A Safer Interim Storage Solution for Ontario’s Nuclear Wastes

OPG’s current storage method for nuclear waste is completely inadequate

The total radioactivity of the nuclear wastes stored at the Pickering, Darlington and Bruce Nuclear Stations is **700 times greater** than the total radiation released to the atmosphere by the Fukushima accident in 2011.¹

Ontario Power Generation (OPG) is proposing to continue to store these wastes in dry storage containers in conventional commercial storage buildings at its nuclear stations until at least 2043.² In the long term, OPG is hoping that the nuclear wastes can be transferred off-site to a permanent storage facility where they would be placed in caverns 500 to 1,000 metres below ground.

There is no deep geological repository (DGR) facility for high-level nuclear fuel wastes currently operating anywhere in the world, despite decades of effort on the part of the nuclear industry to establish such a facility. **In Canada, after almost 50 years of trying to solve the long-term radioactive waste storage problem, there is still no site selected or accepted by a “host” community and there is no completed design for the DGR itself.** As well, the used-fuel transfer facility is still in the conceptual stage, as is the transportation system for getting waste from nuclear stations to the DGR.

**According to the Nuclear Waste Management Organization (NWMO), if a radioactive release occurs in a DGR “it may be difficult for a future generation to detect the breach in a timely way and take corrective action.”³**

OPG wants to keep radioactive waste in conventional storage buildings on the edge of the Great Lakes for decades to come.
Ontario needs a safer interim storage solution for its nuclear wastes than conventional commercial storage buildings

High-level radioactive wastes at Pickering, Darlington and Bruce Nuclear Stations are housed in conventional warehouse buildings on the edge of Lakes Ontario and Huron.

In Germany, six nuclear stations have on-site, above-ground, attack-resistant, reinforced concrete vaults for the interim storage of their nuclear wastes. The concrete walls and roofs of these vaults are approximately 1.2 and 1.3 metres thick respectively.4

The International Joint Commission’s Great Lakes Water Quality Board is calling for OPG’s storage facilities to be “hardened” and located away from shorelines to prevent them from becoming compromised by flooding and erosion.5

According to a report prepared for OPG, the total capital cost of building above-ground, attack-resistant, reinforced concrete vaults at the Pickering, Darlington and Bruce Nuclear Stations would be approximately $1 billion.6

Pros and Cons of building above-ground, attack-resistant, reinforced concrete vaults:

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater protection against deliberate attacks and greater radioactivity containment in the event of leaks, ruptures or other incidents.</td>
<td>Higher financial cost for OPG.</td>
</tr>
<tr>
<td>Construction of these facilities will create good jobs.</td>
<td></td>
</tr>
<tr>
<td>They can be fully paid for by OPG’s nuclear waste storage fund, which has a market value of $11.3 billion.</td>
<td></td>
</tr>
</tbody>
</table>

OPG has more than enough funds to cover the cost of this shift to an interim solution that will provide much greater safety and security over the coming decades.

For the SAFETY of all Ontarians and people living throughout the Great Lakes Basin, the Premier of Ontario should order OPG to store its high-level radioactive wastes in above-ground, attack-resistant, reinforced concrete vaults at its nuclear stations.

References
4. The six German nuclear stations with on-site above-ground, attack-resistant, reinforced concrete vaults for the interim storage of their spent nuclear fuels are: Brunsbuttel, Brokdorf, Krummel, Unterweser, Emsland and Grohnde. Email from Dr. Wolfgang Botsch, TUV NORD GROUP to Jack Gibbons (October 7, 2020); and Bruno Thomaweis, Realization of the German Concept for Interim Storage of Spent Nuclear Fuel - Current Situation and Prospects, (2003).