

# **ENGAGEMENT WITH THE GOVERNMENT OF CANADA WITH RESPECT TO NUCLEAR WASTE ISSUES IN THE GREAT LAKES BASIN**

**A Report for the  
U.S. Senate Committee on Environment and Public Works,  
U.S. Senate Committee on Foreign Relations,  
U.S. Senate Committee on Energy and Natural Resources,  
U.S. House of Representatives Committee on Energy and Commerce,  
and the U.S. House of Representatives Committee on Foreign Affairs**



**U.S. Nuclear Regulatory Commission  
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## **INTRODUCTION**

The U.S. Nuclear Regulatory Commission (NRC) developed this report as required by Section 602 of the Accelerating Deployment of Versatile, Advanced Nuclear for Clean Energy Act of 2024 (ADVANCE Act) (Ref. 1), which was signed into law in July 2024. Specifically, Section 602 of the ADVANCE Act requires the following:

Not later than 1 year after the date of enactment of this Act, the Commission shall submit to the appropriate committees of Congress, the Committee on Foreign Relations of the Senate, the Committee on Energy and Natural Resources of the Senate, and the Committee on Foreign Affairs of the House of Representatives a report describing any engagement between the Commission and the Government of Canada with respect to nuclear waste issues in the Great Lakes Basin.

Subsequent to the enactment of the ADVANCE Act, in November 2024, Canada announced the selection of a site outside of the Great Lakes Basin for its deep geological repository (DGR) for the long-term management of used nuclear fuel (Ref. 2). As further discussed in this report, the NRC understands that the water from the site that Canada selected for its DGR for used nuclear fuel does not flow into the Great Lakes Basin. The NRC is also aware that the Nuclear Waste Management Organization (NWMO) in Canada is in the early stages of planning for a second DGR to manage intermediate-level and non-fuel high-level radioactive waste.

This report describes how the NRC has engaged and will continue to engage Canada on nuclear waste issues through bilateral meetings, multilateral fora, and technical information exchanges. One of the key engagements with the Canadian Nuclear Safety Commission (CNSC) was a technical review of reports associated with a planned DGR for intermediate-level waste at the Bruce Nuclear Generating Station, which is located in the Great Lakes Basin. The application for the DGR at this location was subsequently withdrawn. More recently, in March 2025, the NRC met with the CNSC to discuss the DGR site-selection process and share technical information with Canada related to DGRs. Additionally, the NRC has engaged with the NWMO over the years, most recently in January 2025, to remain aware of Canada's plans for managing nuclear waste, both inside and outside the Great Lakes Basin.

## **DISCUSSION**

The NRC and the CNSC have a well-established relationship and cooperate on matters involving shared equities under a Memorandum of Understanding that was originally signed in 1989 and last renewed in 2023 (Ref. 3). The NRC also engages with several other Canadian entities that have a role in managing Canada's radioactive waste, including Natural Resources Canada (NRCan) and the NWMO. NRCan is the Government of Canada department responsible for determining Canada's nuclear energy policies, including those that concern radioactive waste. The NWMO is a not-for-profit organization that was established in 2002 in response to a Canadian law and tasked with implementing Canada's long-term plan for used nuclear fuel. In 2025, Canada's Ministry of Energy and Natural Resources expanded the mandate of the NWMO to include the long-term management of intermediate-level and non-fuel high-level radioactive waste (Ref. 4). The NRC's engagements with Canadian entities help inform the NRC's regulatory framework for DGRs and provide critical insights and lessons learned that contribute to regulatory readiness for future nuclear waste facilities in the United States.

As part of the long-term plan, Canada has pursued multiple DGRs for nuclear waste. The NRC is not involved in Canada's decision of where to site a DGR. However, the NRC has met with the CNSC and the NWMO to broadly discuss Canada's DGR site-selection process and has exchanged technical information with Canada related to DGRs. For example, in 2001, Ontario Power Generation (OPG), which owns the Bruce Nuclear Generating Station, submitted a license application to the CNSC to construct a permanent DGR for intermediate-level waste at the Bruce Nuclear Generating Station, located on the eastern shore of Lake Huron. In 2017, the CNSC requested that the NRC review a series of seven OPG reports related to the proposed DGR. The NRC provided feedback to the CNSC on the reports, suggesting that OPG provide more details of the actions taken to mitigate safety risks during the design process. In January 2020, the Saugeen Ojibway Nation, an indigenous community local to the Bruce Nuclear Generating Station, voted to reject the construction of the proposed DGR for intermediate-level waste at that site. Subsequently, in May 2020, OPG withdrew its license application from the CNSC.

In addition to this technical information exchange, the NRC has held bilateral engagements with the CNSC and the NWMO since Canada began its DGR program. These activities have continued as Canada's focus has shifted to identifying and selecting DGR sites. These engagements allow the U.S. Government to remain aware of the progress of the DGR site-selection processes in Canada. The NRC has also held several bilateral meetings directly with the NWMO over the years, most recently in January 2025, to discuss the status of the site-selection process. These engagements provided the U.S. Government with updates regarding Canada's plans for DGRs and opportunities to exchange information to advance areas of interest to the U.S. Government.

The NRC also routinely engages with the CNSC, NRCan, and the NWMO within multilateral fora, such as through the International Atomic Energy Agency and the Organization for Economic Cooperation and Development's Nuclear Energy Agency (NEA). For example, the NRC has engaged with the CNSC on nuclear waste issues in the Great Lakes Basin through meetings of the NEA Radioactive Waste Management Committee and the Deep Geological Repository Regulators Forum. The NEA Radioactive Waste Management Committee serves as an international forum for senior representatives from regulatory authorities and radioactive waste management and decommissioning organizations to exchange best practices and to collaborate on strategies to address challenges. The Deep Geologic Repository Regulators Forum is comprised of countries with developed regulatory frameworks and experience with DGRs and provides an opportunity for sharing technical and program experiences, identifying lessons learned, site selection approaches, and fostering the development of best practices for DGRs. During these meetings, the CNSC has provided updates on Canada's DGR site-selection process for used nuclear fuel.

In 2023, as part of Canada's DGR site-selection process, the NWMO narrowed the selection from 22 potential sites to 2 sites: (1) the Wabigoon Lake Ojibway Nation-Ignace area in the province of Ontario, Canada, which is located outside the Great Lakes Basin; and (2) the Saugeen Ojibway Nation-South Bruce area, which is located in the Great Lakes Basin. Subsequent to the enactment of the ADVANCE Act, the NWMO announced in November 2024 that it had selected the Wabigoon Lake Ojibway Nation-Ignace area for the future site of Canada's DGR for used nuclear fuel (see Figure 1). The selection of this site eliminated the South Bruce site along Lake Huron from consideration. Construction is expected to begin in the mid-2030s, and the DGR is expected to become operational in the early 2040s.



**Figure 1: Proposed Location of Canada's DGR**

It is the NRC's understanding based on presentations by the CNSC at international fora and bilateral technical exchanges with the NWMO, as well as publicly available information, that the water from the DGR site selected by Canada does not flow into the Great Lakes Basin. These sources of information reflect that the town of Ignace in Ontario is situated on the watershed of both the Rainy and English Rivers. Both rivers flow into the Winnipeg River and do not flow into the Great Lakes Basin.

The NRC continues to engage with Canada on nuclear waste issues. For example, the NRC engaged the CNSC as recently as March 2025 on this topic. As part of this recent engagement, the NRC confirmed its understanding of the DGR site selected by Canada for used nuclear fuel and obtained information related to the early stages of developing a siting process for a second DGR for intermediate-level waste and non-fuel high-level waste in Canada.

## CONCLUSION

The NRC has engaged and continues to engage Canada on nuclear waste issues through bilateral meetings, multilateral fora, and technical information exchanges. These engagements continue to enhance the safety of nuclear waste activities in the United States and Canada and strengthen U.S. technical capabilities and regulatory readiness to address nuclear waste issues. The NRC will continue to maintain awareness of Canada's nuclear waste activities, both inside and outside the Great Lakes Basin.

## ACRONYMS

ADVANCE Act	Accelerating Deployment of Versatile, Advanced Nuclear for Clean Energy Act of 2024
CNSC	Canadian Nuclear Safety Commission
DGR	Deep Geological Repository
NEA	Nuclear Energy Agency
NRC	U.S. Nuclear Regulatory Commission
NRCan	Natural Resources Canada
NWMO	Nuclear Waste Management Organization
OPG	Ontario Power Generation

## REFERENCES

1. Accelerating Deployment of Versatile, Advanced Nuclear for Clean Energy Act of 2024, Pub. L. No. 118-67, div. B, § 602, 138 Stat. 1447 (2024).
2. Natural Resources Canada. (2024, November 28). *Statement from the Minister of Energy and Natural Resources on site decision for Canada's deep geological repository*. Government of Canada. <https://www.canada.ca/en/natural-resources-canada/news/2024/11/statement-from-the-minister-of-energy-and-natural-resources-on-site-decision-for-canadas-deep-geological-repository.html>.
3. Memorandum of Understanding for Cooperation and Exchange of Information in Nuclear Regulatory Matters between the NRC and CNSC, 2023 (Agencywide Documents Access and Management System Accession No. ML23101A156).
4. Natural Resources Canada. (2025, January 9). *Statement from the Minister of Energy and Natural Resources on the Integrated Strategy for Radioactive Waste*. Government of Canada. <https://natural-resources.canada.ca/energy-sources/nuclear-energy-uranium/statement-integrated-strategy>.