

Preliminary Comments on the Proposed Deep Geological Repository

Introduction

It should be noted that these are preliminary remarks and more detailed comments will be added. This is for two reasons. 1. Application for Participant Funding and the deadline for submitting comments are due on the same day. Without knowing if we have the funds to contract with experts for their comments we are not in a position to provide full documentation concerning this project at this time. 2. Given the scope of this proposed project, thirty days is not an adequate amount of time to do all the data gathering and research necessary to submit a full report. Thus further comments will be coming in the foreseeable future.

Inclusion of Transportation Risks

First and foremost transportation must be included in the scoping. There is no reason to have a deep geological repository if the highly radioactive material cannot be shipped to the site. Transportation is just as vital to the whole project as is the repository. To not include transportation makes no sense. It is to commit the logical fallacy of composition and division. This omission shows a lack of basic critical thinking and reasoning with regard to this proposal. It does not inspire confidence that this proposal has been thought through in a thorough manner. Your haste is creating even more waste.

Many risk factors come into play regarding transportation. First is the permission of First Nations bands and other communities through which this highly toxic material passes. Second is the accident risk and the procedures implemented to keep the public and environment safe and protected from dangerous spills. Third is the security needed in transport. This is an easy target for terrorist or other disgruntled groups that want to make their position known and gain public attention and much more from a "dirty bomb" incident.

Repackaging Hazards

This highly radioactive material must be transferred from the dry casks to the transport containers and again from the transport containers to the storage containers. There is insufficient evidence at this time to indicate either container can withstand the rigours

of transport and radioactive leakage for hundreds of thousands of years given the half-life of the material.

Moreover, the high level of radioactive contamination is greatest at these two points of packaging into these containers. The “hotboxes” needed for preparing the material for transport and storage have never been used for such great volume and time. What are the health and safety protocols for dealing with 100,000 tonnes of waste over a projected 160 years? This volume and timeline have never been addressed and there is no real time research to provide any indication of what the parameters are with regard to risk.

Geological, Hydrological, and Meteorological Concerns

The half-life of this material is in geological time and so the proposal must also provide risk management in terms of geological time. Drilling into the rock can cause minute fractures that over geological time can cause instability and shifting in the rock structure itself and thus destabilizing the storage compartments. Furthermore, hydrologically, these hairline fractures over time will allow water to seep in and corrode and erode the caverns and containers in which the material is stored. Over geological time this can contaminate groundwater, aquifers, watersheds, and make its way into rivers, lakes and oceans. What are the measures that will prevent this massive contamination. As well, the possibility of earthquake and preventive measures must be taken into account.

Meteorologically with climate change there are possibilities of floods, wildfires, and geologically an ice age that must be addressed. There is also the tremendous amount of CO₂ emissions that will be released during the construction of this project and the transfer and transport of these materials. It must be shown that this project will not exacerbate global warming, but help Canada meet its objectives to reduce CO₂ emissions as it committed itself to by signing the Paris Accord and other national and international agreements.

Adherence to the Canada Impact Assessment Act of 2019

The Impact Assessment Act is built on five “pillars:” environmental, economic, health, social, and cultural. The proposal must make sure all these measures are addressed and preserve the viability of each “pillar.” Furthermore, the proposal must adhere to all the

facets of section 22 of the Act and to the UN's Declaration on the Rights of Indigenous People.

Alternatives

Finally, the proposal must look at the alternatives and supply the rational justification of why proceeding in this way is the most plausible way of handling high level nuclear waste. Why not continue with on-site storage? Why not adopt a "rolling storage" procedure? An extreme, but possible alternative, is why not stop generating nuclear waste and use the money and expertise for renewable energy? This would make on-site storage the most economical and feasible since this is already what is being done.

The project must also investigate the ways of best monitoring this site during its operation and most importantly post-operation. Again, we have never monitored a site under the constraints of geological time. What are the robust protocols that can be put into place with respect to monitoring for the next 100,000 years that ensure health, safety, and ecological integrity?

Conclusion

NWMO, IAAC, and CNSC need to revisit the Seaborne Commission Report. After years of study and hearings their recommendation was that Canada not go ahead with a Deep Geological Repository for high level nuclear waste. Carefully studying what NWMO has submitted thus far, there is no evidence to overturn the Seaborne Recommendation and no justification for proceeding with this proposal.