

Protect Our Waterways – No Nuclear Waste

Protect Our Waterways - No Nuclear Waste is a group of concerned citizens who joined together in February after a surprise announcement that 1300 acres of prime farmland had been purchased and optioned by the Nuclear Waste Management Organization.

The Issue

- The NWMO is proposing to locate an underground dumpsite in South Bruce for the radioactive high level nuclear waste from all of Canada's nuclear reactors.
- Once completed it will contain over 5million radioactive spent fuel bundles which will be transported here from across Canada.
- Eventually the site will be decommissioned and the nuclear waste will be abandoned.
- However, the spent fuel bundles will be hazardous for over a 100,000 years according to Ontario Power Generation.
- The NWMO calls this nuclear waste burial site a deep geological repository (DGR) but we call this an unprecedented experiment.
- Currently there are no operating DGRs in the world for high level nuclear waste – NONE ANYWHERE.
- Finally, despite that the NWMO is publicly stating that a community must demonstrate it is a 'compelling willing host' neither the NWMO nor the South Bruce Council will provide a clear benchmark that defines willing host or the methodology to determine this.
- Protect our Waterways visited over 1000 households and 1600 residents of South Bruce have signed a petition opposing the proposed DGR. More than 70% of the residents we canvassed do not want a DGR in their community.
- We believe that the benchmark indicating South Bruce is a willing host must be a 2/3 vote in favour of the proposed DGR, using a community referendum with a clear yes or no question supervised by an independent third party.

Summarize presentation

We here today to share some of the information we have learned. To share some of the risks that the NWMO is choosing not to talk about.

The DGR is an experiment with many risks

1. **It is a risk because all DGRs have failed and there is no real time operating experience.**
 - According to the Canadian Nuclear Safety Commission, the WIPP is the only true and operational DGR in the world, it is for low/intermediate nuclear waste, not high level – and located in a desert. The only direct comparison that can be made to this proposal, is accidents happen and you can't predict human error.
 - The WIPP project near Carlsbad New Mexico became radioactively contaminated by the explosion of an underground drum of nuclear waste due to human error. A mistake that took 3 years and 500 million dollars to clean up.

In Germany two underground sites have failed and now they are trying to figure out the expensive and time-consuming job of fixing that radioactive mess.

- There is no operating experience in any country to validate the computer-generated calculations, formulas and simulated experiments created by NWMO scientists. Finland is the furthest in this research, let's let them try if first.
- The NWMO says in their own technical reports state "Containers for the disposal of used fuel are typically designed for a very long life. When the containers eventually fail by corrosion as a result of groundwater ingress into the repository, waste constituents can migrate out of the disposal facility and enter the biosphere."
- The NWMO says they have learned from past mistakes – if the proposed DGR in South Bruce turns out to be a mistake we and future generations will all bear the consequences. We don't want to be the next mistake that the nuclear industry learns from.
- The NWMO claims we owe it to future generations. What is more important to them? Protecting water or burying nuclear waste?
- It is too big a risk to take – there are safer alternatives.

Clean air, clean water and safe food are essential for human life. The proposed DGR puts all of these at risk – and the risks are not limited to residents of South Bruce. How did they end up with this specific site? Was it chosen because it would cause the least environmental impact? Or was it selected because it was where they could acquire land?

2. Groundwater contamination:

- The Teeswater River runs through the middle of the South Bruce site.
- The proposed site borders the Greenock Swamp, the single largest forested wetland in southern Ontario.
- This is a mine, so it threatens the water. Surface runoff from the repackaging plant's settling ponds and aggregate pile threatens our river, and the radioactive waste being stored underground, in containers that will fail, all threaten the water.

3. Great Lakes Contamination

- There is a very real risk that a radioactive leak during the 100,000-year period in which the nuclear waste remains hazardous could lead to contamination of the groundwater and an eventual contamination of the Great Lakes. Surface run off into the Teeswater River ends up in the Great Lakes.
- 40 million people in Canada and the US rely on the Great Lakes for their drinking water.

4. Releasing radioactive contamination into the air

- The nuclear waste has to be repackaged into storage containers at the DGR site before it can be placed underground. There is the possibility of radioactive release into the air during this process. The NWMO claims it will be below safe levels.

5. Accidents during transportation:

- Transporting all of Canada's nuclear waste to the proposed DGR site in South Bruce mean that loads of radioactive spent fuel will be traveling through neighbouring communities. Currently there is approximately 5 shipments of high-level waste per year in Canada but if the DGR becomes operational there will be 1 or 2 shipments per day.
- The NWMO claims radiation levels associated with these shipments will be below safe levels. How many safe levels can you be exposed to before it isn't safe anymore?

6. Economic Impact/Community Stigma

- Who wants the stigma associated with having a nuclear dump in their community?
- The stigma of a nuclear dump will have immediate and cascading impacts on the reputation of our community
 - farmers, agriculture and businesses (Gay Lea, Chapman's) will lose customers
 - Japan's farmers near Fukushima are still facing hurdles in trying to convince consumers to purchase their food even after extensive testing proves it is safe.
 - Look how quickly agriculture was affected after one cow tested positive for mad cow disease.
 - People point to Bruce Power and say it has not affected farming. Bruce Power is located on 2,300 acres of land which provides a buffer zone. There are no commercial dairy farms within 10 km of the plant.
 - Purchasers of our products have choices and the stigma associated with the proximity of a nuclear dump may affect their choices. One Toronto butcher who purchases our lambs has told us he will no longer buy lambs from our family if we are located beside a nuclear dump. His customers want to know where their food comes from.

Bruce County already has a low unemployment rate and changes to the local labour market will mean small businesses will have an even harder time hiring workers

- A study commissioned by the Kincardine council and completed by the Ivey Business School forecast a negative economic stigma of \$700 million over 30 years if a DGR for radioactive waste is built in the Kincardine area.

7. We don't have confidence in the NWMO

- The NWMO, although incorporated as a non-profit is funded and governed by the nuclear industry.

- There are no principles of science that can be used to forecast with confidence what will happen over the 100,000 years in which the nuclear waste remains hazardous. 100K years is a period of time 20 times longer than the age of the Pyramids, and 10x longer than the age of the Great Lakes themselves.
- Dr. Gordon Edwards of the Canadian Coalition for Nuclear Responsibility states “Both waste producers and regulators have a vested interest in abandoning these wastes as they wish to limit their liability and the regulators want to terminate their oversight”.
- The proposed DGR for South Bruce is not in the public interest. The NWMO proposes that there are no risks to this project yet, scientists and geologist around the world are warning that the risks are too great for this experiment. Studies are raising concerns about the corrosion of the copper, the ceramic compounds accelerating corrosion of metal alloys and more.

8. Rolling Stewardship is the Safest Option

- Rolling stewardship manages radioactive waste by maintaining it in a monitored and retrievable state at all times, with continual improvements to packaging and environmental protection
- The NWMO in their own report says “Dry storage containers have a minimum design life of 50 years.Studies indicate that with ongoing maintenance and inspections these containers can be safely used for much longer periods of time”.
- Theresa McClenaghan Canadian Environmental Law Association says rolling stewardship is “a better option is to fortify the temporary storage for a few more decades and wait for new and better technologies.”

The building of a DGR will not remove the need for the above ground storage of the radioactive nuclear spent fuel. Once the rods are removed from the reactor they must be placed in pools and dry storage for at least 30 years before they are cool enough to move to a DGR. As long as nuclear is a part of the energy plan then radioactive waste is on the lakeshore. All a DGR does is add transportation risks, place another community at risk and threaten important aquifers, swamps, and rivers.

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9. Protect your community and the Great Lakes

- Thank you for allowing us to share about this project. We understand that as a council you are busy so we appreciate your time and we will continue to share information with you as this process proceeds. Our website @ protectsouthbruce-nodgr.org is a great way to keep up to date. Thank you and we would be happy to answer some questions.

Information Links

NWMO closure plans

https://www.nwmo.ca/~media/Site/Files/PDFs/2015/11/12/08/10/2798_description_of_a_deep_geological_repository_and_ce.ashx?la=en__pg.41

NWMO – how long is nuclear waste dangerous?

<https://www.nwmo.ca/en/Canadas-Plan/Canadas-Used-Nuclear-Fuel/Radiation-Risk-and-Safety>

CNSC states WIPP is the only operating DGR in the world and it is for low/intermediate level

<https://nuclearsafety.gc.ca/eng/waste/deep-geological-repositories.cfm>

WIPP accident - March 7, 2014 Toronto Star

https://www.thestar.com/business/2014/03/07/us_radiation_leak_raises_ontario_questions.html

WIPP accident - March 25, 2014 Toronto Star

https://www.thestar.com/business/2014/03/25/nuclear_waste_panel_wants_more_answers.html

WIPP clean-up costs

<https://www.forbes.com/sites/jamesconca/2017/01/10/wipp-nuclear-waste-repository-reopens-for-business/#558948a22052>

Germany Asse Mine

<https://www.dw.com/en/nuclear-waste-in-disused-german-mine-leaves-a-bitter-legacy/a-47420382>

NWMO - technical reports- the containers eventually will fail (page 21 +)

https://www.nwmo.ca/~media/Site/Files/PDFs/2015/11/09/12/54/662_6-7StatusofStorageDisposalandTransportationContainersfortheManagementofUsedNuclearFuel.ashx?la=en

NWMO- low levels of radiation from the repackaging plant and radon from waste rock pile

https://www.nwmo.ca/~media/Site/Reports/2017/01/18/14/59/APM_REP_06415_0201.ashx?la=en

NWMO - they expect annual dose from transportation to be below regulatory levels

https://www.nwmo.ca/~media/Site/Files/PDFs/2015/11/04/17/39/2620_safe_and_secure_transportation_of_canadas_used_nuc.ashx?la=en

IAEA Report on Canada stating that Canadian Nuclear Safety Commission needs to raise radiation safety standards to meet international standards

<https://www.iaea.org/newscenter/pressreleases/iaea-mission-recognizes-canadas-commitment-to-safety-sees-areas-for-enhancement>

Chapman's concern over nuclear ice-cream

<https://www.cbc.ca/news/canada/london/canada-nuclear-waste-dairy-1.5474139>

Japan still battling unsafe “nuclear “food perception

<https://www.theguardian.com/environment/2020/mar/10/we-always-get-a-fukushima-strives-to-prove-local-food-safe-before-tokyo-games>

Link to website about the 2004 Ivey School of Business study on social stigma of a nuclear dump

<https://www.protectsouthbruce-nodgr.org/social-stigma-1>

NWMO is funded and governed by the nuclear industry

[https://www.nwmo.ca/en/ABOUT-US/Who-We-Are#:~:text=The%20NWMO%20is%20a%20not,Fuel%20Waste%20Act%20\(NFWA\).&text=The%20organizations%2C%20along%20with%20Atomic,mandated%20to%20fund%20our%20operations.](https://www.nwmo.ca/en/ABOUT-US/Who-We-Are#:~:text=The%20NWMO%20is%20a%20not,Fuel%20Waste%20Act%20(NFWA).&text=The%20organizations%2C%20along%20with%20Atomic,mandated%20to%20fund%20our%20operations.)

<https://www.nwmo.ca/en/ABOUT-US/How-We-re-Governed/Board-of-Directors>

Another article from Russia talking about copper corrosion concerns from Swedish studies and how Finland is choosing to ignore the results

<https://bellona.org/news/nuclear-issues/radioactive-waste-and-spent-nuclear-fuel/2016-08-2171>

Royal Institute of Technology - Stockholm, Sweden study

https://www.researchgate.net/publication/225753837_Water_Corrodes_Copper

Article about how ceramic and glass corrode quicker than expected because of radiation causing reactions with the steel

https://abcnews.go.com/International/current-model-storing-nuclear-waste-sufficiently-safe-study/story?id=68584067&fbclid=IwAR2DF9Wz4M--5DPzqqDs7Os_7IA6Yl4mk5TN3oW7oF3T_69uJtAGl9dVwj0

From the Canadian Coalition for Nuclear Responsibility about Rolling Stewardship

http://www.ccnr.org/Rolling_Stewardship.pdf

NWMO says the current storage is safe and with monitoring and repackaging can be extended

<https://www.nwmo.ca/en/Canadas-Plan/Canadas-Used-Nuclear-Fuel/How-Is-It-Stored-Today>

For more information and links to reports and studies please go to our website:

www.protectsouthbruce-nodgr.org

