

The [Nuclear Waste Management Organization](#) (NWMO) is comprised of Ontario Power Generation, Hydro Quebec and New Brunswick Power, who were mandated under the [Nuclear Fuel Waste Act](#) (2002) to investigate and recommend a long-term management option for all of Canada's high level nuclear fuel waste. In 2007 the federal government accepted the NWMO's "[Adaptive Phased Management](#)" approach, included a site selection process to locate a deep geological repository for all of Canada's high-level radioactive waste and then development of the repository and associated operations. NWMO launched their siting process in 2010. A total of 22 municipalities were the subject of NWMO investigations.

Throughout its siting process the NWMO repeatedly declared that it would not select a site unless there was an "informed and willing community" and the community had made a "compelling demonstration of willingness". The Township of Ignace was deemed "willing" by the NWMO on the basis of an online poll that asked residents if they supported continuing in the NWMO process. The poll did not ask if respondents supported the NWMO project. In October 2024, Grand Council Treaty #3 chiefs unanimously passed a resolution opposing the DGR in Treaty #3 territory. On November 18th, 2024, Wabigoon Lake Ojibway Nation announced that they accepted further site studies being done but that they had not consented to the project.

On November 28th the NWMO announced their selection of the Revell site - in the heart of Treaty #3 territory in northwestern Ontario and in the headwaters of the Wabigoon watershed – as their intended site. In December, Eagle Lake First Nation announced their legal action against the NWMO selection of the Revell site.

The NWMO proposal is still in the concept stage. NWMO says they will initiate the assessment process in 2025 and submit a full proposal in 2028.

There is [no deep geological repository](#) for high-level nuclear waste operating anywhere in the world, despite decades of effort by the nuclear industry. Some have been repositories have been proposed then cancelled and others have been proposed and are under review (the proposed repository in Sweden has been in the regulatory process since 2011) but none have received full approvals or been brought into operation.

NWMO's plan to bury and abandon all of Canada's high-level nuclear waste in northwestern Ontario will involve [2-3 shipments per day for more than 50 years](#), with each truck hauling 35 tons of radioactive waste per trip. Over 90% of the shipments will come from southern Ontario, averaging 1,700 km per trip, with most of those kilometres travelled on the poorly maintained and mostly 2-lane roads of northeastern and northwestern Ontario. The remaining shipments will be coming from the east – Chalk River in the Ottawa Valley, Quebec and New Brunswick. Again, mostly 2-lane roads, and – again – riding a road of radioactive risk that will cut across northern Ontario. In May 2025 Alberta Energy announced their plan to construct four large reactors 30 km north of Peace River in Northern Alberta and intention to [transfer the high-level radioactive wastes to the NWMO](#) for transportation then burial and abandonment in the Revell site.

Each shipment will result in low levels of radioactivity being emitted, and if there is an accident that results in a breach of the containers it is expected that the releases would be much larger. There is [no level of exposure](#) to ionizing radiation that does not pose an associated risk to human health. There is very little experience with nuclear fuel waste transportation in Canada, international experience has a mixed record, and there are serious gaps in the testing of the transportation containers and training for emergency responders. There is no experience internationally that is equivalent to the distance, volume, frequency and duration of the NWMO's proposed transportation program.

Nuclear waste is a problem. The nuclear industry is offering false solutions.

Small Modular Reactors Would Produce Novel and Dangerous Nuclear Waste

If built and operated, SMRs would generate far more waste (of all types) per unit of electricity generated than current reactor types. High-level waste cannot be fully recycled in SMRs, despite claims of nuclear industry lobbyists. In certain types of SMRs the volume of high-level radioactive waste with long life could be reduced, but the volume and complexity of low and intermediate-level waste and used nuclear fuel could be substantially increased.

Fuel waste from SMRs such as molten salt reactors would require technically challenging and expensive processing prior to long-term storage or disposal. Fuel waste from sodium cooled SMRs would be complex and reactive because sodium is corrosive and can ignite easily on contact with air. This places an additional burden on waste storage, packaging, and proposed geologic disposal.

The Canadian Nuclear Safety Commission (CNSC) does not consider waste in its reviews of SMR prototypes. Waste could be considered in subsequent licensing processes, but without considering how waste varies with reactor design. The CNSC may even allow SMRs to be abandoned in place ("in-situ decommissioning") if their removal is not "practicable".

Burying Uncertainty – Deep Geological Repositories for Nuclear Waste

For the last decade, an organization of nuclear power companies called the Nuclear Waste Management Organization (NWMO) has been carrying out a siting process to identify a location for a "deep geological repository" (DGR) in which they intend eventually to abandon all of Canada's stockpiles of high-level radioactive wastes, created by using nuclear power to produce electricity.

Rather than a solution, the NWMO "concept" of a deep geological repository will expand the nuclear footprint and create new risks and uncertainties for generations far into the future.

There will be radioactive releases from the NWMO's operation, including from the processing plant at the DGR site and from the DGR itself. The repository tunnels and emplacement rooms will be too radioactive to allow workers to be present, but the air from deep underground will be released to the surface unfiltered.

Waste will be transported to the site for more than 50 years. The NWMO's reference plan includes 2-3 trucks per day and/or by rail hauling the highly radioactive waste from the reactor stations to the DGR site for 50 years or longer. Each shipment will release low levels of radiation, and an accident could result in much higher releases. There is no safe level of exposure to radiation.

Residents downstream and along the transportation route were shut out of the NWMO's selection process, despite the NWMO saying they would not proceed without an "informed and willing host".

In November 2024 the NWMO selected the Revell site in northwestern Ontario, one month after Grand Council Treaty #3 passed a unanimous resolution expressing opposition. Eagle Lake First Nation has since launched a legal challenge of the NWMO site selection.

There is no other operating deep geological repository for high-level radioactive fuel waste anywhere in the world. When this experiment fails, the downstream waters are at risk, including international waters.

Canada's 2020 Review of Radioactive Waste Policy Left the Nuclear Industry in Charge of Radioactive Waste

In October 2023 the federal Minister of Natural Resources endorsed a proposal from the Nuclear Waste Management Organization's that they be mandated to deliver an "integrated strategy" for the long term management of intermediate level radioactive waste. The NWMO's proposal is a second deep geological repository, initially proposed for "intermediate" level radioactive waste but NWMO has now indicated this second DGR may also be used for fuel wastes from new reactors, including small modular reactors and larger new design reactors, such as the MONARK or AP1000. The NWMO was expected to deliver its siting plan for this additional DGR in March 2025 but has not yet done so.