

Concerns Regarding the NWMO Proposal for a Deep Geological Repository for High-Level Nuclear Waste (HLW)

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Introduction

The proposal from the Nuclear Waste Management Organization (NWMO) to establish a deep geological repository for high-level nuclear waste has prompted significant public health concerns. These concerns center on the potential impacts that such a facility could have on the well-being of people and the environment.

Potential Risks to Human Health

One of the primary concerns is the risk of exposure to radioactive materials. Accidental releases, whether during transportation, handling, or long-term storage, could lead to contamination of air, water, and soil. Such exposure may increase the risk of cancer and other health conditions among local populations and those exposed elsewhere.

Long-Term Environmental Impact

The long-term safety of a deep geological repository is not fully guaranteed. Over time, the integrity of containment systems could degrade, potentially allowing radioactive substances to migrate into groundwater or surface water sources. This migration could have serious consequences for both human health and the surrounding ecosystem. The timeframe of 160 years underestimates significantly the length of time that this project could threaten public health. The industry requires to be responsible for the monitoring and management of this waste in perpetuity. This is a novel project where the notion that it can be abandoned sometime in the future demonstrates a hopeful and rather cavalier attitude to the importance of monitoring to protect public and environmental health while the repository continues to contain material that can injure human or environmental health.

Emergency Preparedness and Response

Concerns have also been raised about the ability of local health systems and emergency services to respond effectively to potential accidents or leaks. Adequate planning, resources, and training are essential to minimize health risks in the event of an incident. It is extraordinary that the proposal is silent on the transport of high level radioactive waste to this facility which is planned to be thousands of kilometers distance from the many sources that produce this waste. This poses a series of risks that need to be described and managed as part of this proposal.

Protecting Public Health

The legal responsibility for public health at the proposed site lies with the Province of Ontario, under the Health Protection and Promotion Act, R.S.O.1990, First Nations traditional law and the Public Health Agency of Canada Act. This legal framework is not described in any detail in the initial project description. Neither Ontario Health nor First Nations traditional law is listed among the regulatory authorities in the proposal. This raises the concern that there has not been an independent comprehensive assessment of the impact on public health. The modus operandi of public health is to use the precautionary principle when faced with a situation where threats and risks are unknown, but where consequences could be significant. Such perspectives need to be highlighted in the assessment of this proposal. This project is absolutely novel and breaks new ground in the management of a waste stream that will be toxic for millennia. Strategies around its management are based on assumptions that have never been tested. This poses questions from a public health perspective that have never been addressed in human history. This requires a deep comprehensive analysis of its implications in this domain. Public health assessments of the success/failure of this project will not be possible for hundreds of years. Thus it is important that this project is viewed carefully, *ab initio*, by public health in a comprehensive manner that is independent of the nuclear industry and its regulator. This proposal would be strengthened by inclusion in this assessment, in some detail, of the perspectives that Health Canada, the only health regulator listed in the report, has contributed to this proposal. It should also include a formal public health assessment by Ontario Health and by First Nations governance institutions.

While the proposal indicates that it has consulted widely and has considered all the legislation that influences this project, the lack of a documented independent public health assessment is worrisome. The concept of holding the exposures to toxins created by this project to “as low as reasonably achievable” (ALARA) is not guaranteed to protect

health and allows justification of practices that are potentially harmful. ALARA and the precautionary principle can come into conflict. This underscores the needs for an independent public health assessment and involvement in ongoing monitoring.

The nuclear regulator's mandate is to ensure that the nuclear industry's process of production is safe at all points of the nuclear cycle, from ore to waste. It does not have the mandate to protect public health and cannot be expected to balance this against the needs of an industry that continues to mount a very successful campaign to be viewed as essential to meeting energy needs and as a key strategy to counter climate change. There has been grave asymmetry in describing the benefits of expanding nuclear power in contrast to the risks. This is understandable as the industry, echoed in the proposal, prefers to focus on benefits as opposed to harms. There is increasing evidence that the regulatory framework has proposed standards, allowed processes that have caused negative impacts on human and environmental health, and has avoided oversight in critical areas, such as uranium mining. There is increasing evidence of the negative impact of ionizing radiation, at levels previously labelled as safe, on workers and vulnerable populations.

The well-funded efforts of the industry to contest these findings and the resources it expends to promote the narrative that it is safe, essential and environmentally positive needs to be countered with a more balanced assessment. Indeed, the proposal claims that nuclear power plants in Canada have provided "clean, reliable, and low-carbon energy for decades". A more careful assessment would suggest that nuclear power is not clean, there are significant human and environmental impacts that include uranium mining, nuclear accidents and waste management. It is not necessarily reliable; some plants have underperformed with some off-line for years. When the whole impact of nuclear power production and eventual decommissioning is calculated, it is not low carbon. Carbon accounting across the whole nuclear cycle has been underestimated and needs to be better studied if its claims to being low carbon are to be substantiated.

While an independent assessment by public health is essential, it is vital that the nuclear regulator ensures that nuclear technology it is as safe as possible. This will ensure, as much as possible, that the nuclear industry's plan to deal with high level radioactive waste is safe and responsible. This regulation will ensure that the industry is held accountable and responsible, in perpetuity, for the waste that it has generated. This project proposal is flawed, as previously mentioned, by limiting responsibility for the waste to 160 years.

The industry produced this waste and is logically responsible for it forever. If the project is relieved of this responsibility, to whom will it be transferred? To the local First Nations? To the Province of Ontario? To Canada? This needs to be clearly considered in this proposal.

Impacts beyond the proposed site

The high level waste that is intended to be managed at the proposed site will come from across Canada, currently from Manitoba to New Brunswick. The proposed volume is huge and complex. It will need to be transported to the site. This will need a detailed plan that will need the same scrutiny and attention to public health as mentioned above.

It is extra-ordinary that this proposal has been accepted by the IAAC absent careful consideration of the transportation of large volumes of high level radioactive waste to the site. This needs to be considered in tandem. The utility of a DGR hinges on availability of waste. If this is not possible, for a variety of reasons, this proposal fails. While it may be felt that building the site will compel transportation and will quell concerns, this may not be the case. No jurisdiction has proposed the ongoing transportation of HLW, with its attendant risks, over such large distances in such huge volumes. Transportation involves much larger populations than those near the site. Capacity to deal with incidents, accidental and otherwise, will need to be guaranteed throughout every facet of the transportation process. This is a formidable task and will require expert planning and implementation. This will require ongoing monitoring and support. This will require significant human and financial resources. It is essential that this is planned and shown to be feasible before this project is approved.

Build it and they will come is not an appropriate strategy for this project.

The wider implications of this project need to be included in this proposal

The Future

The proposal indicates that the volume of waste to be stored is restricted to the waste produced by the current and previous nuclear activities in Canada, 6 million bundles. It excludes waste to be produced by the significant expansion of nuclear power that is currently being planned. It also neglects to observe that, if built, it will be the only DGR in North America. Given the pressures that the volume of high level radioactive waste will increase and that the industry views DGR as the most effective means of waste management, is it credible that this proposal can hold to the limits that it proposes?

Alternate scenarios need to be included in this proposal where the HLW that may end up in this facility will extend beyond current and past Canadian HLW and may include waste from beyond Canada's borders and waste from facilities in Canada that are yet to be built.

Conclusion

In summary, the NWMO's proposal to site a deep geological repository for high-level nuclear waste raises several public health concerns. Nuclear technology is a mixed blessing. It has obvious benefits, but it currently represents an existential threat. Despite 80 years of experience, its many challenges were heralding a diminution of its role in providing energy. While enjoying a resurgence, much prized by the industry, waste management continues to be problematic. It is critical that this is done in the most careful, conscientious, and transparent way possible. We realise that this is an outcome that is shared by all.

Our comments are intended to help towards this goal, and it is in this spirit these comments are offered. We wish to ensure that high level radioactive waste is managed in the best possible fashion to avoid negative impacts on human and environmental health now and into the distant future.

We are happy to engage in consultations about the issues that we have raised and to help in charting our best way forward.