Nuclear waste abandonment risks the dangers of amnesia

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Nuclear waste abandonment risks the dangers of amnesia

Broad-stroke reassurances from supporters of a proposed deep geological repository for Canada’s nuclear waste have failed to allay important environmental and security concerns.
An anti-nuclear sign on a farm in South Bruce, Ont., next to the proposed site of a deep geological repository for nuclear waste. The Nuclear Waste Management Organization should consider other options, such as a rolling stewardship model, which actively plans for retrieval and periodic repackaging of nuclear waste, writes Erika Simpson. Photograph courtesy of Michelle Stein

OPINION | BY ERIKA SIMPSON | April 13, 2023

A plan to store Canada’s nuclear waste deep underground in northern Ontario raises serious safety concerns for current and future generations.

In light of this, the Nuclear Waste Management Organization (NWMO)—which is responsible for developing and implementing the plan—should reconsider other options, such as a rolling stewardship model, which actively plans for retrieval and periodic repackaging of nuclear waste.

From April 4-5, the South Bruce Nuclear Exploration Forum considered the NWMO plan to store all of Canada’s high-level nuclear waste in one deep geological repository (DGR). An earlier plan had proposed burying intermediate- and low-level nuclear waste in limestone caverns constructed under the Bruce reactor, but was met with a “no” vote from members of the Saugeen-Ojibway Nation. That led to Bruce Power withdrawing its own proposal in June 2020.

The current proposal for a $23-billion DGR project at Teeswater, Ont., may be constructed 50 km away from the Bruce Nuclear Generating Station, the world’s largest operating nuclear site that supplies 30 per cent of Ontario’s power. Whether the proposal goes ahead in partnership with a willing host community will be decided by the Governor in Council. Once one of the two remaining possible host communities—either Teeswater or Ignace, Ont.—is selected, the Canadian Nuclear Safety Commission (CNSC) and the Impact Assessment Agency of Canada will continue to lead decades-long consultation processes.
These agencies have delivered information on regulatory next-steps, and there has been plenty of opportunity to learn about how Canada’s used nuclear fuel could be packaged, and radioactive nuclear fuel bundles safely transported to Teeswater from Ontario Power Generation’s Darlington, Pickering and Bruce reactors, the Point Lepreau nuclear station in New Brunswick, and the Chalk River Laboratories, a Canadian nuclear research facility about 180 kilometres northwest of Ottawa.

Erika Simpson is an associate professor of international politics at Western University, who researches international security issues. Photograph courtesy of Erika Simpson

The forum hosted by the South Bruce municipality featured geologists like Andy Parmenter from the NWMO, local stakeholders, workforce representatives like Marsha Roote, Indigenous Relations Supplier Network, Mayor Mark Goetz, Conservative MP Ben Lobb, and the lead advisor to the U.S. Blue Ribbon Commission on America’s Nuclear Future, Tom Isaacs. The Ontario Youth Apprenticeship Program in the County of Bruce Planning and Development office and the Youth Skills &
Technology Centre suggested students from local high schools grab lifelong employment opportunities.

CBC reported the proposed plan would see up to 30,000 shipments of highly-radioactive bundles, currently stored in pools and warehouses at Canada’s nuclear plants, transported on highways through Ontario’s most densely populated communities.

Engineers from the NWMO have said their planning has considered many of the safety concerns that could arise on highways and in the construction of the 680-metre shaft to be used for the burial. Some members of the organization’s senior leadership also spoke about familial ties to the area over decades of service.

However, the broad-stroke reassurances of the DGR proponents have failed to allay concerns.

There are questions about how 700 engineers and construction workers could possibly be housed. I have written about SNC-Lavalin—an engineering company that was prosecuted internationally for corruption—yet remains the leading contractor and possible steward of Canada’s nuclear wastes. Heavily subsidized by Canadian tax dollars, the company is driven by the quest for money, not the quest for nuclear security. Although no questions were publicly asked about SNC-Lavalin, a project officer from the Wastes and Decommissioning Division at CNSC explained each engineering and closure stage could be halted, if deemed necessary.

There are also questions about impacts on future generations. Would the underground nuclear waste containers be monitored, in perpetuity, and what might be safety concerns
about siting any such site in the Great Lakes’ water basin, the world’s largest body of fresh water and the drinking water for up to 40 million people? The hydrogeologists and geologists were confident that the DGR concept—possibly the first or fourth underground nuclear waste site in the world—would not be beyond Canada’s engineering and scientific capabilities.

I asked DGR proponents about four U.S. Senators who asked President Joe Biden to raise the issue with Prime Minister Justin Trudeau last month. I was told this would be a local decision—made by area residents in next year’s referendum—combined somehow with a municipal town council majority decision, and a possible veto by First Nations—and therefore the United States would have nothing to do with it, even though Canada’s federal cabinet would have the final say.

I asked Tiina Jalonen, the senior vice president of development at Posiva Oy about Finland’s proposed used-fuel disposal facility and her government’s plans for “signage.” It could be important to warn our great-great-great-grandchildren to refrain from curiously digging out whatever leaks into rock formations below.

What about the legacy of strikes on nuclear sites, like the Russian assault on Ukraine’s Zaporizhzhia nuclear plant, that has made evident that nuclear power plants and waste disposal sites could become targets in conflict zones? Nobody publicly asked about terrorist threats, and whether the site could become hostage to nefarious bargaining.

What else might go wrong? I asked two fire chiefs, but they had not heard about the fire at the Waste Isolation Pilot Plant in New Mexico that shut down the site in 2014 due to a major
radiation release that contaminated workers at the surface. I asked a geologist about Germany’s Asse Salt Mine that still leaks water into radioactive containers.

Perhaps continual monitoring and the ‘rolling stewardship’ concept—that actively plans for retrieval and periodic repackaging—would be most effective, because wholesale abandonment could lead to amnesia.

Erika Simpson is an associate professor of international politics at Western University, the author of Nuclear Waste Burial in Canada? The Political Controversy over the Proposal to Construct a Deep Geologic Repository and Nuclear waste: Solution or problem? and the president of the Canadian Peace Research Association.

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