

To the Impact Assessment Agency of Canada
Email: nuclearwaste-dechetsnucleaires@iaac-aeic.gc.ca

Re: The Deep Geological Repository for Canada's Used Nuclear Fuel Project (88774)
NWMO's Initial Project Description

Thank you for the opportunity to comment on the Nuclear Waste Management Organization's (NWMO) Initial Project Description (IPD) of the Deep Geological repository (DGR) for Canada's Used Nuclear Fuel Project.

These comments contains only a few of my concerns related to this project and to NWMO's Initial Description of the Project.

1. Proceed to Impact Assessment

This project directly impacts numerous communities in many provinces and has potential repercussions for generations into the future. There are many complex technical aspects and environmental justice issues. The facility would need to isolate Canada's highly radioactive used nuclear fuel for at least 100,000 years. It will be one of the first repositories of this kind on the planet. Public awareness, scrutiny and input are critical.

Recommendation: That the NWMO Project for Canada's Used Nuclear Fuel proceed to an impact assessment.

2. Inclusion of Transportation

In my view the most significant gap in the Initial Project Description is that it does not include transportation of the highly radioactive used nuclear fuel.

The NWMO states on page vii of the IPG,

“The Project does not include:

- transportation of used fuel from reactor sites to the Project beyond primary and secondary access roads at the Project site, as this is regulated separately under CNSC [Canadian Nuclear Safety Commission] certification and uses existing transportation infrastructure”

Previously, transportation of the highly radioactive used nuclear fuel has been an integral part of NWMO's Adaptive Phased Management. There have been numerous NWMO documents devoted to transportation.

On Page 2 of the 2020 NWMO document *Moving forward together: An invitation to review a draft planning framework for the transportation of used nuclear fuel*, the NWMO states that,

“This used fuel transportation program is part of Adaptive Phased Management (APM), Canada’s plan for the safe, long-term management of used nuclear fuel. Although used fuel will not be transported to the repository for many decades, it is not too early to begin planning for this important step.”

This contrasts from the approach taken by the NWMO in the IPD on page 4,

“APM combines a technical method for the long-term containment and isolation of used nuclear fuel in a deep geological repository with a management system that is adaptive to scientific advances, societal priorities, and ongoing dialogue with Canadians and Indigenous Peoples. The Project represents the implementation of the technical component of APM and advances the broader management system through continuous engagement, transparency, and the integration of new knowledge over time

There is no mention of transportation in the quote above.

Referring again to the quote by the NWMO (page vii of the IPD), CNSC certification alone will not take into consideration the impacts to communities along a transportation route that are part of a federal impact assessment. Nor will it allow for the same degree of public input.

Recommendation: That the IPD include transportation of the highly radioactive used nuclear fuel over 1000’s of kilometers and through numerous communities.

3. Concerns regarding the support if nuclear energy and contribution to Canada’s net-zero commitments

On page v, the NWMO states,

“By safely containing and isolating used nuclear fuel, it also supports the continued role of nuclear energy as a reliable, low-carbon source of power and contributes directly to Canada’s climate change commitments and goal of achieving net-zero emissions.”

A similar phrase is stated numerous times in the document.

First, this phrase, and those similar, imply a link between this repository and ongoing nuclear energy. This project should not be connected to support for nuclear energy and the nuclear industry. This is important as the NWMO board of directors is appointed by

their members who according to the 2025 NWMO Annual Report are provincially owned corporations that own nuclear fuel. Ontario Power Generation owns most of Canada's highly radioactive used nuclear fuel and Ontario's nuclear power plants and is also constructing and planning new nuclear projects.

Secondly, the role of nuclear energy in contributing to Canada's climate change commitments and achieving net-zero by 2050 is debatable. While the NWMO IPD often mentions Canada's goal of net-zero emissions it does not include that this climate commitment is to occur by 2050 even though it is part of the Canadian Net-Zero Emissions Accountability Act.

“The *Canadian Net-Zero Emissions Accountability Act* enshrines in legislation the Government of Canada's commitment to achieve net-zero greenhouse gas emissions by 2050, and provides a framework of accountability and transparency to deliver on it.” ([Canadian Net-Zero Emissions Accountability Act - Canada.ca](#))

Many energy experts argue that new nuclear power plants take too long to come online to meet 2050 net-zero goals and that renewable energy and storage can be more rapidly deployed at a lower cost with less emissions.

In addition, while it is generally accepted that nuclear energy is “low carbon” over its lifetime, it takes many years until a new nuclear power plant's “carbon debt is paid due to the carbon intensive activities of mining and refining the fuel as well as constructing the facility.

The next few decades are precisely the years we should be reducing emissions rapidly.

It can be argued that the time required for the thorough planning and licensing as well as the time to pay off the carbon debt does not help Canada meet its net-zero by 2050 climate commitment.

Recommendations:

- The IPD should not suggest this project is supporting nuclear energy.
- If the claim of contributing to Canada's net-zero by 2050 is being made detailed evidence that can be evaluated by the public to support this claim in the Canadian context should be provided in the IPD.

4. Environmental Justice and Consideration of Alternatives

On page v the NWMO states,

“However, used nuclear fuel remains radioactive for a very long time and therefore requires careful, permanent management to avoid placing a burden on future generations.”

To state that nuclear fuel remains radioactive for “a very long time”, while not incorrect, does not come close to adequately representing the length of time that the radioactive used nuclear fuel must be isolated from the environment and which is the purpose of this repository.

While nuclear power generation is a remarkable achievement of scientific knowledge it is important to have high standards of safety and government oversight. Governments and the nuclear industry have not seriously addressed the highly radioactive used nuclear fuel issue. Despite concerns raised over decades by the public, governments have allowed the nuclear industry to continue making more highly radioactive used nuclear fuel creating an ever-increasing burden for society.

That burden does not go away if it is buried in the ground.

Future generations are undertaking the risk without having been asked. What might the burden be if in 500 years or 1000 years the site fails? Or if the site is unintentionally accessed.

Referring again to quote (page v of the IPD) mentioned in section 3 above, NWMO states that the used nuclear fuel will be safely stored and isolated from the environment. Safety is subjective and the risk which is accepted by the nuclear industry may not be the same as that accepted by the public.

While there has been considerable research into many aspects of DGRs, questions remain as a recent article on corrosion by Harper et al. indicates,

“The uniqueness of the Canadian spent nuclear fuel disposal container design requires a detailed understanding of the copper corrosion processes that could occur in deep geological repositories. This review aimed to identify knowledge gaps surrounding impacts of changing conditions and the evolution of corrosion processes as conditions change from moist/cool, through warm/dry, to cool/ fully saturated. This review indicates that early, unsaturated corrosion, and compounding influences of previous corrosion are understudied.”
(Nature Publishing Group Materials Degradation, (2024) 8:124)

Design improvements are likely.

Better options may be found. Several countries including Belgium, Japan, China and the United States are involved in research to transform the highly radioactive used nuclear fuel into less harmful and less long-lived compounds. The used nuclear fuel has the potential to be a useful resource. Rolling stewardship is an alternative concept that

secures the highly radioactive used nuclear fuel until a genuine solution can be found. There is time to wait.

The burden of highly radioactive used nuclear fuel raises many environmental justice issues. Future generations take on the risk without choice or potentially without knowledge of the risk. Only two communities have expressed their interest in continuing in the siting process for the DGR. There are, however, many other communities in the area, and along the potential transportation routes that also need to be adequately informed of their risks and to have input. Many of these communities are Indigenous communities “whose rights and consent are recognized by the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and required under Canadian law” (Legal Advocates for Nature’s Defence).

Recommendations: The IPD should

- use precise language to indicate the timeframe for which the repository needs to isolate the radioactive used nuclear fuel from the environment
- include consideration of rolling stewardship for the next several decades
- include principles of environmental justice for future generations and to all communities in the area and along the transportation route
- include protection of Indigenous rights and consent according to UNDRIP.

In conclusion, I urge the IAAC to undertake a federal impact assessment of the NWMO’s Deep Geological Repository project which:

- is not connected to the future of nuclear energy
- includes highly radioactive used nuclear fuel transportation routes and risks upholding the principles of environmental justice for those who are impacted.

Sincerely,

Kerstin Muth