 2004, the NWMO held national and regional dialogues in Ottawa, North Bay, Montreal, and Fredericton. These meetings brought together people and organizations with a history of involvement in the subject of how Canada should manage its nuclear fuel wastes and other public policy issues.

- Through these dialogues, we invited individuals and organizations to offer their views and input to help direct our study, as they critically reviewed the NWMO's first discussion document, ***Asking the Right Questions?***
- The meetings began with an introductory half-day session, followed by an electronic dialogue, and several

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weeks later, a full-day facilitated discussion in which participants returned to address a range of topics in depth and to explore their views further.

Moderated Dialogues.
Our web-based engagement expanded in 2004 to include a series of e-dialogues conducted by Royal Roads University.

- The first e-dialogue was convened on October 26, on the topic of risk and uncertainty in the management of nuclear waste. Panelists were invited from Energy Probe; the School of Policy Studies at Queen's University; Science and Technology Policy Research at the University of Sussex; Environmental Studies at Williams College; and the Department of Chemistry at the University of Western Ontario. Approximately 350 individuals "listened in" to this web-based dialogue or posed questions to the panelists.

- The second e-dialogue, convened on November 29, was designed to solicit the knowledge and perspective of younger people, including Parliamentary Interns, Action Canada Senior Policy Fellows, Top Forty Under Forty, members of the doctoral science cohort across North America, the youth wings of the three major political parties, Royal Roads students, former graduates and the Trudeau Scholars. Organized in four e-roundtables, they were asked to apply the decision-aiding framework developed by the NWMO to the three options under consideration, using the questions posed in our second discussion document. Approximately 75 people participated in this e-dialogue.

Public Information and Discussion Sessions. Between September and December 2004, close to 900 citizens participated in our meetings in 34 locations across Canada to discuss issues and questions raised in our second discussion document, ***Understanding the Choices.***

- The purpose of the 87 public information and 33 public discussion sessions was to engage Canadians in a dialogue about the long-term nuclear waste management approaches under study and the proposed framework with which to assess them.

- In these 120 meetings, we sought input from interested Canadians across the country, visiting at least one location (usually the capital) in every Canadian province and territory. In provinces with nuclear power, we visited regional centres that would be broadly accessible to citizens across a wide area. As well, sessions were held in or near each of the communities which currently host used nuclear fuel at interim storage facilities.

- We convened sessions in: Whitehorse, Yellowknife, Iqaluit, Vancouver, Edmonton, Regina, Pinawa, Winnipeg, Kenora, Huntsville, Sudbury, Thunder Bay, Kingston, Timmins, London, Toronto, Ottawa, Pembroke, Pickering, Clarington, Owen Sound, Bécancour, Québec City, Sept-Iles, Rivière-du-Loup, Rouyn-Noranda, Montreal, Edmundston, Musquash, Fredericton, Halifax, Charlottetown, St. John's, and Goose Bay.

- In each community, information sessions – designed to help people learn about the study and work to date – were followed by

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facilitated discussion sessions. We advertised on local radio and in local newspapers, beginning two weeks in advance of each community session. The sessions attracted media coverage and generated media interviews.

- We also wrote to mayors, MPs, MPPs and MLAs in communities in which we were convening public engagement activities in 2004, to advise them of our upcoming sessions and to provide updates on our study.

- The self-directed workbook and questionnaire created to support these sessions were also available on-line for those who could not attend or who preferred to submit written comments. For inquiries or input over the phone, we established an advertised toll-free number.

Continued Dialogues with Reactor Site Communities.

- We continued our ongoing dialogue and study updates through meetings with individual mayors, and through the Canadian Association of Nuclear Host Communities.

- We benefited from the comments of residents from reactor sites communities who attended our community discussion sessions, and participated in our public opinion research.

- At their request, we presented information to many community citizen groups, advisory committees, municipal councils and planning and other committees.

Dialogue with Aboriginal Peoples. Our broadly based program is designed to encourage Canada's Aboriginal Peoples to contribute advice to our study. This dialogue remains a key element of our engagement program. We have sought to use the existing capacity-building arrangements between Aboriginal organizations and the federal government, and to enrich them. Our dialogues with Aboriginal Peoples are designed and delivered by Aboriginal People and organizations, with support as needed from NWMO's human, financial and technical resources. In coordination with the national programs under way, we also welcome the expertise from local or regional Aboriginal organizations.

In 2004, our programs involved six national Aboriginal organizations and six regional/local organizations. The sections below highlight the activities that were under way in 2004. Reports resulting from the Aboriginal dialogues are posted on the NWMO website at http://www.nwmo.ca/aboriginaldialogues.

National Organizations

- Assembly of First Nations (AFN). The AFN has established a five-person team to coordinate and implement its nuclear waste management program. This leadership has established a Regional Council of Chiefs; completed a review of environmental issues; conducted regional dialogues in northern and southern Ontario; developed an array of educational material for circulation to members; and created a special program to promote youth involvement.

- Métis National Council (MNC). A national coordinator now links teams in the five regional components of the MNC: Ontario, Manitoba, Saskatchewan, Alberta, and British Columbia. Regional dialogues are ongoing.

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- Inuit Tapiriit Kanatami (ITK). A national coordinator has been named. A special session on nuclear fuel waste management took place during the National Inuit Conference on the Environment (February 24 and 25, 2004). ITK encompasses four regional "land claims" components and in 2004, initial workshops were held in the first two: Iqualuit (Nunavut, November 9/10) and Inuvik (Inuvialuit, November 17/18). Similar workshops are planned in early 2005 for Kuujjuak (Nunavik, northern Quebec, January 27-28) and Makkovik (Labrador, February 9-10).

- Congress of Aboriginal Peoples (CAP). Following a National Steering Committee meeting to confirm the work plan, CAP's first regional meeting was held in Calgary, December 18-20, 2004. The congress includes nine affiliate organizations: the Labrador Métis Nation, the Federation of Newfoundland Indians, the Native Council of Nova Scotia, the Native Council of Prince Edward Island, the New Brunswick Aboriginal Peoples Council, the Native Alliance of Quebec, the CAP Western Satellite Office, the United Native Nations in British Columbia, and the Ontario Metis Aboriginal Association.

- Pauktuutit Inuit Women's Association. Pauktuutit convened a workshop November 8, 2004, that brought together women from across the Arctic to discuss the issue.

- Native Women's Association of Canada (NWAC). In December 2004, we reached an agreement in principle with NWAC to convene a workshop at the end of February, 2005 to discuss the long-term management of Canada's used nuclear fuel.

Regional/Local Organizations

- Ontario Metis Aboriginal Association (OMAA). The OMAA convened an initial workshop as part of its annual general meeting in September 2004 in Sault Ste. Marie. It subsequently initiated a series of some 30 meetings throughout Ontario. About a third of these were completed by year's end.

- Sakitaawak Metis Society, Northwest Saskatchewan. The Sakitaawak Metis Society convened a community retreat near Beauval, Saskatchewan, October 21-23, 2004, bringing together representatives from 19 towns and villages, five First Nations (Cree and Dene), the uranium mining industry, and the NWMO. A follow-up proposal lays out a plan for developing the Aboriginal language needed to describe issues related to the management of used nuclear fuel.

- The Eabametoong First Nation, Fort Hope, Ontario. The community's Elders are leading a four-part process aimed at exploring all of the issues related to the long-term management of used nuclear fuel in Canada, and in particular, implications for Aboriginal People. A first Elders' meeting took place in December, followed by a community meeting convened by the Elders. They were to re-convene January 19-20, 2005 to draw together their conclusions and observations for reporting to the NWMO.

For more information on our public opinion research, and what we have heard during our study, please visit our website at www.nwmo.ca.

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- The East Coast First People's Alliance, New Brunswick. The East Coast First People's Alliance brings together non-status, off-reserve, unaffiliated Aboriginals in New Brunswick. They convened a workshop about nuclear waste management on November 6-7, 2004 in Bathurst, New Brunswick and have reported the results to the NWMO.

- The Western Indian Treaty Alliance (WITA). WITA brings together non-status, off-reserve, unaffiliated Aboriginals in Alberta, Saskatchewan and Manitoba. On November 18-19, WITA convened a project Steering Committee in Winnipeg. Subsequently, regional meetings were held in Edmonton December 11, and Regina, December 15, 2004.

- Atlantic Policy Congress of First Nation Chiefs (APC). APC is the regional affiliate in the Maritimes of the Assembly of First Nations (AFN). It plans two regional dialogues early in 2005.

Submissions from the General Public. We also received direction and comment from Canadians who wrote to us by mail or through the website.

- We have received more than 110 submissions (1,500 website pages of comments) from individuals, either in response to our discussion documents or background papers, available for review and comment on our website.

Public Opinion Research. An important component of our outreach was to track the views of Canadians on key questions posed in our discussion documents.

- In June 2004, we commissioned a telephone survey of 1,900 Canadians to invite feedback on our first discussion document. In order to benefit from the perspectives of those living near nuclear plants, we surveyed an additional 700 residents through representative samples from nuclear site communities in Ontario, Quebec and New Brunswick. The 65 questions asked in the survey explored Canadians' views on the appropriateness of the analytical framework outlined in our first discussion document.

- In December 2004 and January 2005, we commissioned qualitative public opinion research to explore the difficult emerging trade-offs associated with any choice among the management approaches under study. We convened these focus group meetings in five communities: Pickering, Sault Ste. Marie and Windsor, Ontario; Saint John, New Brunswick; and Quebec City, Quebec.

Deliberative Surveys. Approximately 280 individuals have completed a deliberative survey on the NWMO website.

- We designed and posted four surveys on the website, each corresponding to one of the four key dialogue questions from the NWMO's first discussion document.

- A fifth deliberative survey invited interested Canadians to contribute their views on the same set of questions posed in the nation-wide telephone survey.

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Topical Meetings and Workshops. We convened smaller meetings and workshops to explore in depth specific topics and key issues.

- The NWMO met with senior practitioners in sustainable development and environment from some of the largest and most progressive Canadian companies in energy and waste management.
- We met representatives from Nuclear Waste Watch, a network of 34 organizations concerned about high-level radioactive waste and nuclear power in Canada.
- We held a roundtable dialogue with youth at the International Youth Nuclear Congress, which stimulates discussion among young professionals from around the world. The NWMO scheduled a half-day session to offer them the opportunity for critical review of the NWMO's first discussion document. We sought their views on matters for Canada to consider in developing a long-term management approach.
- NWMO staff presented to, and participated in, a number of university class discussions in 2004, informing and inviting the perspectives of young Canadians.
- We were invited to address the Federation of Northern Ontario Municipalities (FONOM) in Sudbury, to brief them on our work.
- In December, we convened an opinion leaders' roundtable in partnership with the Public Policy Forum. The participants, as executives from a diverse range of public and private sector backgrounds, have been at the heart of public policy-making in Canada. They discussed how best to design implementation processes for public confidence.
- The NWMO met with nuclear industry associations, including the Canadian Nuclear Association and the Canadian Nuclear Society. Upon request, we participated in briefings at industry community events and meetings.

Government Briefings.

- Through meetings, written updates and formal workshops with the public service and elected officials, we informed representatives of many federal, provincial and municipal governments about our study.

International Developments. During 2004, we continued to strengthen our understanding of techniques and methods being studied internationally. All of these meetings helped us to stay abreast of international standards and best practices for the long-term management of used nuclear fuel.

- We met with a number of organizations, including those charged with addressing the management of used nuclear fuel in other countries such as the United Kingdom and Finland as well as international agencies studying long-term management options for used nuclear fuel.
- We met with government departments in other countries to understand the lessons they have learned and the paths that they are pursuing. We participated in the OECD Nuclear Energy

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Agency's Forum for Stakeholder Confidence. At the request of the federal government, the NWMO participated in a scientific forum on waste and spent fuel management organized by the International Atomic Energy Agency.

Broadening Our Communications. In addition to face-to-face conversations, the NWMO actively developed a number of other communications initiatives to inform and seek input from Canadians. The NWMO website is an important tool for communicating with the public.

- It contains all information produced for the NWMO, including all of our research and reports. We post background papers, workshop reports, public opinion research, and our discussion documents.
- Our website features fact sheets about the organization, our mandate and other relevant issues, including our study, engagement plans and a calendar of events.
- Visitors to the website are also invited to contribute their perspective on any of the posted material, either by making a comment, a submission, or by completing a survey or workbook.
- At the direction of the NWMO Advisory Council and the NWMO Board of Directors, the minutes from their meetings are made public through posting on our website.

Our website has received approximately 146,000 visits since its inception, with a steady increase in monthly visits to its current level of approximately 15,000 per month.

We also communicated our work through the development and circulation of print and electronic materials:

- We distributed more than 3,200 copies of our second discussion document, ***Understanding the Choices.***
- We distributed more than 1,700 copies of DVDs, which we produced to profile the NWMO study.
- On our website we publish an NWMO newsletter at regular intervals, feature video profiles of the issue, share NWMO speeches, and present a calendar of upcoming events.
- We increased the organization's public profile in 2004 through interviews with national and local media; through radio and print advertising; and local interviews associated with the NWMO's public information and discussion sessions across the country and with the release of our second discussion document.

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Engagement Through Research and Analysis

Our process of engagement extended to seeking collaboration in the research and analysis which was integral to our study. In 2004 we undertook two different phases of the work necessary to assess the management options.

- First, in January 2004, armed with insights from our own engagement with Canadians and the results of our early research and analysis, we turned our attention to conducting a preliminary assessment of the three options specified for study in the NFWA (deep geological disposal in the Canadian Shield; storage at nuclear reactor sites; and centralized storage, above or below ground). We assembled a multi-disciplinary group of individuals as an Assessment Team. Their assignment was two-fold: based on the input from Canadians received at that point, to suggest an appropriate assessment framework and methodology; and then to apply the methodology in a preliminary assessment of the approaches. This work formed a key component of our second discussion document, and is discussed on page 25.

- In the fall of 2004, we proceeded to the next phase of our analysis of the management approaches. Building on the preliminary assessment, and on the public's input, we continue to compare the benefits, risks and costs of the different management approaches, taking into account the characteristics of the economic regions in which they might be implemented.

Through the year, the NWMO's Roundtable on Ethics met to assist us in addressing the social and ethical dimensions of our study. The members of the Roundtable are experts in a variety of disciplines in the field of ethics, from medicine, technology, law and business.

We continued to engage the academic community and industry in the preparation of papers and studies on specific topics.

In the interests of sharing the results of our work, we post all reports from these varied engagement activities on the NWMO website.

Engagement is not a static activity, but rather the development of a longer-term relationship. The NWMO is attempting to foster communications with the many communities of interest which will continue to follow this issue as future decisions are taken and implemented. In the following sections, we highlight the key messages that we heard in 2004.

BUILDING A FRAMEWORK FOR OUR ASSESSMENT

In 2004, two very important streams of work contributed insights to our study: our engagement with individuals and organizations; and our analysis aimed at refining and applying a methodology for examining the management approaches.

Understanding Canadian Values

The first six months of 2004 were devoted to three core and parallel activities that clarified and made explicit the values and ethical considerations that should form the foundation for the assessment:

- The National Citizens' Dialogue, convened with a cross-section of the Canadian public to explore the key values that should be reflected in the assessment (http://www.nwmo.ca/canadianvalues);
- Aboriginal Peoples' Dialogues, convened and managed by Aboriginal Peoples themselves, to explore how their values, knowledge and insights, including the expertise inherent in Aboriginal Traditional Knowledge, can inform the NWMO study. (http://www.nwmo.ca/aboriginaldialogues); and
- The NWMO Roundtable on Ethics, which continued to help us articulate and think through the fundamental ethical issues we need to consider in the long-term management of used nuclear fuel as we proceed through the study. The Roundtable developed an "Ethical and Social Framework" to help guide the NWMO activities which was posted on the NWMO's website for consideration and comment by Canadians (http://www.nwmo.ca/ethicsroundtable).

The insight from these initiatives has added substantially to our understanding of the factors Canadians believe are important in deciding how our country should manage its used nuclear fuel in the long term, and forms an important component of the foundation for the study.

Inviting Comment: Discussion Document 1

Our first discussion document, ***Asking the Right Questions?***, released in September 2003, provided the focus for public discussion early in 2004. (http://www.nwmo.ca/askingtherightquestions).

- We described the issue of the long-term management of used nuclear fuel, and asked Canadians if we had described the problem correctly.
- We identified a range of methods to manage used nuclear fuel in the long term, and asked if we had made the appropriate identification.
- We laid out ten key questions that had emerged from the NWMO's early conversations about expectations with Canadians, and we asked if these were the ones that needed to be asked and answered in our study.

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While these dialogues and deliberations took very different forms and involved a diverse cross-section of Canadians, we were struck by the degree to which these activities revealed a shared vision and common ground.

- Broad Agreement on the Ten-Question Framework. We received confirmation that the ten key questions presented in our first discussion document do encompass the range of priorities and concerns that are important to Canadians and form a good starting point for the comparative assessment of management approaches. From our discussions with Aboriginal Peoples, we heard that Aboriginal Traditional Ecological Knowledge should be integrated into the development of management approaches. One of the issues raised consistently is the need to be aware of Aboriginal treaty and non-treaty rights when considering the long-term management of used nuclear fuel.

- Assume Responsibility. In citizens' dialogues undertaken across the country, Canadians told us that this generation should act to ensure safety and security for people, their health and the environment – immediately and into the future. For the public at large, this means taking the first concrete measures towards a long-term management approach.

- Adopt a Staged Approach. Canadians said that a staged approach is important to preserve for future generations the opportunity to make decisions and influence the implementation in a way that reflects their own values and priorities. They told us that a responsive and responsible course of action must retain an openness to new learning and be adaptable to incorporate new knowledge as it becomes available. Continuous learning will support careful, controlled improvements in operations and design and will enhance performance, reduce uncertainties and improve economies.

- Monitor Emerging Options. Many link their support for taking action now to desired investments in research and monitoring of advances in science and technology. Some suggested that there might be technical methods not yet sufficiently mature to warrant consideration now, but that hold some promise in the future. In particular, they expressed interest in learning more about using and reusing nuclear fuel more efficiently, and reducing the hazards associated with it.

- Ensure Strong and Effective Oversight and Institutions. Public expectations demand that the selected management approach be accompanied by a robust system of monitoring and oversight. Canadians support a role for many levels of government, regulators and oversight bodies, international agencies and watchdogs, and citizen oversight mechanisms. They believe the management process must be securely funded. They also considered it important that the NWMO itself be designed to assume its future role capably as an implementing organization. They see it as a priority to build and maintain sustainable capacity to manage the used nuclear fuel expertly into the future, as long as active management is required.

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- Inform and Involve. Engagement of both citizens and experts is seen as essential when key decisions are being made in the design, siting, environmental assessment and licensing processes, and in the ongoing operation of the approach. Canadians have said we must understand the concerns of the affected regions and communities, and seek to equip the public with the capacity to understand the issues, and remain informed and engaged on decisions affecting them. They want governments and industry to act transparently, and to include citizens and other stakeholders, both in decision-making and in the ongoing management of the used fuel. Aboriginal Peoples have told us that it is essential that they be involved in the study of long-term management approaches for a number of reasons, including: as stewards of the land, they feel a strong sense of responsibility to ensure that we provide well for future generations; and, lands that may host waste management facilities are occupied or used by Aboriginal Peoples. They have emphasized the need for our engagement to be designed and conducted in a manner that is culturally appropriate and sensitive to their traditional Aboriginal methods of discussion.

- Ensure Safety From Harm. From our citizens' dialogues, we heard that one overriding priority is the basic human need to feel safe from harm. This need does not arise from a sense of fear, nor from an expectation of a risk-free world. Rather, it arises from a sense of responsibility to this generation and to future generations to take the necessary precautions.

- Clarify the Nature of the Hazard. We heard many different opinions on the nature of the hazard or health risk, and the period over which the material is hazardous and needs to be managed. Canadians suggested that the amount of used fuel to be managed is an important element of the nature of the hazard. In the absence of certainty as to the future role of nuclear energy, they suggested that the NWMO undertake a sensitivity assessment to consider the implications of different future scenarios.

These key themes represent only a small fraction of the comments we received from structured and informal dialogues, electronic submissions, surveys, and public opinion research. All are reported on the website.

One example of the views provided by a representative sample of Canadians, in a June 2004 telephone survey, is displayed in Table 1.

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TABLE 1: NATIONAL SURVEY – JUNE 2004

The questionnaire asked 2,600 Canadians what would be the important characteristics of any approach for managing Canada's used nuclear fuel.

Participants were asked to indicate the relative importance of each of the following possible traits or characteristics of a management approach.	% who said it is very important for Canada's approach to have this trait (*)
Protects the health and safety of future generations	92
Protects the health and safety of the current generation	92
Ensures the health and safety of workers who build the waste management facilities	91
Protects the environment	90
Ensures the nuclear waste is isolated from human contact forever	85
Fair to both our generation and to future generations	84
Makes certain that communities likely to be most directly affected have an opportunity to participate in decision-making	83
Fair to both humans and to non-human living things	82
Reduces the potential that terrorists would be able to access the materials	81
Guarantees there is enough flexibility to incorporate future improvements in scientific and technical knowledge	81
Provides flexibility to future generations to change or modify the way in which the fuel is managed	77
Makes certain that adequate money is available now and into the distant future when it may be needed	74
Does not negatively affect the cultural or social life of the surrounding communities	70
Ensures any decisions taken about how to manage the waste are reversible	70
Does not negatively affect the economic potential of surrounding communities	68
Ensures the overall cost is reasonable	65
Ensures those who have an interest in the issue, even if they are not directly affected, have an opportunity to participate in decision-making	64
Does not place any obligations on future generations to manage the waste	54

(* % of participants rating that issue at a high level – assigning it an 8, 9, or 10 on a ten-point scale of importance)
Pollara: September 2004

BUILDING A FRAMEWORK FOR OUR ASSESSMENT

Furthering our Research and Analysis

Over the last year, we continued to build up a body of research related to the management of used nuclear fuel.

- We commissioned background papers, roundtables, and workshops to address guiding concepts, social and ethical dimensions, health and safety, science and environment, economic factors, technical methods and institutions and governance. All reports are posted on our website (www.nwmo.ca/background papers). Examples of topics addressed in 2004 included:
  - Possible implications of climate change;
  - Microbiological factors;
  - Chemical toxicity of CANDU used fuel;
  - Risk-based monitoring system;
  - European initiatives to incorporate citizen values and social issues in decision-making;
  - National and international training programs; and
  - Transportation considerations for used nuclear fuel.
- Beyond these background papers, the NWMO has organized meetings and workshops to explore key issues with experts in various knowledge areas such as sustainable development and implementation considerations. The outcomes of these discussions and expert workshops are all available on the NWMO website. (http://www.nwmo.ca/workshopreports).
- We received and posted to the website a series of technical and engineering reports which represents in part the culmination of several years of work by the joint waste owners – Ontario Power Generation, Hydro-Québec, New Brunswick Power and Atomic Energy of Canada Limited.
  - The joint waste owners commissioned engineering consulting firms to develop preliminary conceptual engineering designs for the three technical methods identified in the NFWA, and also to develop associated transportation infrastructure and cost estimates for those designs. This information was developed as typical technical conceptual options and not as fully developed project plans.
- The NWMO commissioned a third-party review of this body of work to examine the appropriateness of key engineering design assumptions and the cost estimation process (http://www.nwmo.ca/engineeringreview).
- The conceptual designs were found to be well developed and documented, and prepared in a manner consistent with established engineering practice. The third-party review of the cost estimates concluded that they have been prepared with an appropriate estimating methodology and are suitable for the NWMO's review and assessment of the magnitude of costs of alternative management options and recommendation on a preferred approach. (http://www.nwmo.ca/costreview).

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- Consequently we judged it appropriate to use these conceptual designs and cost estimates as a basis for our preliminary assessment of the three technical methods.

The core of our research and analysis in the first six months of 2004 was to initiate an assessment of management approaches based on the three technical methods in the NFWA – deep geological disposal in the Canadian Shield, storage at nuclear sites, and centralized storage above or below ground.

To help us with the task of undertaking a rigorous comparative analysis of alternative management approaches, we brought together a multi-disciplinary group as an Assessment Team. The Team provided a broadly based systems perspective on the many social, environmental, technical and economic aspects of used nuclear fuel management. Their diverse expertise, ranging from environmental assessment and risk management to economic, financial and policy analysis, was instrumental in achieving a comprehensive comparative assessment. It made an important contribution to the NWMO study of management approaches.

First, the Team developed an assessment framework based on the ten questions posed in our first discussion document.

- The Team searched out and selected a methodology that would allow for the systematic integration of social and ethical considerations with technical, economic, financial and environmental considerations.

- The Team developed a framework based on eight objectives and a list of specific influencing factors. The objectives included: fairness; public health and safety; worker health and safety; community well-being; security; environmental integrity; economic viability; and adaptability. In suggesting this framework, the Assessment Team proposed a methodology and approach for considering all of the factors that Canadians identified as important, in an integrated and systematic way.

Then, the Assessment Team applied this framework and conducted a preliminary assessment of the three options outlined in the NFWA.

- In summary, as a result of its deliberations, the Assessment Team found that each of the options has specific, and quite different, strengths and limitations. No method perfectly addresses all of the values and objectives important to Canadians. A choice among approaches is likely to require some balancing or trade-offs among the objectives and considerations that Canadians have said are important.

- The average scores indicate that Team members expect the deep geologic repository option to perform better on nearly every objective than either at-reactor-site or centralized storage when taken as stand-alone approaches. However, they noted wide ranges of scoring, reflecting differing views among them concerning future environmental and social conditions in Canada, as well as questions regarding how well the approaches might actually perform.

The Assessment Team's report is available on-line at (www.nwmo.ca/assessment-teamreport).

UNDERSTANDING THE CHOICES

Presenting the Assessment Framework

In September 2004, we released our second discussion document, entitled ***Understanding the Choices***. In this document we presented:

- The findings from our public engagement processes; and
- The elements of the framework which emerged from the dialogues for use in assessing the management approach. These are summarized in Table 2 below, and provided in full in ***Understanding the Choices;***
- A preliminary assessment of the management approaches, using this framework; and
- Implementation plan requirements which have emerged to date.

With the release of our second discussion document, we initiated another phase of public outreach through to February 2005, in which we explored the following topics with Canadians:

- Is the assessment framework comprehensive and balanced? Are there gaps, and if so, what do we need to add?
- What are your thoughts on the strengths and limitations of each management approach: deep geological disposal; centralized storage; and reactor site storage? Does the preliminary assessment accurately describe all of the considerations?
- Are there specific elements that you feel must be built into an implementation plan? What are your thoughts on what a phased approach must include?

Table 2 – NWMO Assessment Framework

A Foundation of Values and Ethics *		Specific Objectives **
Citizen Values	Ethical Principles	
Safety from harm	Respect for life	Fairness
Responsibility	Respect for future generations	Public health and safety
Adaptability	Respect for people and cultures	Worker health and safety
Stewardship	Justice	Community well-being
Accountability and transparency	Fairness	Security
Knowledge	Sensitivity	Environmental integrity
Inclusion		Economic viability
		Adaptability

* Drawn from the National Citizens' Dialogue, Aboriginal Traditional Knowledge and the Roundtable on Ethics

** Drawn from the report of the Assessment Team

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Commentary

In pages 27 to 34, we highlight commentary from dialogues with Aboriginal peoples and with the general public which relates specifically to the issues and questions raised in ***Understanding the Choices.***

In pages 34 and 35, we then report on additional comments we received on topics that expand beyond the confines of our discussion document and, in some cases, on issues that extend outside of the NWMO's mandate.

Dialogues with Aboriginal Peoples

By year's end, the NWMO had received input from a number of Aboriginal dialogues. Certain key messages have been reiterated by participants. These are summarized below and are playing a significant role in development of our recommendation to government.

Drawing on Aboriginal Traditional Knowledge/Wisdom

Aboriginal People have consistently expressed a desire to see Traditional Knowledge play a role in the analysis and decision-making related to the long-term management of used nuclear fuel in Canada. They remain concerned that the NWMO work and reports to date do not yet reflect fully a treatment of Traditional Knowledge that they see as necessary. They are concerned that the degree of representation of Aboriginal People within the NWMO process is insufficient to ensure that Traditional Knowledge will be a real influence.

Through the Aboriginal dialogue, we have learned that Traditional Knowledge involves amongst other things:

1. Insight about process – who talks, when to talk, how to talk, the appropriate protocols for relationship-building and decision-making;

2. Special knowledge related to the land – this is site-specific and can be held not only by indigenous people but by anyone who has lived on the land for a long time;

3. Values that reflect a special importance of the environment – a recognition that human-kind is a component of the ecosystem and a commitment to a holistic perspective that sees the encompassing system as much as the component parts; and

4. Spirituality – that weaves across everything but for which there is no single expression.

Traditional Knowledge helps to create a view of the world that incorporates and makes sense of all of the above in the context of long-term and holistic decision-making. These ideas have found expression in principles to guide our way forward including: honour, respect, conservation, transparency, and accountability. These ideas were discussed at the Traditional Knowledge Workshop held in September 2003 and contributed significantly to the NWMO's assessment framework that has been used to assess the various technical methods and overarching management approaches being considered. Aboriginal Peoples brought Traditional Knowledge to the discussion in the NWMO's early scenarios workshop and similarly to the work of the Roundtable on Ethics. As the NWMO's Aboriginal dialogue has evolved, particularly at the local level, the dimension of Traditional Knowledge has

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increased in importance. This trend will be strongly nourished in the years to come.

The NWMO Aboriginal Dialogue and its Link to "Consultation".

The Aboriginal community has made very clear its belief that the NWMO Aboriginal dialogue does not constitute "consultation" as defined in the law. Two court decisions that were handed down in 2004 (Haida Nation v. B.C. 2004 S.C.C. 73 and Taku River Tlgit v. B.C., 2004 S.C.C. 74) have added a new dimension to this discussion, the implications of which remain to be established. This is one of a number of legal issues that will have to be carefully examined during the early stages of implementation. From the NWMO's perspective, two points need expressing: (1) our commitment to respecting Aboriginal rights and treaties; and (2) our commitment to the long-term ongoing relationship-building process with Aboriginal Peoples.

Responsibility.

In general terms, the Aboriginal community has consistently expressed a belief that each generation has a responsibility to preserve the foundation of life and well-being for those who come after and that producing and abandoning dangerous substances is morally unacceptable. In the dialogue, many concerns have been raised about the negative results of past decision-making, in which Aboriginal Peoples played no part. However, the dialogues revealed an additional dominant theme: it is time to look forward, not back. And it is time for a new way, one that involves Aboriginal Peoples.

Mistrust, Building Trust.

Many in the Aboriginal community have expressed a mistrust of the nuclear industry, of government and of mining in particular. In the Arctic, many said clearly that they do not want their land to be a dumping ground for waste from the south as has been their historic experience. They point out that previous efforts to participate in the discussion about the long-term management of used nuclear fuel (e.g. participation in the Seaborn Hearings and the Parliamentary Committee Review of Bill C-37, the Nuclear Fuel Waste Act) have not influenced decision-makers. Some believe that a government decision will simply proceed as pre-ordained. In contrast, some elements of the dialogue, especially locally-led initiatives, have led to the beginnings of building a relationship that is marked by respect, integrity, trust and a hope for something different. The NWMO must build on this in the future.

The Issues of Remoteness.

A number in the Aboriginal community have raised significant concerns about how the north is perceived by the south. They argue that the concept of "remote" prejudices traditional territories by implying that Aboriginals are less significant. Further, they do not want to see an economically depressed Aboriginal community targeted for siting, convinced to take the waste, and paid off to do so.

A Need for Research.

A strong sentiment has been expressed in the Aboriginal dialogue that research should play a significant role in the implementation phase. Issues identified for research include: a broad range of legal concerns; methods for eliminating the hazardous nature of nuclear fuel waste; development of alternative energy sources; and the technology of storage containers.

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The Three Technical Methods.

No consensus exists yet in the Aboriginal community about which of the three technical methods included in the Act is preferable. Rather, there is an overarching fear that the deep geological disposal option will be imposed on the traditional territory of Aboriginal People. However, some Aboriginal communities are curious about the implications of a waste facility. They wish to explore a kind of Aboriginal participation that ensures them a role in management and decision-making in order that their culture and lands are maintained in a way that is of their design, potentially making a net positive contribution to their community.

Long-term Aboriginal Engagement.

At every meeting of the Aboriginal dialogue, participants have expressed a desire to be further involved with the work of the NWMO. They have emphasized a need for:

- More Aboriginal People directly participating within the NWMO,
- More effort at the local level particularly involving Elders and youth;
- Communication materials that are appropriate from both cultural and language perspectives; and
- Adequate time and resources to engage. One Aboriginal organization is calling for the creation of an independent Aboriginal capacity to oversee the NWMO's activities through implementation.

Dialogues with the General Public.

In the fall of 2004, we sought comments from the public on ***Understanding the Choices*** through a number of engagement activities – from the 120 public information and discussion sessions, to e-dialogues, to focus groups and the electronic submissions posted on our website. A summary of what we heard follows:

Confirmation of the Assessment Framework.

There was generally wide support for the values and ethical principles identified in our assessment framework. There was also support for the objectives in our framework as those to which any management approach should aspire.

- Participants indicated that the values and ethical principles embedded in the assessment framework are appropriate and closely aligned with their own values and ethics.
- Participants found the framework to be balanced.
- Many participants and respondents were pleased to see that the societal values and ethical considerations outlined in the assessment framework were being applied alongside the more conventional technical and financial considerations. They viewed this as a positive step forward towards addressing one of the key findings of the Seaborn Panel's report – that the long-term management solution must also be socially acceptable.
- Public health and safety was often cited as a pre-eminent concern and considered to be non-negotiable in the development of any management approach.

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For the participants in the public discussion sessions, the priority considerations for the management approach are: safety from harm, responsibility, respect for life in all of its forms, respect for future generations, and security.

No Consensus on a Preferred Technical Method.

We did not hear agreement on a single preferred management option when we reviewed the three methods from the NFWA. In the course of our dialogues, the public identified advantages and limitations of the different management approaches presented for discussion, outlined in the boxes below. This discussion illuminated the trade-offs and tensions associated with any choice among the three options when considered against the eight objectives set for the performance of a management approach.

STORAGE AT REACTOR SITES

Advantages:

- Requires no transportation of used nuclear fuel;
- Existing on-site nuclear expertise;
- Communities are familiar with nuclear facilities, including used fuel storage;
- Able to monitor and adapt easily;
- Science and technology are well in hand;
- There is a solid record of handling used nuclear fuel for the past 30 years; and
- Host communities have enjoyed benefits associated with the nuclear plant and so it may be fair to ask them to host the waste facility.

Limitations:

- Ongoing administrative controls and costs;
- Sites were not selected based on suitability for long-term used fuel management;
- Host communities did not participate in the original siting decision;
- Involves multiple sites to be managed over the very long term;
- Isolation depends solely on built facilities;
- Isolation relies on society taking care of the facilities;
- The used nuclear fuel remains hazardous long after the reactors are decommissioned;
- Nearby technical knowledge may not be available; and
- Waste would be stored close to large bodies of water.

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CENTRALIZED STORAGE

Advantages:

- Siting decision based on suitability for long-term nuclear fuel management;
- Siting can be achieved with community participation;
- Shallow below-ground storage eliminates some security concerns;
- Science and technology are well in-hand; and
- Able to monitor and adapt easily.

Limitations:

- Ongoing administrative controls and costs;
- Isolation depends solely on built facilities;
- Isolation relies on society taking care of the facilities;
- Transportation of used fuel carries risks and costs;
- Is more vulnerable to some extreme natural events; and
- Community participation in site selection could be contentious. It may be difficult to find a community which would like to host the facility.

DEEP GEOLOGICAL REPOSITORY

Advantages:

- Is more robust in the face of extreme natural events and long-term integrity is not dependent on stability of society;
- Significantly reduces long-term administrative controls and costs;
- Site selection based on suitability for long-term used fuel management;
- Requires no long-term financial resources or oversight after closure;
- Siting can be achieved with community participation;
- Isolation depends on a combination of natural features and built facilities;
- Isolation does not rely on society taking care of the facilities;
- Intrinsic geological features, combined with engineered features, isolate the fuel from the environment for a long period of time; and
- Reduces security concerns before and after closure.

Limitations:

- Performance has not been tested over thousands of years;
- Monitoring would be more difficult;
- Adaptability and flexibility are reduced and retrieval is more costly and hazardous;
- Siting options are limited because of the required geological features;
- Community participation in site selection could be contentious, and it may be difficult to find a community which would like to host the facility;
- Transportation of used fuel carries risks and costs;
- Future generations may inadvertently breach the facility through mining or other activities; and
- Locating the facility in an area which did not enjoy the jobs and other economic benefits of the nuclear plant may be unfair.

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Other Comments.

In the course of discussing the advantages and limitations of each of the approaches under study, participants emphasized:

- The pre-eminence of public health and safety as a driver for decision-making;
- The importance of keeping the waste accessible, at least in the near term;
- Concern about transportation and a desire for this to be minimized;
- The importance of any approach being fair to different regions and communities, and to future generations; and
- The value of building in adaptability to any management approach (although this term needs to be better defined) should not detract from the ability to protect public health and safety.

Through the exchange of ideas in these sessions, many came away with a sense that reasonable people can disagree on which of the approaches may be best, and that a decision will be difficult but necessary.

Reinforcing the Common Ground.

Certain themes were articulated clearly and forcefully in each set of engagement activities – reinforcing the common ground on which citizens' and experts' views converge.

Support for Action Now.

- Many participants expressed support for moving forward in this generation with deliberate steps toward the long-term management of used nuclear fuel. While there was no consensus on the type of action to be taken, we heard strongly that Canada should take some conscious action now. Some felt our generation should resolve the final fate of the waste now. Others felt that we should leave a final decision for the future, and that our responsibility is to ensure that the used fuel remains safe pending this future decision.

The Importance of Flexibility.

- Participants strongly supported an adaptable, flexible management approach. Recognizing the many layers of decisions involved in implementing a management approach over long periods, participants advised against making more decisions now than are necessary. A phased approach would allow carefully considered decisions at each step, and appropriate adjustments as necessary.
- Generally, people have a high degree confidence in future science, and are optimistic that we will continue to learn in this sector as in all aspects of our society. It is particularly important that the selected management approach anticipates and is able to benefit from continuous learning and new information as it becomes available.

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There was interest in the NWMO considering an alternative management approach that would combine some of the features of the three technical methods in the NFWA.

The key elements include:
- Storage for a period of time;
- Allowing for new knowledge and technology to emerge for the purpose of possible re-use or reducing the quantity of high-level radioactive waste; and
- Possible development in parallel, or a commitment to future development of a deep geologic repository either as further centralized storage or as final disposal, if needed.

Many participants viewed a phased approach as making good sense for Canada, and urged the NWMO to consider this approach further.

Implementation Is Key.

- People recognize that the decision-making and implementation processes for Canada's used nuclear fuel will involve at least many decades. It will be important that a management approach be implemented in a way which continues to be responsive to the values and objectives of Canadians.
- Many participants expressed support for the type of process the NWMO has initiated to engage the public in the formulation of the recommendations. Public engagement must continue through the implementation phases.
- There was much discussion about the need for genuine involvement of communities near any future facility. Affected communities must be able to influence the way in which any approach is implemented. Participants suggested that communities should be informed and participate in monitoring, as well as decision-making.
- Mitigation measures would be important to avoid or minimize adverse effects on a community, or on its social, cultural and economic aspirations.

Participants in the public discussion sessions confirmed that any management approach for Canada must have the following characteristics:

- Be designed with the intent of taking the initial steps of implementation now;
- Be flexible to accommodate new learning;
- Take a staged approach that provides for ongoing reviews and adjustments to decisions;
- Provide opportunities for future generations to influence its implementation;
- Include monitoring of emerging research and technical developments in Canada and internationally;
- Communicate clearly the decision-making process and authorities;
- Be overseen by an independent and trustworthy organization;
- Involve democratic and accountable institutions accessible to citizens;
- Ensure that citizens are informed and have a voice;

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- Engage and understand concerns of regions and communities that are affected directly and indirectly;
- Be built on a good understanding of potential risks and the means to manage them, including transportation;
- Have mitigation measures and contingency plans in place;
- Include an emergency preparedness and response program. In addition to ensuring that all communities have trained personnel, there must also be equipment and financial resources to support all emergency response in the host community and along transportation routes;
- Provide surety that sufficient funds will be secured and protected, available to fund the long-term management approach selected by government; and
- Ensure that the amount of money spent is commensurate with the risk this material poses vis-a-vis other problems our society needs to address.

Comments About Context. We continue to hear a number of impassioned arguments that expand our conversation, as people look to these opportunities to talk about other concerns and points of view that extend beyond the NWMO's mandate.

The matters listed below came up frequently and strongly in our meetings with the public and with Aboriginal Peoples.

Some told us that there is a need to assess the full cycle of nuclear materials, from mining through to the management of all forms of nuclear waste. We heard that a full consideration of the social and ethical dimensions of any waste management decision necessarily requires examination of the activity which gives rise to the waste and all its component elements. Those who advocate for such a broad framing of the issue suspect that nuclear energy generation would be abandoned if the costs and benefits of the full lifecycle were examined.

Many spoke about energy policy, expressing a belief that source reduction and elimination should be the first step in any management program of used nuclear fuel. In the case of Aboriginal Peoples, they articulate a responsibility to protect and maintain the lands within their traditional territories, and this requires that Aboriginal Peoples take a proactive role in energy conservation and alternative energy production; often we have heard that nuclear energy should be phased out to eliminate the source of the waste.

Others said that the nuclear fuel cycle should not be considered. These Canadians feel that an assessment of energy generating methods would show that nuclear energy improves the quality of life of people around the world and may lead to an overall reduction in stress on the environment. They do not see the nuclear energy question as an issue that must be addressed before considering waste management approaches.

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Some told us that they see the future of nuclear power as key to their assessment of the used fuel management approaches under examination. We heard that a used fuel management approach might be appropriate under one future scenario but not another. The absence of a fully articulated plan on the future of nuclear energy is a fundamental limiting factor of the NWMO's study for those who would assess the approaches differently, according to the planned future for nuclear energy. These citizens (or participants) view the absence of such a plan as a key failing.

We heard concerns that any decision on the management of used nuclear fuel may change the terms for such a broader discussion of the future of nuclear energy. For instance, if a long-term approach for the management of used nuclear fuel were identified, would this serve as a *de facto* licence for an expansion of nuclear energy that would not have occurred otherwise? From those who are concerned about the appropriateness of nuclear energy, we heard that the existence of a waste management plan should not be sufficient reason to expand an energy source which they feel should be the subject of assessment.

Some question the ability of the NWMO to arrive at a recommendation which protects the public interest. We heard concerns that because the organization is fully funded and organized by the producers of used nuclear fuel under the Nuclear Fuel Waste Act, it cannot be relied upon to be objective.

Consistently, we have heard that waste importation is not acceptable. There is a related concern that this is not explicit in the NFWA and that the North American Free Trade Agreement might force Canada to accept nuclear waste from the United States, opening the door to bringing in waste from other countries.

The question of who should be involved, the role they should play, and what constitutes sufficient and appropriate involvement continues to be a source of debate among some throughout the study. Some have argued that this is a matter for scientific and engineering experts who can make decisions based on facts. Some have argued that human values and ethics should drive decision-making and that all Canadians should be involved. The more basic question being raised is: "What constitutes knowledge on this issue and who holds this knowledge?"

LOOKING AHEAD

Reflecting on the Challenges Before Us

Although there are many areas of agreement concerning an appropriate management approach for Canada, the NWMO will need to address tensions and differences in perspectives.

We listened and probed during this year of dialogue and discovery. Now, upon reflection, we draw the following initial observations and conclusions.

We have been persuaded of the need to look beyond the three distinct technical methods defined in the Nuclear Fuel Waste Act (NFWA), to design a full management approach. We have studied each of the three methods in the NFWA – deep geological disposal in the Canadian Shield, storage at nuclear reactor sites, and centralized storage – and we believe that all three offer safe, secure technologies for the long-term management of used nuclear fuel. The methods that we have studied are well understood and are technically credible and viable methods. Deep geological disposal is in an advanced state of scientific and technical understanding internationally. Used fuel storage technologies have been demonstrated for many years at reactor sites in Canada. As we listen to what the public, including Aboriginal Peoples, is expressing to us, and consider the findings of our research, we believe the most profound challenge lies not in finding an appropriate technical method, but in the manner in which any of the management approaches is implemented. We therefore welcome the flexibility provided in the NFWA that enables us to look more broadly at other approaches to managing the used fuel. We will be considering the possibility of tailoring a fourth approach that might offer a preferable course, enabling this generation to take responsible steps forward in a way that ensures public safety, respects emerging science and preserves opportunity for future generations to shape decisions in the years to come.

Canadians must see their views reflected in the implementation plans we recommend. Much of the common ground that we uncovered in our study – presented by the general public, Aboriginal Peoples and experts alike – relates to principles and expectations for how decisions will be taken, how citizens should be involved, and how any management approach will be implemented and monitored over time. The manner of implementation will determine the effectiveness of any management approach, and the extent to which it is responsive to societal needs and concerns.

We accept as a guiding principle that – regardless of the chosen technical method – Canada should adopt a staged approach to implementation to allow us to proceed flexibly and most responsively to the values and concerns of Canadians, while incorporating new learning. The extended time-frame associated with any management approach, stretching out over many decades, underlines the need for a flexible step-wise development of the approach. As we develop implementation plans for each approach in our study, we will therefore consider how staging might best be designed to provide flexibility and opportunities for adjusting direction.

Safety is an overriding priority. From our assessments of the options to date, we believe that no management approach is likely to address perfectly all of the objectives that the general public and Aboriginal Peoples

LOOKING AHEAD

have identified as important. For example, practices which enhance a method's performance against one objective — such as security — may diminish its ability to address another objective, such as adaptability, for instance. Well-informed and reasonable people may disagree on how to assess a particular method, even against the same set of objectives. This disagreement might reflect different views on the nature of the future societal and environmental conditions under which the method would need to operate safely. For any management approach recommended, the NWMO will need to balance competing objectives. In so doing, safety will remain the fundamental objective.

We must confront difficult areas of risk and uncertainty. In the process of our study, citizens shared with us expectations for the management approach, but also their genuine fears and concerns about the uncertainties and the risks they associate with used nuclear fuel. As the NWMO develops its recommendation in the final study, we have a responsibility to be transparent about the way in which we have chosen to address the risks and uncertainties as we understand them. We will elaborate on our understanding of the nature of the hazard in our final study. We will be honest about the unknowns and where residual areas of uncertainty and risk remain in our minds.

It is equally incumbent upon us to identify and explain where we have confidence. We will highlight where science and technology - in study and in practical experience, and our understanding of the environment and handling of hazardous substances, offer evidence and insight that reduces our concern over risk. In response to the public's desire to hear more on particular areas of public concern – notably around transportation and security – we will report on these areas in more detail. We will address the extensive and important role of agencies and departments within the federal government in overseeing the implementation and operation of used fuel management. The Canadian Nuclear Safety Commission, Transport Canada and the Canadian Environmental Assessment Agency figure prominently in the implementation plans for the long-term management of used nuclear fuel, from decisions supporting siting, construction and operation of nuclear facilities, and the movement of radioactive materials.

At the end of the day, the NWMO will have to exercise its own best judgment in arriving at a recommendation for the Government of Canada. There is no single formula or lens through which to assess the management options. Nor can quantitative analysis alone lead us to our conclusions. We have sought expertise from disciplines ranging from science and engineering and Traditional Aboriginal Knowledge to social sciences that allowed us to understand the ethical and societal considerations. We have benefited from a vast amount of technical and engineering research that predated the NWMO, and we commissioned new research. It is now our responsibility to bring together this learning to formulate recommendations. In so doing, the NWMO will be exercising its best judgment as to how to meet the values, principles and objectives articulated by Canadians.

LOOKING AHEAD

It is essential that, as society moves through its extended decision-making process, the dialogue we have begun continue and grow in the years to come. Our assessment of the management approaches will be completed by November 15, 2005, but our engagement with the Canadian public and with Aboriginal Peoples is just beginning. Through a diverse engagement program we have sought to know and develop an ongoing dialogue with many communities of interest. In so doing we have laid the foundation for a longer-term relationship that will be essential as Canada moves through subsequent phases of decision-making and implementation.

The NWMO will need to earn the public's trust and confidence. By November 15, 2005, we will present our study to the Minister of Natural Resources Canada. It will be the culmination of three years of careful study in which we undertook to conduct a comprehensive, balanced and objective assessment of the management options. We began this study with open minds, explored the many sides to the issue. We will be reporting on findings that we arrived at independently.

Notwithstanding our efforts to conduct a transparent, open and inclusive study process, we recognize that there are those who remain concerned about the objectivity of the NWMO under an industry-based Board of Directors. We must continue to seek to earn the trust of the public.

Meeting Our Final Study Milestones

Key milestones for 2005 are:

- Analysis. We will complete the comparative assessment of management approaches.
- Management Approach and Implementation Plan. We will spend much of 2005 developing our recommendations to the Government of Canada.
- Draft Study Report. In the course of 2005, we will share our completed assessment and recommended management approach in draft form for public discussion and comment.
- Engagement. We will invite a dialogue about our draft study report to test and validate the NWMO's draft recommendations with the general public and Aboriginal Peoples. We will continue the dialogues already begun, including the collaborative work with Aboriginal Peoples through their national, regional and local organizations.
- Refinement. We will refine our study as we consider the comments received.
- Final Submission. We will submit our final study to the Minister of Natural Resources Canada. It will include the comments of the Advisory Council and a summary of the comments received through our engagement processes with Aboriginal Peoples and the general public.

MILESTONE DOCUMENTS

Asking the Right Questions? Discussion Document 1, published in November 2003, invited public comment on the issues and questions to be addressed in the study themselves, as we prepared to examine the different approaches for the long-term management of Canada's used nuclear fuel.

Understanding the Choices. Discussion Document 2, published in September 2004, built upon the discussion and feedback from the first document. It invited comment on our preliminary analysis of the different management approaches.

Choosing a Way Forward (Draft). In the spring of 2005, we will publish a draft set of recommendations and propose implementation plans for review and comment. Using the earlier documents and the dialogue they have fostered as a foundation, the draft study report will provide a refined comparative assessment of the management approaches we have been studying.

Choosing a Way Forward. By November 2005, we will publish our final study report and submit it to the Minister of Natural Resources Canada. It will include a final comparative assessment of the management approaches and implementation plans; our final recommendations; a summary of public commentary on the alternative approaches, including implementation strategies; and the Advisory Council's independent comments on the study and the proposed approaches.

The Advisory Council >
The Trust Funds >
The Corporate Profile >

The Nuclear Fuel Waste Act requires the NWMO to create a broadly based Advisory Council to examine and provide written comments on the NWMO study and recommendations. The Advisory Council must provide comments on the NWMO's study and each of the proposed management approaches. The NWMO must submit the Council's comments to the Minister of Natural Resources Canada, and make those comments available to the public.

THE ADVISORY COUNCIL

Operations

In the fall of 2002, the NWMO's Board of Directors established an Advisory Council in response to the requirements of the Nuclear Fuel Waste Act (NWFA). The Advisory Council's statutory responsibility is to review and comment independently on the approaches considered in the NWMO's study. This work is to be included and made public when the study is submitted to the Minister of Natural Resources Canada.

In addition, the Advisory Council has agreed to provide the NWMO with arms-length guidance throughout the study period. For example, Council members have been providing comment and advice on our approach to public engagement, as well as the design of processes and work plans supporting our study.

The Advisory Council has structured its meetings to reflect these two key work streams.

- Council members identify issues or questions that they would like the NWMO to address in support of their independent role in commenting on the study.
- Meetings include in-camera sessions for private deliberations among Council members.
- In addition, at each meeting the President of the NWMO provides a detailed report of the organization's work and invites Council discussion on key elements of the study plan.

In the course of the year, the Advisory Council established a Sub-Committee on Aboriginal Engagement to consider this important component of the NWMO's mandate. The Sub-Committee receives ongoing progress reports on plans for engagement with Aboriginal Peoples, reviews the input from these engagement activities, and provides the organization with advice and guidance. Sub-Committee members include the Honourable David Crombie (Advisory Council Chair), Mr. Donald Obonsawin and Dr. Frederick Gilbert.

The NWMO has instituted processes to keep the Council informed about the overall status of the study within the organization such as written monthly progress reports and oral reports at each Council meeting. Furthermore, the Chair of the Advisory Council has direct access to the Board's deliberations at all of its meetings, enabling both the Board and Council to be fully informed about each other's thinking as it evolves. Each year, Board and Advisory Council members exchange views informally.

During 2004, the Advisory Council held six formal meetings. At the Advisory Council's request, records of its meetings are publicly available at www.nwmo.ca.

Throughout the year, Council members also convene between meetings for informal discussions and conference calls.

THE ADVISORY COUNCIL

2004 Activities

In 2004, the Advisory Council devoted significant time to considering how best to meet its statutory obligations. In order to prepare for its independent comments that will be submitted to the Minister of Natural Resources Canada in November 2005, Council members convened private sessions without the presence of NWMO management.

The NWMO has sought to equip the Advisory Council with the information and resources it needs to support its careful consideration of the NWMO study and management approaches. In some instances, Council members have identified matters for which they would like to have additional information or briefings. In other areas, they have proactively offered their own technical briefings on topical issues.

Responding to areas of interest identified by the Advisory Council, the NWMO arranged for a number of meetings to provide a full spectrum of perspectives, important context and information in support of the Council's mandate. For example, the Advisory Council met representatives of Nuclear Waste Watch, a network of 34 organizations concerned about high-level radioactive waste and nuclear power in Canada. The Advisory Council also invited the convener of the NWMO's 2003 Traditional Aboriginal Knowledge Workshop to address the topic of drawing on Aboriginal wisdom to formulate ethical guidelines, and ways to incorporate traditional Aboriginal management systems. Representatives of the United Church of Canada were invited to meet with the Advisory Council to review their advocacy positions on nuclear issues and their views on some of the societal and ethical considerations.

The Advisory Council requested a presentation from the Roundtable on Ethics in order to understand and comment upon the ethical and social framework they had developed. The Canadian Policy Research Networks (CPRN) reported directly on the findings from the national citizens' dialogue, a highlight of the NWMO's research into citizen values in 2004.

These guest presentations complement those initiated in 2003 on a variety of technical, social and regulatory issues. The Advisory Council is continuing to receive guest presentations in 2005, to expand the scope of perspectives heard.

Through external site visits, the Advisory Council gained an international perspective. The NWMO invited one Council member to attend and report on a conference in Europe to help track developments in long-term waste management in other jurisdictions. Another Council member participated in a site visit to Finland, to learn more about planning for the long-term management of used nuclear fuel.

THE ADVISORY COUNCIL

Throughout the year, the Council provided advice and valuable input to the NWMO as it structured its public engagement activities. Of particular significance was its focus on the NWMO's engagement with Aboriginal Peoples. The Council's Sub-Committee on Aboriginal Engagement reviewed and guided the implementation of the program to ensure that the study contributions of the Aboriginal Peoples and their Traditional Knowledge would be reflected effectively in the NWMO's work.

The President of the NWMO also sought the Advisory Council's advice on the breadth, focus and structure of the public engagement plans and public reports. Drawing from their respective backgrounds and experiences, Council members advised management on ways to seek a meaningful dialogue with Canadians. They provided guidance on the structure of both the draft annual report and the public discussion document released in 2004.

The NWMO's discussions with the Advisory Council included a regular review of the public comments from the various citizens' dialogues and public opinion research. Together, Council and management considered the best way to address these comments in the broader context of the study. Council members observed public engagement activities personally, to hear first-hand the range of issues, concerns and suggestions relating to the long-term management of used nuclear fuel. Some Council members attended the national citizens' dialogue sessions, the national and regional meetings, and the public information and discussion sessions.

The NWMO's work plans relating to the assessment of management approaches were presented to the Advisory Council for their review and comment. Specifically, the Council received members of the Assessment Team to discuss their methodology and findings from the preliminary assessment of options.

THE TRUST FUNDS

The Nuclear Fuel Waste Act assigns responsibility to the major owners of used nuclear fuel for the financing of its long-term management.

Under the NFWA, Ontario Power Generation Inc., New Brunswick Power Corporation (NB Power), Hydro-Québec and Atomic Energy of Canada Limited are required to establish trust funds, into which they must make annual payments. The Act specifies the amounts of the required payments for each company.

The following initial amounts were deposited to the trust funds in 2002:

ONTARIO POWER GENERATION INC.	$500,000,000
HYDRO-QUÉBEC	$20,000,000
NEW BRUNSWICK POWER CORPORATION	$20,000,000
ATOMIC ENERGY OF CANADA LIMITED	$10,000,000

Further contributions were deposited to the trust funds in 2003:

ONTARIO POWER GENERATION INC.	$100,000,000
HYDRO-QUÉBEC	$4,000,000
NEW BRUNSWICK POWER CORPORATION	$4,000,000
ATOMIC ENERGY OF CANADA LIMITED	$2,000,000

In 2004, consistent with the legislation, the four corporations made further contributions to their respective trust funds in the amounts indicated below:

ONTARIO POWER GENERATION INC.	$100,000,000
HYDRO-QUÉBEC	$4,000,000
NEW BRUNSWICK POWER CORPORATION	$4,000,000
ATOMIC ENERGY OF CANADA LIMITED	$2,000,000

These legislative obligations are the responsibilities of the individual companies named, and not the responsibility of the NWMO. The trust funds are noted here because of their significance in the overall provision for long-term nuclear waste management.

As required by the Nuclear Fuel Waste Act, the NWMO makes public the audited financial statements of the trust funds when they are provided by the financial institutions annually.

The NWMO may only have access to these funds for the purpose of implementing the management approach selected by the Government, once a construction or operating licence has been issued under the Nuclear Safety and Control Act (NSCA).

The Corporation

Legislative Underpinnings

The Nuclear Waste Management Organization (NWMO) operates as a not-for-profit corporation under Part II of the Canada Corporations Act.

Its mandate is defined by in the Nuclear Fuel Waste Act, brought into force November 15, 2002.

The NWFA requires the major owners of nuclear fuel waste to establish the waste management organization to:

- Propose approaches for the management of nuclear fuel waste to the Government of Canada; and
- Implement the approach that is chosen by the Government of Canada.

The NWFA assigns financial responsibility to the nuclear energy corporations through the obligation to establish and fund the NWMO's operations and study. Accordingly, Ontario Power Generation Inc., NB Power and Hydro-Québec were founding members of the NWMO. Consistent with their statutory obligations, these member companies developed formal cost-sharing provisions for the NWMO's annual operating budget. Together, these corporations developed the underlying governance structures for the NWMO.

The NWMO is to carry out the managerial, financial and operational activities to implement the long-term management of nuclear fuel waste. In the early part of its mandate, the NWMO is to investigate approaches for managing Canada's used nuclear fuel, recommend an approach, and report regularly to the Government of Canada. The NWMO is required to consult the general public, and in particular Aboriginal Peoples, on each of the proposed approaches.

Under the NWFA, the NWMO must study the following technical methods, at a minimum:

- Deep geological disposal in the Canadian Shield[1];
- Storage at nuclear reactor sites; and
- Centralized storage, either above or below ground.

The NWMO may study other methods as well.

The NWFA provides a three-year timeline within which the NWMO must complete its public consultations and submit the study and recommendations to Government.

- The study is to be submitted to the Minister, and made public, within three years of the Nuclear Fuel Waste Act coming into force (by November 15, 2005).

[1] Based on the concept described by Atomic Energy of Canada Limited (AECL) in the ***Environmental Impact Statement on the Concept for Disposal of Canada's Nuclear Fuel Waste*** and taking into account the views of the environmental assessment panel set out in the ***Report of the Nuclear Fuel Waste Management and Disposal Concept Environment Assessment Panel,*** dated February 1998.

THE CORPORATE PROFILE – THE CORPORATION

Under the NWFA, nuclear energy corporations (Ontario Power Generation Inc., NB Power and Hydro-Québec) as well as AECL must establish trust funds, into which they must deposit annual payments to finance the long-term management of used nuclear fuel following a Government decision. This legislation specifies the annual contributions to the trust funds required of each of the four corporations.

The Act mandates federal government oversight of the process. The NWMO must submit annual reports to the Minister of Natural Resources, and is required to make these reports available to the public.

Operations

As of the end of the 2004 financial year, the NWMO was operating with a full-time complement of 13 individuals, including the President.

THE HEAD OFFICE OF THE NUCLEAR WASTE MANAGEMENT ORGANIZATION (NWMO) IS LOCATED AT 49 JACKES AVENUE, FIRST FLOOR, TORONTO, ONTARIO, M4T 1E2.

The Board of Directors

The Nuclear Fuel Waste Act (NFWA) required Canada's nuclear energy corporations to establish the NWMO. The composition of the NWMO Board of Directors is consistent with the NFWA, reflecting the Government of Canada's "polluter pay" principle.

The NWMO's Board of Directors is currently composed of six directors who represent Canada's three main producers of used nuclear fuel – Ontario Power Generation Inc., Hydro-Québec and NB Power.

The Board met nine times in 2004. In addition, the Board met periodically during the year with the Advisory Council. The Board directs that the minutes of its meetings be posted on the NWMO's corporate website (www.nwmo.ca).

The Board is responsible for overseeing the overall administration and governance of the NWMO, including the approval of annual budgetary provisions.

In 2004, the Board continued to review and refine internal operating policies and procedures in support of strong governance practices. The Board reviewed and approved the 2004 audited financial statements and presented these to the NWMO Members at the Members' annual general meeting. The Board received updates on the organization's budgetary expenditures in 2004, provided approval for large contracts and received status reports on progress in implementing the 2004 business plan.

In the fall of 2004, the Board addressed the budgetary requirements for the NWMO's 2005 fiscal year. Having reviewed the timetable, milestones and reviews required for the preparation of the Draft Study Report planned for 2005, the Board approved the 2005 business plan proposed by the NWMO. The business plan articulates the continuing phases of public engagement and analytical work in support of the study completion by November 2005, consistent with legislative requirements under the NWFA.

The Board's Audit, Finance and Risk Committee is comprised of three members of the Board of Directors. The Committee met four times in 2004. It provided oversight of the external audit of the NWMO's 2003 financial statements. It advised on the selection of the external auditors and terms of the audit service plan, and met with the external auditors to discuss the audit findings. The agenda provides for a regular review of potential business risk, as well as ways to identify and manage those risks. Members reviewed and made recommendations on the NWMO's financial and accounting policies and practices, with a view to ensuring that proper internal controls are in place. The Committee reviewed in-year budget projections, quarterly financial statements and key elements proposed by the President for the 2005 Business Plan in advance of presentation to the Board of Directors.

At the request of the Chairman of the Board, Director Ken Nash has assumed the role of Acting Chairman for an interim period.

In October 2004, René Pageau, Director, Gentilly-2 Refurbishment Project, Hydro-Québec retired from the NWMO's Board. Hydro-Québec appointed Michel R. Rhéaume as its new Director on the Board.

THE CORPORATE PROFILE – THE BOARD OF DIRECTORS

Board of Directors

LAURIE COMEAU
Manager, Personnel Safety and Environment
Point Lepreau Generating Station, NB Power

KEN NASH, CHAIRMAN*
Vice President
Nuclear Waste Management
Ontario Power Generation Inc.

FRED LONG
Vice President
Financial Planning
Ontario Power Generation Inc.

RENÉ PAGEAU
Director, Gentilly-2 Refurbishment Project
Hydro-Québec
Through to October 18, 2004

ADÈLE MALO
Vice President, Law & General Counsel; Vice President, Sustainable Development; Interim Corporate Secretary, Ontario Power Generation Inc.

MICHEL R. RHÉAUME
Licensing Manager
Gentilly-2 Refurbishment Project
Hydro-Québec
Appointed October 18, 2004

Officers

ELIZABETH DOWDESWELL
President

FRED LONG
Treasurer

KATHRYN SHAVER
Corporate Secretary

** At the request of Richard Dicerni, Mr. Nash assumed the role of Acting Chairman for an interim period.*

THE CORPORATE PROFILE – THE ADVISORY COUNCIL

The Advisory Council

Pursuant to, the Nuclear Fuel Waste Act, the NWMO established an arms-length, independent Advisory Council in 2002. It is composed of individuals knowledgeable in nuclear waste management issues and experienced in working with citizens and communities on a range of difficult public policy issues.

The Act mandates the Advisory Council to examine and provide to the NWMO its independent written comments on the study and the proposed approaches. Advisory Council comments provided to the NWMO will be included in the NWMO's study that is submitted to government, and made public.

In addition to commenting on the management approaches and the NWMO study, the Advisory Council will make important contributions to the organization through its ongoing advice and guidance to the NWMO Board of Directors and the President. For example, the Advisory Council will:

- Seek to ensure that the views of the public and communities of interest are considered and are reflected in a thoughtful, balanced way in the proposed approaches and reports of the NWMO;
- Assist the NWMO in ensuring that its processes are of good quality and are open, transparent, thorough and sound; and
- Regularly comment on the manner in which the NWMO discharges its responsibilities.

Council members are appointed for four-year terms. There are currently nine members of the Advisory Council.

Members of the Advisory Council are:

HONOURABLE DAVID CROMBIE – CHAIRMAN

The Honourable David Crombie is the current President and CEO of the Canadian Urban Institute and Chair of Ontario Place. He is a past mayor of the City of Toronto and a Privy Councillor. Mr. Crombie was the first Chancellor of Ryerson University and is the recipient of honorary doctorates of law from the University of Toronto and the University of Waterloo. Mr. Crombie is an Officer of the Order of Canada.

DAVID CAMERON

David R. Cameron is a Professor of Political Science at the University of Toronto and a Fellow of the Royal Society of Canada. He has held a number of senior government positions in both the federal and Ontario civil services. He continues to advise on a wide range of governmental issues.

HELEN COOPER

Helen Cooper has devoted most of her professional career to strategic planning and development for broader public sector and not-for-profit organizations. She has practiced as a mediator and adjudicator in dispute resolution and has taught courses in urban planning at both Queen's

THE CORPORATE PROFILE – THE ADVISORY COUNCIL

University and the University of Waterloo. She is a former mayor of Kingston, Ontario and a former president of the Association of Municipalities of Ontario.

GORDON CRESSY

Gordon Cressy is the President of the Canadian Tire Foundation for Families. A past President of the United Way of Greater Toronto, he has held Vice-President positions at both the University of Toronto and Ryerson University. Mr. Cressy has a lengthy record of community involvement.

FREDERICK GILBERT

Frederick Franklin Gilbert is the President of Lakehead University in Thunder Bay, Ontario. He has had an extensive teaching, research and administrative career in the United States and Canada and has held several environmental and wildlife management public service appointments and positions. His research interests included resource management and the sustainable use of the natural environment.

EVA LIGETI

Eva Ligeti is the Executive Director of the Clean Air Partnership, a non-profit organization with a mandate to make Toronto more environmentally sustainable and a world leader in clean air. A lawyer, she served as Ontario's first Environmental Commissioner from 1994 to 1999.

DEREK LISTER

Derek Lister is the Chairman of the Chemical Engineering Department at the University of New Brunswick in Fredericton, where he also holds the Research Chair in Nuclear Engineering. His main research interests are in the areas of chemistry and corrosion associated with nuclear systems.

DONALD OBONSAWIN

Donald Obonsawin is the President and CEO of Jonview Canada Inc. He has been Deputy Minister of seven Ontario government ministries over a 15-year period. He has also held senior positions with the federal departments of Indian Affairs and Northern Development and Health and Welfare Canada.

DANIEL ROZON

Daniel Rozon is a Professor of Engineering Physics at l'École Polytechnique de Montréal. A fellow of the Canadian Nuclear Society, he is a specialist in reactor physics, with research interests in nuclear fuel management optimization. He was the director of the Nuclear Engineering Institute (l'Institut de génie nucléaire) for more than 15 years. A recognized expert on nuclear affairs, he is often called upon to discuss and advise on current issues in the sector.

AUDITORS' REPORT, FINANCIAL STATEMENTS & NOTES

MANAGEMENT'S RESPONSIBILITY FOR FINANCIAL REPORTING

The accompanying Financial Statements of the Nuclear Waste Management Organization (NWMO) are the responsibility of management and have been prepared in accordance with Canadian generally accepted accounting principles. When alternative accounting methods exist, management has chosen those it considers most appropriate. The preparation of financial statements necessarily involves the use of estimates based on management's judgement, particularly when transactions affecting the current accounting period cannot be finalized with certainty until future periods. The financial statements have been properly prepared within reasonable limits of materiality and in light of information available up to January 28, 2005.

Management maintains a system of internal controls which are designed to provide reasonable assurance that financial information is relevant, reliable and accurate and that assets are safeguarded and transactions are executed in accordance with management's authorization. The system is monitored and evaluated by management.

The financial statements have been examined by Deloitte & Touche LLP, independent external auditors appointed by the Members. The external auditors' responsibility is to express their opinion on whether the financial statements are fairly presented in accordance with Canadian generally accepted accounting principles. The Auditors' Report outlines the scope of their examination and their opinions.

February 16, 2005

Elizabeth Dowdeswell
President

Fred Long
Treasurer

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AUDITORS' REPORT

To the Directors of the
Nuclear Waste Management Organization

We have audited the statement of financial position of the Nuclear Waste Management Organization (NWMO) as at December 31, 2004 and the statements of operations, changes in net assets and cash flows for the year then ended. These financial statements are the responsibility of the NWMO's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we plan and perform an audit to obtain reasonable assurance whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation.

In our opinion, these financial statements present fairly, in all material respects, the financial position of the NWMO as at December 31, 2004 and the results of its operations and its cash flows for the year then ended in accordance with Canadian generally accepted accounting principles.

Deloitte & Touche LLP

Chartered Accountants
Toronto, Ontario
January 28, 2005 except for Note 6 which is dated February 16, 2005.

STATEMENT OF FINANCIAL POSITION

Statement of Financial Position

AS AT DECEMBER 31, 2004	2004	2003
ASSETS		
CURRENT		
Cash and Cash Equivalents	$ 2,566,966	$ 856,784
Accounts Receivable (NOTE 4)	187,250	1,980,132
Prepaid Expenses and Deposits	10,200	-
	2,764,416	2,836,916
CAPITAL ASSETS (NOTE 3)	159,774	206,354
	$ 2,924,190	$ 3,043,270
LIABILITIES		
CURRENT		
Accounts Payable and Accruals (NOTE 4)	$ 2,117,291	$ 1,208,533
Payable to Members (NOTE 5)	61,591	-
	$ 2,178,882	$ 1,208,533
COMMITMENT (NOTE 8)		
NET ASSETS		
Invested in Net Capital Assets	$ 159,774	$ 206,354
Internally Restricted (NOTE 6)	585,534	1,628,383
	745,308	1,834,737
	$ 2,924,190	$ 3,043,270

APPROVED BY THE BOARD OF DIRECTORS, FEBRUARY 16, 2005:

K. E. Nash

KEN NASH, DIRECTOR, TORONTO, CANADA

A Malo

ADÈLE MALO, DIRECTOR, TORONTO, CANADA

STATEMENT OF OPERATIONS & STATEMENT OF CHANGES IN NET ASSETS

Statement of Operations

YEAR ENDED DECEMBER 31, 2004

	2004	2003
REVENUE		
Member Contributions	$ 8,000,000	$ 7,400,000
Other Income (NOTE 7)	20,037	35,938
	$ 8,020,037	$ 7,435,938
EXPENDITURES		
Administration (Note 4)	$ 2,210,395	$ 2,013,197
Stakeholder Consultation & Communications	4,569,392	2,267,554
Research and Analysis	2,033,016	1,175,617
Advisory Council	217,986	204,285
Amortization	78,677	55,152
	9,109,466	5,715,805
EXCESS (DEFICIENCY) OF REVENUE OVER EXPENDITURES	$ (1,089,429)	$ 1,720,133

Statement of Changes in Net Assets

YEAR ENDED DECEMBER 31, 2004

	2004				2003
	Invested in Capital Assets	Internally Restricted	Unrestricted	Total	Total
BALANCE, BEGINNING OF YEAR	$ 206,354	$ 1,628,383	$ -	$ 1,834,737	$ 114,604
USE OF RESTRICTED FUNDS TO SUPPLEMENT THE BUDGET (NOTE 6)	-	(1,628,383)	1,628,383	-	-
EXCESS (DEFICIENCY) OF REVENUE OVER EXPENDITURES	(78,677)	-	(1,010,752)	(1,089,429)	1,720,133
INVESTED IN CAPITAL ASSETS	32,097	-	(32,097)	-	-
INTERNALLY IMPOSED RESTRICTIONS (NOTE 6)	-	585,534	(585,534)	-	-
BALANCE, END OF YEAR	$ 159,774	$ 585,534	$ -	$ 745,308	$ 1,834,737

STATEMENT OF CASH FLOWS

Statement of Cash Flows

YEAR ENDED DECEMBER 31, 2004	2004	2003
NET INFLOW (OUTFLOW) OF CASH RELATED TO THE FOLLOWING ACTIVITIES		
OPERATING		
Cash received from member contributions	$ 10,402,223	$ 6,121,510
Interest received on short-term investments	20,037	22,484
	$ 10,422,260	$ 6,143,994
Cash paid for materials and services	(8,679,981)	(6,188,875)
	1,742,279	(44,881)
INVESTING		
Purchase of capital assets	(32,097)	(146,902)
NET INCREASE (DECREASE) IN CASH AND SHORT-TERM INVESTMENTS	1,710,182	(191,783)
CASH AND CASH EQUIVALENTS, BEGINNING OF YEAR	856,784	1,048,567
CASH AND CASH EQUIVALENTS, END OF YEAR	$ 2,566,966	$ 856,784

NOTES TO THE FINANCIAL STATEMENTS

1. PURPOSE OF ORGANIZATION

Nuclear Waste Management Organization (NWMO) is a not-for-profit corporation without share capital, established under the Canada Corporations Act, 1970 ("the Act"), as required by the Nuclear Fuel Waste Act (Canada), 2002 (NFWA) which came into force November 15, 2002.

The NFWA requires electricity-generating companies which produce used nuclear fuel to establish a waste management organization. Under the NFWA, the NWMO must establish an Advisory Council, conduct a study and provide recommendations on the long-term management of used nuclear fuel to the Government of Canada within 3 years of the NFWA coming into force. In conducting this study the NWMO must utilize a wide-ranging public consultation process and seek the input of its Advisory Council. As part of the long-term mandate, the NWMO must implement and operate the management approach that is selected by the Government of Canada to address used nuclear fuel.

The NWMO formally began operations on October 1, 2002. Its founding members are Hydro-Québec, NB Power, and Ontario Power Generation Inc., ("Members") – which are Canadian companies that currently produce used nuclear fuel as a by-product of electricity generation.

Pursuant to a Membership Agreement, the costs of the NWMO are shared pro rata by the Members based on the number of used fuel bundles owned by each member.

2. SIGNIFICANT ACCOUNTING POLICIES

Basis of Presentation

These financial statements of the NWMO are the representations of management prepared in accordance with accounting standards for not-for-profit organizations established by the Canadian Institute of Chartered Accountants using the deferral method of reporting restricted contributions. The significant accounting policies adopted by the NWMO are as follows:

Capital Assets

Capital assets are recorded at cost. Amortization is provided for on a straight-line basis over their estimated useful lives as follows:

Furniture	7 years
Computer equipment	3 years

Cash and Cash Equivalents

Cash equivalents represent short-term investment funds deposited in money market account.

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

Deferred Member Contributions
Contributions are recognized as revenue in the year in which the related expenses are incurred. Contributions received in excess of expenditures are recorded as deferred member contributions.

Income Tax
The NWMO is a not-for-profit organization and, pursuant to section 149(1)(1) of the Income Tax Act, is not subject to income tax.

Fair Value of Financial Instruments
The carrying values of cash, accounts receivable and accounts payable and accruals approximate the fair values on a discounted cash flow basis because of the near term nature of these instruments.

Use of Estimates
The preparation of financial statements in conformity with Canadian generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosures of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Due to the inherent uncertainty in making estimates, actual results could differ from those estimates.

3. CAPITAL ASSETS

	2004			2003
	Cost	Accumulated Depreciation	Net Book Value	Net Book Value
Furniture	$ 92,317	$ 21,491	$ 70,826	$ 75,858
Computer Equipment	210,340	121,392	88,948	130,496
	$ 302,657	$ 142,883	$ 159,774	$ 206,354

4. RELATED PARTY TRANSACTIONS AND BALANCES

Transactions during the year	2004	2003
Contributions received:		
Ontario Power Generation Inc.	$ 7,300,000	$ 6,700,000
NB Power	350,000	350,000
Hydro-Québec	350,000	350,000

4. RELATED PARTY TRANSACTIONS AND BALANCES (CONTINUED)

	2004	2003
Productions and services acquired from:		
Ontario Power Generation Inc.		
Office furniture	$ -	$ 1,971
Managerial services	904,527	848,689
Balances outstanding		
Due to Ontario Power Generation Inc. (included in accounts payable and accruals)	$ 204,591	$ 82,410
Amounts due from and included in accounts receivable		
Ontario Power Generation Inc.	$ -	$ 1,835,305
NB Power	93,625	109,328
Hydro-Québec	93,625	35,499

5. PAYABLE TO MEMBERS

	2004	2003
Balance, beginning of year	$ -	$ 736,198
Excess payment by member	61,591	-
	$ 61,591	$ 736,198
Less amount refunded to members	$ -	$ (736,198)
Balance, end of year	$ 61,591	$ -

6. INTERNALLY RESTRICTED NET ASSETS (CONTINGENCY FUND)

The Board of Directors, on February 16, 2005, approved a transfer of deferred member contributions in the amount of $585,534 (2003 - $1,628,383) to internally restricted net assets (contingency fund) for future use.

7. OTHER INCOME

	2004	2003
Interest income	$ 20,037	$ 22,484
GST credits	-	13,454
	$ 20,037	$ 35,938

8. COMMITMENT

NWMO signed a 3-year sub-lease agreement for its offices at 49 Jackes Avenue, Toronto, Ontario effective December 1, 2002. The lease provides for the first month of occupancy to be rent-free, which is being amortized over the life of the lease. Annual total lease payments are $129,627 and are subject to adjustment for cost-sharing of common areas of the office that are shared with another tenant of the building and changes to operating costs over the term of the lease.

The estimated annual payment over the next year is as follows:

2005	$ 118,825

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