NUCLEAR WASTE TRANSPORTATION

BACKGROUNDER

The Nuclear Waste Management Organization (NWMO) is comprised of Ontario Power Generation, Hydro Quebec and New Brunswick Power, corporations 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 all of Canada's high-level radioactive fuel 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.

On November 28th 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 site. In December, Eagle Lake First Nation announced their legal action against the NWMO selection of the Revell site.

In August 2025 the NWMO announced their ambition to have transportation excluded from the impact assessment of their transportation and burial project. The Impact Assessment Process is expected to get underway in late 2025 or early 2026. The first phase – the planning phase – has short comment periods on important documents, including the project description and guidelines that will outline what topics must be addressed by the NWMO in the impact assessment statement; the review will be based on that impact assessment statement.

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 in northern Alberta and their intention to transfer the high-level radioactive wastes to the NWMO for transportation, burial and abandonment in the Revell site.

Each shipment will result in low levels of radioactivity being emitted, but calculations of "safety" are based on moving vehicles. Travel delays are common in northern Ontario, due to traffic in the many communities the route goes through or to because of road construction. Road closures due to forest fires, flooding and winter weather conditions occur regularly. If there is an accident that results in a breach of the containers it is expected that the releases would be much larger. The potential routes cross major rivers and in many instances closely follow the water's edge of lakes, often separated 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 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, duration and radiological load of the NWMO's proposed transportation program.

Canada has no public registry of the transportation of nuclear materials, and no central repository of accident analysis. But Transport Canada reports 83 transport-related radiological emergencies since 2015, and the Canadian Nuclear Safety Commission posts summary reports of select accidents that involved the release of radioactive materials or involved shipments of radioactive waste.