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**COMMENTS OF THE UNITED CHURCH OF CANADA TO THE
NUCLEAR WASTE MANAGEMENT ORGANIZATION ON THE
DRAFT STUDY REPORT, *CHOOSING A WAY FORWARD***

September 23, 2005

Foreword

The United Church of Canada has actively participated in the Nuclear Waste Management Organization (NWMO) study process, through involvement in public dialogue sessions and workshops and formal submissions at earlier stages. These comments are intended to complement – not supersede – previous United Church submissions.

The United Church submissions to the NWMO have been mandated and endorsed by the Justice, Peace and Creation Advisory Group of the Justice, Global and Ecumenical Relations Unit within the General Council of the United Church of Canada. The principle writers of the current submission are Ms. Shirley Farlinger, Rev. Bob K. Fillier, Ms. Lisa Gue, Dr. David G. Hallman and Dr. Mary Lou Harley.

Unless otherwise specified, page numbers cited refer to *Choosing a Way Forward: Draft Study Report* (NWMO, May 2005).

Central Issue

The NWMO has selectively considered future production of nuclear waste in a way that undermines evaluation of social acceptability and could facilitate the misuse of their study report for promotion of nuclear power.

It is noted that “The National Energy Board’s report and the NWMO’s discussions with Canadians ...identified a need for the NWMO to explore future used fuel scenarios ...”(p.291) yet that exploration has been selectively limited to a review of the conceptual designs for

flexibility to accommodate increased nuclear fuel waste capacity in the future (p.106, p. 290) and an evaluation of the impact on the nuclear fuel waste transportation period and placement period (Appendix 12). The other impact that is mentioned is the quantity of used fuel per container or additional cooling time that would result due to the thermal hazard of enriched fuel waste (p.292). The NWMO has examined future production from a very narrow viewpoint.

There is no assessment of the impact of these future used fuel scenarios on the vast number of factors in the assessment framework. Since the study was designed so the approach most responsive to the values and objectives of citizens would be judged the most socially acceptable, by NWMO definition (p.29), yet the impacts of future used fuel scenarios with respect to the values and objectives of citizens were not considered (Appendix 12), the study failed to address social acceptability on this significant issue. Further, there was deliberate exclusion of discussion of the future of nuclear energy in public dialogues each time it was raised by participants.

The NWMO acknowledges divergence in perspective on issues that warrant further exploration (p. 41) however, it needs to be more strongly stated that the social acceptability of any nuclear waste management approach depends on evaluation of the issues in its full context as perceived by society, including in particular the future of nuclear power.

In effect, the impact of future production of nuclear fuel waste on social acceptability was barred from exploration within the NWMO process as being outside its mandate while “sufficient flexibility to accommodate increased used fuel capacity in the future by constructing either incremental additions or completely new facilities” (p.290) was explored for each of the conceptual designs. This leads to a recommendation that can be used to promote production, by claiming that the NWMO study shows that additional volume can be handled and that a broad range of experts and citizens were consulted.

Additionally, the NWMO assessment framework, as presented in *Understanding the Choices*, “assumes that the volume of used nuclear fuel to be managed would be limited to the levels projected for the life of the current facilities” (39); however, the centrality of this assumption to certain aspects of the analysis is obscured in the draft study report and conclusions. Where the analysis assumes the eventual phase-out of nuclear power, this should be explicitly stated (e.g. “In the longer term, as a single centralized facility, it limits exposure to hazards” (p.72) *assuming nuclear power phase-out*¹; “However, these [transportation] risks are limited in time duration” (p.76) *assuming nuclear power phase-out*²; etc.).

¹ Absent nuclear phase-out, exposure risks would remain at multiple reactor sites. In this scenario, a repository introduces an additional site.

² Absent nuclear phase-out, transportation of waste to off-site storage would continue as long as it continues to be generated – i.e., indefinitely.

We urge NWMO to state more strongly the limitations of its study:

- to make clear the centrality of limiting the quantity of used nuclear fuel (to the levels projected for the life of the current facilities) in their analysis, public engagements and conclusions;
- to acknowledge their selective consideration of future production;
- to state that evaluation of social acceptability has not been done in its full context, and that this must be done including impacts of future of production as a step prior to Phase 1 of any implementation plan;
- to explicitly state that it would be unacceptable to use this NWMO process or the recommendation to promote nuclear energy.

Critique of the Recommendation

1. The NWMO should reconsider – or at least justify – its preference for technical uncertainty over social uncertainty in its selection of the management option. The uncertain stability of social institutions in the long term appears to be a key factor in the rejection of on-site and centralized storage options, while parallel technical uncertainties inherent to the repository scenarios are accepted; this discrepancy is not explained. Further, the NWMO should acknowledge the necessity in the repository option for social, institutional and governance functionality and technical expertise for monitoring and mitigation to be possible.
2. As a matter of transparency, the NWMO should identify its recommended approach as a modification of the AECL concept of deep geological disposal *or* the NWMO should alter the text and the graphics of the selected approach to explicitly present the intended flexibility at each decision point for changes that alter the course to or the core integrity of the repository concept. Within the framework of the *Nuclear Fuel Waste Act* (sec. 12.2), the current presentation of the selected approach as a “fourth option” is misleading. Although the NWMO recommendation extends beyond the Canadian Shield to Ordovician sedimentary rock and includes a particular implementation process, its essential features as currently presented mirror the original AECL proposal.
3. The NWMO should remove the suggestion of *early*, aboveground or shallow-burial, centralized storage at a potential repository site (which in any case is insufficiently rationalized in the draft report). Under Phase 1, we note the timing for licensing and approvals does not require that the deep geological repository is tested and approved prior to construction of the shallow underground storage, and that under Phase 2, waste is moved to the central site when the decision about when to construct the deep repository is being considered. Exercising this option would potentially increase transportation risks and costs significantly with no apparent benefit: if waste were prematurely transported to a site later deemed unsuitable for a repository, it would presumably need to be repackaged and transported a second time. Moreover, centralizing waste at a potential repository site before a license has been approved for the repository would seem to prejudice the outcome of site evaluation and licensing (e.g. approval, risks and cost of re-transport would become factors in weighing risks of inadequacies of the site) and would greatly undermine public confidence in these processes.

4. The NWMO should more consistently acknowledge the limitations of the recommended approach in terms of retrievability and mitigation measures. Despite the provision for extended monitoring, it seems unrealistic to portray retrievability as a benefit of a deep geological repository and mitigation measures are not addressed. Indeed, the concepts of monitoring and retrieval are often inappropriately conflated – e.g., on p. 17 in the section “Monitoring and Retrieval” there is no retrieval information. While we support the recommendation for an extended period of monitoring, it does not necessarily follow that timely corrective or mitigating action could reasonably be taken when monitoring reveals a breach in containment.
5. Having noted that criteria (“thresholds”) will need to be developed for the various implementation decision points, the NWMO should specify that this process must precede identification of candidate sites. That is, site suitability standards must be, and must appear to be, objective.
6. In the description of the recommended implementation process, the NWMO should specify (consistently) that the environmental assessment should include an evaluation of the environmental impact of transporting nuclear fuel waste to the proposed site. The description of activities on pp. 197-8 suggests that the environmental assessment would be conducted during Phase 1 but that transportation modes and routes would not be determined until Phase 2. Yet, the potential environmental impact of the site-specific transportation plan would clearly be an important factor in determining suitability of a candidate site (specific transportation requirements would presumably differ depending on the proposed location of the repository). It would, therefore, be premature to grant a site preparation license prior to a detailed analysis of transportation impacts.
7. In Table 4-11 (p. 213), the lists of “communities of interest” for each management approach should be expanded to include “civil society in Canada,” as described in the preceding section 15.2. The United Church agrees with the NWMO conclusion that “public engagement must continue through the implementation phases,” however, the suggestion that future citizen involvement would be restricted to “local dialogue” raises concerns. Certainly, any implementation process must engage communities directly impacted by a proposed nuclear fuel waste repository; however, a participatory approach would not exclude broader civil society (i.e., those indirectly impacted as taxpayers, electricity rate-payers, and citizens) from this likely precedential decision-making process on a matter of national policy.
8. The recommended approach should include an explicit commitment to respect Aboriginal rights, treaties and land claims.
9. NWMO should acknowledge that there has not been public and worker input into the setting of regulations with respect to acceptable risk from ionizing radiation. NWMO should recommend that the government determine ‘acceptable’ risks, set standards, compliance periods, etc. within a public, transparent process which considers short-term and very long-term environmental impacts and a full range of human health impacts in addition to fatal

cancers and serious genetic defects. Public participation in how the risk is defined and the level of risk that is acceptable should be part of Phase 1 of an implementation plan.

10. There is the requirement to address impacts and their costs [presumably also mitigation and liability costs] resulting from “natural and other events that have a reasonable probability of occurring” in estimated total cost of nuclear fuel waste: NFWA 13. (1) (a). NWMO should specify natural and other events that were addressed, what impacts were projected and what associated costs were included in total cost estimates. Also, the emergency response plans and the longer-term response plans which take into account the natural or other events should be presented with the associated costs. Given that the liability of operators of nuclear facilities is limited and that the taxpayers must pay for claims beyond the \$75 million (p.230) NWMO should state the estimated total cost that could pass directly to the taxpayer as a result of natural and other events that have a reasonable probability of occurring.

Other Specific Concerns

11. Within the text of the document, the NWMO should use the timeframe for potential health risk of “more than one million years” that is referenced (p.242) in the Nature of the Hazard (Appendix 2) rather than “thousands of years” (e.g. p.9, p. 12, p.66) for which there is no supporting documentation given. The material in Appendix 2 illustrates that it is over a million years before the external radiation hazard of CANDU nuclear fuel waste approaches the external radiation hazard from uranium ore and it is longer before the internal radiation potential health hazard is reduced to remain comparable to the hazard level of uranium ore (this is in the referenced material and should be illustrated in the report). Further, when using characteristics of uranium ore as the point of reference, NWMO should make it very clear that this is not a level of safety, rather it is a level of persistent hazard for comparison.
12. The NWMO should explain that while the chemical composition of the nuclear fuel waste changes with time (which is not, but should be, detailed or well referenced in this report), the inherent chemical toxicity of nuclear fuel waste persists forever at a high level.
13. The Board of Directors’ stated commitment to review its membership (p. 180) is encouraging; however, the NWMO should unambiguously *recommend* that the *Nuclear Waste Fuel Act* be amended to require a more broadly representative Board. In an expanded Board, it would be important that “independent directors” have equal legal standing to nuclear industry members.
14. The NWMO should adopt the language of the 1992 Rio Declaration on Environment and Development in the glossary definition of precautionary approach/principle, and review the application thereof throughout the assessment: “Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost effective measures to prevent environmental degradation” (Principle 15). This common and preferable interpretation emphasises risk reduction or avoidance if there is a reasonable possibility (albeit uncertain) that a given activity is harmful. In contrast, the rewording of the principle by NWMO in the draft report (p.294) seems to imply the opposite:

that a potentially harmful activity should not be postponed due to scientific uncertainty about its risks.

15. The NWMO should reconsider its interpretation of the technical challenge involved in long-term management of nuclear fuel waste (see p.67: “We understood that the most profound challenge lies not in finding an appropriate technical method, but in the manner in which the management approach is implemented”). Although the social and process-related dimensions of the nuclear waste problem are indeed significant, it is unhelpful to understate the technical challenges, which are also profound.
16. The NWMO should strongly recommend greater inclusion, understanding, and valuing of Traditional Knowledge and the previous experience of First Nations with uranium and the nuclear industry.