

Misconceptions of Possible Watershed Effects Due to Buried Used Nuclear Fuel

Ike Bottema, January 17, 2026

I am perplexed why many folks making submissions regarding the planned DGR facility at Revell have expressed concerns about the possible effects of the DGR to surface watersheds in the surrounding regions. For example:

Submission #5: "... 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."

Submission #15: "... However, putting nuclear waste near Grassy Narrows First Nation, Ontario, a community still suffering from decades of mercury poisoning, is not only highly insensitive and cruel, but criminal under the United Nations Declaration on the Rights of Indigenous Peoples. Do not do this! ..."

Submission #17: "... At the site itself, there is not enough detail about potential groundwater contamination, long-term container failure, seismic activity, and how climate change and extreme weather could affect the repository over centuries. "

Submission #22: "... Every transportation corridor community must accept decades of shipments despite not having a role in choosing the site — creating multi-regional consequences. All communities on Wabigoon and the Turtle-Rainy River Watersheds have not been consulted. Ignace has been identified as a potential "hosting" community, yet they are not in the same watershed as the DGR site. ..."

Submission #24: "... The Nuclear Waste Management Organization's plan to transport, process and bury all of Canada's nuclear fuel waste at a site between Ignace and Dryden in northwestern Ontario will transporting highly radioactive waste and 160 years of operation, leaving 150,000 tonnes of the radioactive waste underground in the headwaters of the Wabigoon and Turtle-Rainy River watersheds. ..."

Submission #25: "... The waste should stay where it is and be closely monitored. Burying it is completely irresponsible. None of us know how safe or unsafe that can be. It's too dangerous. The watersheds must be considered. This poison could and likely will leach into the watershed and spread. ..."

Submission #29: "... The proposed site in Revell Township is located at the headwaters of the Wabigoon and Rainy/Turtle River watersheds, which ultimately drain into Lake Winnipeg. Any contamination, whether through accidents, groundwater migration, or long-term repository failure, would have irreversible downstream consequences across provincial boundaries. ..."

Submission #34: "... Place a nuclear waste repository in the Lake Winnipeg watershed is a huge concern given that we do not know the full impacts of a DGR for nuclear waste on a watershed. Lake Winnipeg is already in a bad enough state, and with many communities relying on it for their livelihoods and cultural practices this is a huge concern. ..."

Submission #37: "... The current preference for a nuclear waste disposal site lies within the NW Ontario watershed that eventually flows into Lake Winnipeg. ..."

Submission #39: "... Our waterways in Treaty 3 have been impacted from generations of mining and hydro, we can't continue to put our communities at risk and risk further contamination to the water system when it's a basic necessity for us to live. There is no excuse for dumping nuclear waste in our backyards. ..."

Submission #40: "... Groundwater Contamination

Water is the primary pathway by which radioactive materials could migrate

Even "stable" rock formations contain fractures and groundwater flow

Container corrosion, seismic activity, or unexpected hydrogeological changes could allow radionuclides to escape

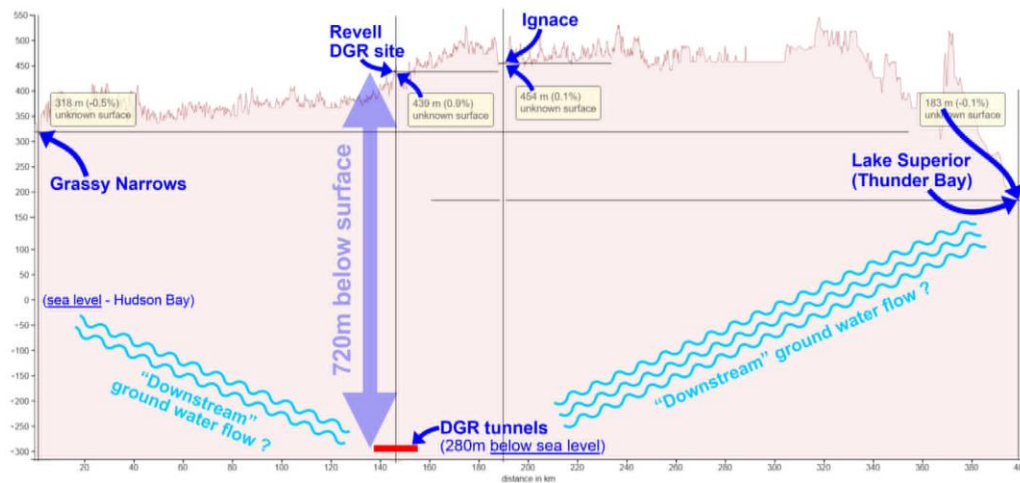
Risk: Long-term contamination of drinking water, rivers, lakes, and ecosystems — potentially irreversible. ..."

Submission #41: "... The area in Dryden on the Canadian Shield is close to many pladdling[sic] routes where people from all over Canada go to experience and appreciate nature. It would be devastating[sic] to lose this space's cleanliness and safety. ..."

Submission #42: "... There is the risk of contamination of entire watersheds if radioactive water escapes the repositories (DGRs). ..."

Submission #47: "...The benefits are few and the risks are off the charts and nightmarish in scope. Even a minor fracture in the containment risks polluting one of the largest watersheds in North America. ..."

Why is that? Do these folks not realize that the buried waste fuel caskets will be way below any watershed entering Lake Superior? In fact, as illustrated in the following diagram, the casks will be stored in solid rock 280m below sea level!



Even should water be present, should the Bentonite clay somehow allow water to reach the casks, should the storage vessels leak radioactive isotopes, and should any irradiated water permeate the solid rock (based on real world tests, expected to migrate much less than a meter per millennium), where would it go? Uphill? What possible antigravity mechanism would be at play?

The watershed concern is misplaced. This misconception is at the heart of neighbouring community resident fears that the DGR could harm them and future generations to come. NWMO must make every effort to reassure all folks that such fears are unwarranted.