

The following comments on the Draft Study Report were made in a letter addressed to Elizabeth Dowdeswell (July 18, 2005) and are published here with the permission of the author.

July 18, 2005

1. Your office has done well in expanding the initial three nuclear waste management concepts to include a fourth option of “Adaptive Phased Management”. This additional option, particularly with the inclusion of geological environments additional to the Canadian Shield, provides for greater geographic and managerial flexibility in dealing with the nuclear waste issue. I note with interest that the fourth option reflects suggestions that I made as Item 5, p.4 in my letter to you of 6 December, 2004.
2. Given the expectation of reactor host communities (p.19) that spent fuel will be ultimately removed from reactor sites, it does not seem reasonable that storage at reactor sites (Option 2) should be included as an option for the long term management of nuclear fuel wastes. So long as reactors remain in operation and until such time as an alternate waste management facility is developed such on site storage will remain a default management system but not a long term solution. In my view removal of the on site storage option from the list would not be inappropriate.
3. Expansion of the geographic area for subsurface waste management purposes to include areas underlain by Ordovician sedimentary strata is reasonable and presumably derives from the information contained in Mazurek’s NWMO Background Paper 6-12. In the draft study report reference to Ordovician strata seems to be confined to Table 1-1 with reference to a central facility with shallow rock caverns and a deep repository. Given the outcrop distribution of Ordovician strata in southern Ontario it is inferred that the principal area of interest is east of Georgian Bay, north of Lake Ontario and south of the Canadian Shield. Given the thickening of these strata to the south it would be possible to site both shallow and deep caverns in Ordovician strata or to site a shallow cavern in the Ordovician and a deep cavern in the underlying Precambrian rock. In the latter case characterizing the Precambrian below the Paleozoic cover would be a rather daunting task.

In my view further explanation of possible use of the Ordovician strata should be provided. The distribution of Ordovician strata shown in Figure 4-12 infers that all areas of occurrence might be equally suitable but such is not the case. For example, west of the Niagara Escarpment Ordovician strata do not outcrop and are found only in the subsurface at depths of hundreds of meters and thus would not be suitable for a combined shallow/deep repository.

Regardless of the rock type chosen for a centralized waste management facility the bedrock, apart from such unconsolidated sediment that may overlie it, should be at or near surface and extend into the subsurface to the required depths.

4. The concept of fairness expressed by some communities (p. 53) that reactor communities which have received economic benefits from nuclear power generation should bear the burden of nuclear waste management strikes me as a selective form of NIMBYism. While it is no doubt true that the immediate economic benefits of nuclear power generation flow to the local community the product produced is much more widespread. It might be useful for OPG or some other electric power production agency to produce a map showing the extent to which nuclear energy is a component of the power grid in Ontario and other nuclear power provinces. Consumers of energy, from whatever source, should have some obligation to deal with the environmental impacts of the production of energy that they consume.
5. Reference is made on p.65 to a group of individuals who were brought together to work as an assessment team for the purpose of conducting a “Multi-Attribute Utility Analysis”. Perhaps the identification and qualifications of team members is contained in a separate NWMO report but it would also have been of interest to include this information as an appendix to the present report.
6. Pages 149, 151 and 153 contain illustrations of various phases associated with the Adaptive Phased Management concept. Apart from references elsewhere in the report (e.g. Table 1-1) to vertical depths for shallow rock caverns of 50 meters and deep rock storage/ disposal depths of 500-1,000 metres no horizontal dimensions are given for any of the surface facilities. I think it would be helpful to readers to have some idea of the physical dimensions of the surface facilities of a waste management operation and the areal dimensions of the site that it would occupy. It is probable that the entire facility could be contained within a land area of 1km². This is not a particularly large demand to place upon the Canadian landmass in comparison with the dimensions of major landfills and open pit mines.
7. It is noted on p. 153 that “- - decisions on locating a facility will be made based on site-specific characteristics, and not on economic regions”. Apart from their possible utility in an academic assessment exercise I am unclear as to the value of economic regions in the comparative evaluation of the several management options.
8. The projected life of a centralized management facility (Fig. 4-20) of about 300 years is reasonable but again raises the question of how design concepts, maintenance and fuel waste records will be maintained and transferred to succeeding generations of facility operators. What is required in the way of records management, I suggest, is without precedent and needs to be addressed in a serious manner.

9. There can be no doubt that any community in which a waste management facility will be located will have volunteered to accept such a facility and will derive economic and such other benefits that may arise therefrom. Since not all communities will possess the requisite technical criteria for site selection I suggest that early in the site selection process that such criteria be widely publicized even to the extent of publishing a map showing the distribution of those areas possessing geological and topographical attributes suitable for centralized storage/repository purposes.

I regret that I do not have any constructive suggestions that would aid in the site selection process other than continuation of the open approach and public dialogue that your office has pursued thus far in seeking a solution to the nuclear waste management issue. In spite of your best efforts thus far, and those that will be continued, it should not come as a surprise that there will be some portion of the population, and probably not an insignificant one, that will remain unalterably opposed to anything nuclear and to the siting anywhere, other than at present reactor sites, of a centralized storage/disposal facility.

In the event that such public opposition remains widespread in the face of an urgent need for resolution of the waste issue I suggest that both federal and provincial governments will have to exercise, perhaps uncommon resolve, in declaring the matter to be one of public interest and proceed to designate a particular site for nuclear waste management purposes.

I shall follow with interest the next phases of the work of NWMO as you proceed toward the presentation this fall of your recommendations to the federal government and I wish you every success in your endeavours.

John S. Scott