

The [Nuclear Waste Management Organization](#) (NWMO) is comprised of Ontario Power Generation, Hydro Quebec and New Brunswick Power, 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, including a site selection process to locate a deep geological repository for the radioactive waste, and then development of the repository and associated operations. NWMO launched their siting process in 2010. Twenty-two municipalities were the subjects of NWMO investigations.

On November 28, 2024, 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 repository location. In December 2024, Eagle Lake First Nation [announced](#) legal action against NWMO's site selection.

Transportation

NWMO's plan to bury and abandon all of Canada's high-level nuclear fuel waste in northwestern Ontario will involve [2-3 shipments per day for more than 50 years](#), with each truck hauling 35 tonnes 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 their intention to [transfer the high-level radioactive wastes to the NWMO](#) for transportation, burial and abandonment at the Revell site. NWMO has not yet identified their preferred or intended route(s), and retain the option of sending the waste by rail.



Radioactivity Released En Route

Each shipment involves constant emission of low levels of radioactivity. Calculations of "safe exposure" are based on moving vehicles. Travel delays are common in northern Ontario, due to traffic stoppages in the many communities the route traverses and for road construction. Road closures due to highway accidents, forest fires, flooding and winter weather conditions occur regularly. If an accident results in a breach of the containers, it is expected that the releases would be much larger. The shipments will be routed through numerous northern communities, cross major rivers, and in many instances closely follow the edges of lakes, separated from the water only by steeply graded embankments.

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 substantial gaps in the testing of the transportation containers and training for emergency responders. No international program has involved similar distance, volume, frequency or duration so there is no equivalent experience to draw on.

Canada has no public registry of the transportation of nuclear materials, and no central repository of accident analysis. However, [Transport Canada](#) reports 90 transport-related radiological emergencies since 2015, and the Canadian Nuclear Safety Commission posts [summary reports](#) of select accidents that have involved the release of radioactive materials or have involved shipments of radioactive waste.