The Regional Municipality of Durham
To: The Planning Committee
From: Commissioner of Planning
Report No.: 2005-P-11
Date: January 25, 2005

SUBJECT:

Nuclear Waste Management Organization (NWMO) Document entitled "Understanding the Choices - The Future Management of Canada's Used Nuclear Fuel",
File: L14-19-02

RECOMMENDATIONS:

a) THAT the following comments and Commissioner's Report No. 2005-P-11 be forwarded to the Nuclear Waste Management Organization (NWMO), as Durham Region's response to the Discussion Paper entitled, "Understanding the Choices – The Future Management of Canada's Used Nuclear Fuel":

(i) Paramount consideration should be given to the health and safety of humans, societal well-being and the environment, now and in the future, in the selection of the long-term management approach for nuclear fuel waste;

(ii) Greater consideration must be given, in terms of "fairness" and "community well-being", to nuclear reactor host communities and communities in the vicinity of reactor sites, given that long-term storage of nuclear fuel waste at existing reactor sites was never proposed at the time the nuclear reactors were constructed;

(iii) Flexibility/adaptability must be incorporated into the economic considerations of the Assessment Framework, to ensure that technological advances can be taken advantage of in the future;

(iv) The Region continues to oppose long-term nuclear fuel waste storage at existing reactor sites. Long-term nuclear fuel waste management facilities should be located **away from** large and growing urban centres and the Great Lakes drinking water supply;

(v) If the selected long-term management approach is storage at reactor sites, details on the expected refurbishments, frequency of refurbishments and potential costs must be provided;

(vi) Details on the suitability and feasibility of storage on each of Canada's existing nuclear reactor sites must be provided, given that the Discussion Document suggests centralized storage may occur on an existing reactor site;

(vii) Clear information on the risks associated with the transportation of used nuclear fuel waste must be provided;

(viii) Detailed economic and financial information for each management approach must be provided. At a minimum, a full cost analysis is required, in order to understand how costs may vary from site to site;

(ix) Regardless of which long-term management approach is implemented, information on the costs that will be incurred by the Region with respect to matters such as emergency preparedness, security measures, municipal infrastructure and associated community impacts, must be provided;

(x) Detailed information with respect to funding, including how funds will be raised, invested and sustained between now and the time when waste management costs are actually incurred, must be provided;

(xi) The Region must have an ongoing, long-term role in future decisions on any nuclear fuel waste management approach to ensure that the Region's interests, financial and otherwise are protected;

(xii) The NWMO must acknowledge that each of the long-term management approaches for nuclear fuel waste presents significant continuing risks for this Region. This should be a fundamental basis for considering any management approach;

(xiii) The impact of the cost of each long-term management approach on the price of power, and on the economy and consumers, must be provided;

(xiv) There is concern that the long-term management approach of storing nuclear fuel waste at existing reactor sites, is being put forward as a default option. The other two approaches may not be feasible if a "willing host community" is not found;

(xv) Information on how other countries address the issue of long-term management and best practices of nuclear fuel waste must be provided;

(xvi) The Implementation Plan must require monitoring to commence as soon as the first container of waste is received by the long-term nuclear fuel waste facility that is ultimately constructed;

(xvii) The NWMO should make every effort to engage the public in its Study process; and

(xviii) In collaboration with the Canadian Policy Research Networks, the NWMO should hold dialogue sessions with randomly selected residents of Durham, to determine whether citizen values and concerns of nuclear host communities differ from other communities; and

b) THAT a copy of Commissioner's Report No. 2005-P-11 be forwarded to the Nuclear Waste Management Organization, the area municipalities, Durham's MPs and MPPs, and the Canadian Association of Nuclear Host Communities.

REPORT:

1. PURPOSE

1.1 The purpose of this Report is to provide the Region's response to the Nuclear Waste Management Organization's ("NWMO") document entitled

"Understanding the Choices – The Future Management of Canada's Used Nuclear Fuel" ("the Discussion Document").

2. BACKGROUND

2.1 In November 2002, the federal Nuclear Fuel Waste Act came into force, providing a legal framework to enable the federal government to make a decision on the long-term management of used nuclear fuel waste. Subsequently, the federal government established the Nuclear Waste Management Organization (NWMO) to undertake a Study of long-term management approaches for used nuclear fuel waste. At a minimum, the Act requires the NWMO to consider 3 long-term management approaches for nuclear fuel waste: storage at existing reactor sites; centralized storage; and deep geological disposal. The Act also requires that the NWMO recommend a management approach to the federal government by November 15, 2005.

2.2 In November 2003, the NWMO released a discussion document for public comment, the first of a three part Study. Subsequently, on June 16, 2004, the Region commented on NWMO's first discussion document "Asking the Right Questions" (Commissioner's Report No. 2004-P-51 - refer to Attachment 1).

2.3 In September 2004, the NWMO released its second Discussion Document, entitled "Understanding the Choices – The Future Management of Canada's Used Nuclear Fuel". Between October and December 2004, the NWMO hosted facilitated Discussion Sessions and Community Information Sessions/Open Houses in Pickering and Clarington. In November, the NWMO conducted a facilitated discussion session with the Durham Nuclear Health Committee (DNHC).

2.4 It should be noted that the City of Pickering, Municipality of Clarington and Town of Ajax have also submitted responses to the NWMO on its second Discussion Document.

3. OVERVIEW OF "UNDERSTANDING THE CHOICES" – DISCUSSION DOCUMENT

3.1 The second Discussion Document, is presented in 3 Parts. The **first Part** reports on the results of consultation on the first discussion document, examining the values and priorities of Canadians in the consideration of long-term nuclear fuel waste management approaches. The NWMO concludes that the 10 questions presented in the first Discussion Document are a good starting point for the comparative assessment of management approaches. The questions are rooted in the values and ethical considerations Canadians bring to bear on long-term nuclear waste management.

3.2 The **second Part** describes the 3 long-term nuclear fuel waste management approaches that NWMO is studying (storage at existing reactor sites, centralized storage and deep geological disposal). It also describes an assessment framework, developed by a multi-disciplinary Assessment Team which was assembled by the NWMO. The proposed framework builds on the ten questions presented in the first discussion document, and the Canadian values and ethical considerations brought forward through the NWMO's past consultations. The framework is to be used as a way of comparing the 3 long-term management approaches. The Discussion Document then describes 8 objectives[1] to be used in evaluating the 3 long-term nuclear fuel waste management approaches.

Using the proposed assessment framework, the Assessment Team subsequently undertook a comparison of the 3 long-term management approaches. A description of each long-term nuclear fuel waste management approach and the comparative results of the Assessment Team's evaluation is presented in the Discussion Document. The Assessment Team's preliminary evaluation ranked the deep geological disposal option first, the centralized storage option second and storage at existing reactor sites last.

[1] The 8 objectives include: fairness, public health and safety, worker health and safety, community well-being, security, environmental integrity, economic viability and adaptability.

3.3 The **third Part** describes a number of requirements that Canadians have agreed, must form part of the selected nuclear fuel waste management approach; including:

- Action should be taken now, but in such a way as to ensure that future generations would be able to make decisions which reflect their own values and priorities, and incorporate new technical knowledge as it becomes available;

- The approach should be adaptable (i.e. capable of incorporating new technical knowledge as it becomes available);

- The approach should provide for phased decision-making (i.e. to ensure adaptability and provide for decisions to be taken in steps, over-time); and

- The approach should entail a robust system of governance, which provides opportunities for continued citizen engagement (so that citizens can understand the issues, remain informed and have a voice in decision making).

The above requirements address some of the comments presented in the Region's previous response to the NWMO.

3.4 The Discussion Document then outlines the next steps in the NWMO's workplan, and invites comments surrounding three key issues, namely:

- Is the assessment framework comprehensive and balanced? Are there gaps, and if so, what needs to be added?

- What are the strengths and limitations of each of the 3 management approaches?

- Are there specific elements that should be built into an Implementation Plan?

4. PEER REVIEWS OF NWMO DISCUSSION DOCUMENT

4.1 At the request of the Canadian Association of Nuclear Host Communities (CANHC) and the Town of Ajax, the NWMO provided peer review funding to enable independent reviews of their work. This effectively responded to the Region's previous request to provide peer review funding.

Canadian Association of Nuclear Host Communities (CANHC)

4.2 CANHC retained the consulting firm Acres-Sargent & Lundy (Chicago) to peer review of the second Discussion Document. Its findings were submitted to CANHC in mid-December. The consultant made several recommendations for improvements to the assessment framework and the evaluation of the management approaches. Additional considerations for inclusion in the Implementation Plans for the recommended management approach were also identified. The consultant recommends, among others, that the NWMO:

- improve its public consultation efforts;
- assess the overall impact of the selected management approach on the current nuclear host communities;
- incorporate a comparative assessment of the technical and financial risks related to the different approaches; and
- identify the types of permits/applications and timing for approvals for the selected management approach in the Implementation Plan.

Town of Ajax

4.3 The Town of Ajax retained the consulting firm ADH Technologies Inc. ("ADH"), to prepare an independent evaluation of NWMO's second Discussion Document. The ADH report provided a series of observations and recommendations, including that:

- overall, NWMO's second Discussion Document provides an adequate next step in laying out the complexity of the decision-making process and issues, and ultimately moving toward a considered recommendation;

- since the Town is in close proximity to the Pickering Nuclear Power Plant, the Town should engage the NWMO in ongoing discussion when the recommendation is released for public comment;

- the NWMO should undertake studies to address the potential life extension of the existing reactors, including the effects on host communities and communities in close proximity;

- the NWMO should monitor developments in other countries and, if applicable, use best practices and experiences to support NWMO's upcoming recommended long-term management approach; and

- the NWMO should continue to keep individuals, communities and organizations informed, and continue to seek input from communities that are likely to be most impacted.

5. COMMENTS

5.1 As requested, comments on the second Discussion Document focus on three main areas:

- the proposed Assessment Framework,
- the strengths and limitations of the management approaches; and
- Implementation Plan requirements.

Assessment Framework

5.2 To guide the assessment of each long-term nuclear waste management approach, the NWMO proposes an Assessment Framework consisting of factors that are important to Canadians (values and ethical principles). In addition, the framework includes 8 objectives that were developed by NWMO's Assessment Team to compare the management approaches (refer

to Footnote 1). In its evaluation of the management approaches, the Assessment Team appears to have given each of the 8 objectives equal weight. As stated in our first response to the NWMO, paramount consideration should be given to the health and safety of humans, societal well-being and the environment, now and in the future, in the selection of the long-term management approach for nuclear fuel waste.

5.3 Fairness (regionally and across generations) and community well-being are two of the objectives that are considered in the Assessment Team's analysis. Current nuclear reactor host communities have borne, and will continue to bear, for at least several more decades, the highest level of risk and impact among all Canadians. Dry storage facilities on existing reactor sites are expected to be only a temporary/interim solution. The waste was not to remain on these sites for the long-term. As fairness and ethical principles are elements of the Assessment Framework, this should be taken into account.

Furthermore, nuclear reactor host communities and communities in the vicinity of current reactor sites trusted the information that was provided at the time (i.e. that nuclear fuel storage on site was to be temporary). Some will feel betrayed if these sites are used for the long-term storage of nuclear fuel waste. It is unclear whether this commitment is given any weight in the analysis of "fairness" or "community well-being". Accordingly, it is suggested that the NWMO give greater consideration, in terms of "fairness" and "community well-being" to nuclear reactor host communities and communities in the vicinity of reactor sites in its Assessment Framework.

5.4 Because of the significant cost associated with any of the approaches, it seems likely that only one can be selected. However, this may not satisfy the objective of "adaptability". There is concern that the funding model to implement the solution may not be flexible enough to provide for a change in approach in the future. As noted in our previous Report, technological advances may provide new opportunities. Flexibility/adaptability should be better addressed in the Assessment Framework.

Management Approaches

5.5 As indicated in our previous Report, the Region should continue to oppose long-term management approach of storing nuclear fuel waste at existing reactor sites. The other management approaches provide for a greater distance – geographically – from large and growing urban centres, and the Great Lakes drinking water supply that serves large concentrations of population and businesses.

5.6 In describing the long-term management approach of storing nuclear fuel waste at existing reactor sites, the Discussion Document states that, "With periodic refurbishment, extended storage can be used indefinitely." The NWMO should provide the basis for this statement, a description of the expected refurbishments, their frequency and potential costs. Experience with restarting reactors has shown that costs and the extensiveness of refurbishments are often much greater than originally estimated.

5.7 Early in the Discussion Document, it is suggested that the centralized storage approach will have to be located on a new site. However, in the latter part of the Document (page 74), it is suggested that long-term centralized storage could take place "at an already existing nuclear site, if suitable". If centralized storage is being considered at an existing reactor site or sites, the NWMO should provide information on the suitability and feasibility of each of Canada's existing reactor sites for the centralized storage option, including short and long-term health and environmental risks.

5.8 Two of the long-term management approaches would require the transportation of nuclear waste to a central site, in another location. This would impact the nuclear reactor host communities and the communities along the transportation routes leading to the centralized storage or disposal site. Although the Discussion Document recognizes the need to address inherent risks through community participation and to thoroughly examine the impacts associated with transportation of nuclear waste, it does not address the potential risks associated with transporting the used nuclear fuel.

It is understood that nuclear waste is currently safely transported, in special, licensed containers in Canada and around the World. We therefore question why the transportation of nuclear waste is considered a "limitation" in the comparison of waste management approaches. By including the transportation of nuclear waste as a limitation for the centralized storage and deep geological disposal options, the comparative analysis becomes somewhat biased toward the storage at existing reactor sites. If a risk assessment however, determines that the transportation of nuclear waste is low/minimal, the NWMO should revise the comparative analyses accordingly.

While it is acknowledged that aspects of transporting nuclear waste are contained in background/technical reports prepared for the NWMO, such information, including the conclusions of a risk assessment, should be provided in the main document, so that it is more widely available and the risks associated with transporting nuclear waste are better communicated and understood by the public.

5.9 The Discussion Document acknowledges the need for further work on economic and financial considerations for each management approach. At a minimum, the economic analysis should provide a full cost analysis, including detailed budgets for each site, costs of handling/transporting wastes, site overhead costs, costs associated with regulatory requirements, operation and maintenance costs of each facility used for waste management and storage, and wages and benefits of workers. Such data is necessary to determine how costs vary from site to site, and should be provided to the public for review and comment.

5.10 Whether the nuclear fuel remains on a specific reactor site in Durham, or is shipped to a site outside of Durham, there are Regional costs that must be considered. Such costs include, but are not limited to: emergency preparedness, security measures, municipal infrastructure, source water protection and associated community impacts. These cost considerations need to be addressed for all the long-term management approaches that are being considered by the NWMO.

5.11 The Discussion Document does not provide any detailed information on the funding for long-term nuclear waste. It is important to address concerns, not only on how funds will be raised, but also on how the funds will be invested and sustained between now and the time when waste management costs are actually incurred.

5.12 Whether the nuclear fuel waste remains on a specific reactor site in Durham, or is shipped to a site outside of Durham, the Region must have an ongoing, long-term role in future decisions regarding any long-term nuclear fuel waste management approach. This will ensure that the Region will be at the table to protect its interests, financial or otherwise.

5.13 Whichever management approach is implemented, there would be significant continuing risks for this Region that the NWMO must acknowledge as a fundamental basis for considering any management approach. All of the approaches will require either transfer of used nuclear fuel from existing reactor sites or packaging and repackaging of used fuel into new storage containers. These activities would occur with every option, and continue as long as nuclear waste is produced.

5.14 The Discussion Document does not address whether the estimated costs of storage/disposal are considered "affordable" or "economically viable" in relation to the revenue stream generated by nuclear power production. The NWMO should provide information on current and future cost implications on the price of power in Ontario, and the impact of the additional costs on the economy and the consumer. Furthermore, it is not clear what will happen if we simply cannot afford the "best" option.

5.15 There is concern that the storage at existing reactor sites approach is being put forward as a default option. The other two approaches may not be feasible if a "willing host community" is not found. Consequently, the default solution would be to continue to store the used nuclear waste at existing reactor sites.

5.16 The Discussion Document states that the NWMO is reviewing the status of work and other methods globally, however it does not include this information

in the Discussion Document. As requested by the Town of Ajax, the NWMO should provide information on how other countries address the issue of long-term management and best practices of nuclear fuel waste.

Implementation Plan

5.17 The Discussion Document identifies monitoring requirements for the used nuclear fuel waste once it has all been deposited in the long-term facilities. Monitoring is to ensure that facility safety is being maintained, and that ongoing preventative maintenance and repair is undertaken. The Discussion Document suggests that such monitoring would commence only after **all** the used nuclear fuel waste is deposited in the facility, and that deposition of the waste would take between 25-35 years. To better ensure safety, it is suggested that monitoring commence as soon as the first container is placed in these facilities.

General

5.18 Overall, the turnout at the NWMO's Information and Discussion Sessions in Durham was considered low, ranging from 6-11 persons per session. It is suggested that public events must be better publicized, and held throughout the Region, not just in the lower tier nuclear host communities. Regardless of which long-term management approach is selected, Durham communities will all be affected – socially, environmentally and economically. Every effort should be made by the NWMO to engage the public.

5.19 It is noted that the NWMO collaborated with the Canadian Policy Research Networks (CPRN)[2] to explore the values of Canadians in thinking about long-term management of used nuclear fuel. The CPRN held "Citizen Dialogues" in 12 cities across Canada between January and March 2004. Participants were randomly selected from each City, and invited to a specific dialogue session in order to obtain a cross-section of opinions. None of these dialogue sessions were held in nuclear host communities. As such, it is not known

[2] CPRN is a not-for-profit policy think-tank, based in Ottawa. It uses public dialogue as a means to involve citizens more directly in research and public policy discussions on issues such as health care, quality of life indicators, Canada's children and aging.

whether citizen values and concerns of nuclear host communities differ from other communities. Accordingly, it is suggested that the NWMO should hold similar dialogue sessions in Durham.

6. NEXT STEPS

6.1 NWMO's third Discussion Document ("Choosing a Way Forward"), is expected to be released in draft form in Spring 2005. This document will present:

- A comparative assessment of management approaches and implementation plans;
- Advisory Council[3] and public comments on the approaches and implementation plans; and
- The NWMO's recommendations.

Following a public consultation period, the draft will be finalized and submitted to the Minister of Natural Resources Canada by November 15, 2005.

6.2 The Nuclear Fuel Waste Act does not specify when the final decision is to be made, however it is expected in 2006.

7. CONCLUSIONS

7.1 Overall, the NWMO's second Discussion Document effectively moves the Study process forward. There are areas however, where additional information is required and questions need to be answered, to better understand the conclusions that are being reached, and the direction NWMO's study is heading.

[3] In accordance with the Nuclear Fuel Waste Act, the NWMO has appointed an Advisory Council to provide independent comment on the Study and management approaches.

7.2 Many of the Region's comments on the NWMO's first Discussion Document remain applicable. The NWMO is requested to address the issues and questions that have been raised on both Discussion Documents.

7.3 It is recommended that this Report be forwarded to the NWMO as the Region's comments on its second Discussion Document. A copy of this Report should also be forwarded to the area municipalities, Durham's MPs and MPPs, and the Canadian Association of Nuclear Host Communities (CANHC).

7.4 This Report has been prepared in consultation with the area municipalities, the DNHC, DEAC, office of the Chief Administrative Officer, Durham Emergency Management, Durham Regional Police Service, and the Health, Works, Finance and Economic Development and Tourism Departments.

A.L. Georgieff, M.C.I.P., R.P.P.
Commissioner of Planning

RECOMMENDED FOR PRESENTATION TO COMMITTEE

Garry H. Cubitt, M.S.W.
Chief Administrative Officer

Attachment: 1. Planning Commissioner's Report 2004-P-51, June 8, 2004 (Region's response to NWMO's first Discussion Document)

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