

November 11, 2020

South Bruce Webinar

Submitted Questions forwarded to the NWMO for response

Q. The Bruce Nuclear site has a "buffer zone" around it with no farming operations within approximately a 10-mile radius. And people within a 10-mile radius are given potassium iodine medication. This is also routine around the Pickering location. Is all of Teeswater/South Bruce going to be issued potassium iodine pills? And at whose expense? Remember safety is first!

A. There are farms that operate successfully in locations adjacent to existing Ontario nuclear facilities. We know through regular testing of their produce there is no impact from radiation. At the Bruce Nuclear site there are farms inside the 10-mile radius, the closest farm is near Inverhuron and approximately 3km from site.

Pre-distribution of potassium Iodine (KI) is unlikely, but at this point we cannot confirm whether KI pill distribution will be required. As we continue through the regulatory process the extent of the emergency response program will be clearly defined.

It is impossible for the deep geological repository to have widespread release of radioactivity because it is not an operating nuclear power plant. The fuel in an operating nuclear power plant is critical and the systems that are used to convey the heat from the reactor to the turbine generators are under pressure. In the repository, the fuel is not critical and there is no pressure that could spread any radioactivity over a broad distance.

Pre-distribution of potassium Iodine (KI) will ultimately be decided by the regulator when the operations licence is issued in approximately 2043. Any costs related to this would be incurred by the NWMO.

Q. Can you please explain why Dr Ben Belfadhel nonchalantly dismisses a buffer zone around the 1500-acre site. This displays a noncaring attitude about the residents of the area. Are you willing to just let them be sacrificed? The site NWMO is interested in, in northwestern Ontario is at Revell Lake, a distance of 35 km from the town of Ignace.

A. The NWMO's top priority is protecting people and the environment in everything we do.

There will be area around the repository surface facilities to serve as a "buffer". Our surface facilities will occupy approximately 250 acres, a small portion of the overall 1,500-acre site. This will include at least two "buffer" zones: a security zone (protected area) and an additional exclusion zone around that.

The security zone will be fenced, and access limited to employees. It will ensure safe and secure operations. Studies will be done to determine the dimensions of the security zone. Similar to the nuclear facilities elsewhere in Canada, we predict that the security zone will be very near to the surface facilities.

Then, an exclusion zone will surround the security zone. There will be restrictions placed on the exclusion zone – in particular, people will not be able to live on that land and no permanent

dwelling will be allowed there. Land may need to be cleared to minimize fire hazard. Based on our current research, the exclusion zone for the NWMO facility could be approximately 100 meters but that area could change depending on final repository design.

Outside the exclusion zone, there will likely be an outer area that would cover the remainder of the site. Public activities could occur in this area, such as farming or use of recreational trails as currently occurs at the Darlington Nuclear Generating Station site.

Q. Does the municipality have a say in what is a good safety barrier around the facility? It appears that the closeness to town is not enough of a safety barrier.

A. A deep geological repository uses a series of engineered and natural barriers that will work together to contain, and isolate used nuclear fuel to protect people and the environment. There cannot be any credible risk to people and the environment for this project to proceed.

The multiple barrier system, including the host rock will ensure the repository safely contains and isolates the used nuclear fuel, even under extreme scenarios. One of the barriers is the geosphere or the host rock, which forms a natural barrier. In South Bruce the repository will be approximately 650 metres underground within a sedimentary rock formation.

There will be regulatory and technical considerations involved in designing the safety barriers and any security and exclusionary zones around the repository site. The NWMO will seek input from community members on some aspects of the repository design leading up to site selection. This project will also be subject to a thorough regulatory review process and licensing hearing

Q. Who is listed as owner of the land once it's sold. (Is it NWMO? Is it the Federal Government? Provincial Government?) What happens to the land once the current owners have move off the land and it is supposedly ready to be farmed again?

A. Each parcel was purchased by one of NWMO's wholly owned subsidiaries and, as a result, the subsidiaries are listed as owners on title for the purchased lands.

Each agreement is a unique commercial transaction between two private parties – in some cases these agreements included provisions to lease-back the land to continue ongoing uses, like agriculture. This allows those who already live on or work the land to continue to do so – ensuring continuity of the use of the land.

Some of those who leased back the property also chose to sublease it – for example, to continue to support farming on the land; this was the sellers' decision, and the NWMO has respected their wishes with respect to subleasing in all situations requested.

This is one way the NWMO contributes to community well-being, ensuring ongoing economic activity continues as technical site evaluations and social studies continue in South Bruce.

Q. Mr Gowland, many pro DGR supporters have stated that gravity will protect us from future leakage of radionuclides from canisters into the upper biosphere. Do you agree with this statement?

A. Although we cannot speak for Mr. Gowland, a deep geological repository is designed to safely contain, and isolate used nuclear fuel from people and the environment indefinitely. This

method is considered international best practice and the safest option for the long-term storage of used nuclear fuel.

In a deep geological repository, the radionuclides in used nuclear fuel will be isolated and contained through a system of natural and engineered barriers. One barrier, for example, would be the geosphere itself. In the unlikely scenario that a radionuclide could pass through the other barriers, it would then be subject to transport times in the order of 1 metre per 100's of thousands of years through the rock. This would mean a journey to the surface, again in the unlikely scenario that such a journey ever began in the first place, would take millions or 10s of millions of years – long, long past the active life of any radionuclide in the used fuel.

Q. Mayor Buckle and Mr Gowland, Dr Belfadhel with NWMO has highlighted in recent articles that we need to respect the scientific method. Please explain how Dr. Belfadhel and NWMO utilized the scientific method in choosing the current optioned land in South Bruce? As Dr Belfadhel is keen on citing the scientific method, please respond as such to the various steps of the NWMO's selection of lands when no borehole drilling has been done to date and by their own admission only tabletop studies have occurred. A) Make an observation. B) Ask a question. C) Form a hypothesis, or testable explanation. D) Make a prediction based on the hypothesis E) Test the prediction F) Iterate: use the results to make new hypothesis or predictions.

A. The site selection process requires that communities take the initiative to enter the process and work with the NWMO. The NWMO has been clear from the beginning – the project will only proceed in an area that has both a suitable rock formation and informed and willing hosts.

In southern Ontario, there is pre-existing geological data from historical boreholes from across the region. This information gives us enough confidence in the *potential* of the local geology to continue studies in the area.

In order to confirm the geology at the potential site in South Bruce, the NWMO will drill two boreholes to confirm the geology at the site is consistent with the understanding of the geology in the region. Borehole drilling and testing work is part of the NWMO site evaluation program and seeks to build understanding of the geosphere at or near a potential repository site.

Q. Further can you explain how the Municipality was satisfied with the scientific method analysis completed for the community prior to optioning these lands and can you release the related report NWMO would have completed in relation to the optioned lands? Is there a report?

A. In May 2019, the NWMO publically launched a land access process to determine if we could assemble and access sufficient lands for a potential repository site and complete our site investigation work. This was done through a [delegation](#) to council.

In 2019, the NWMO also published a case study called [Postclosure Safety Assessment of a Used Fuel Repository in Sedimentary Rock](#). This report builds on a series of postclosure safety assessments illustrating the long-term performance and safety of different repository designs within various geological settings. This report – seventh in the series – illustrates how repository safety is assessed over the very long term. It concludes that a repository could be safely sited in the sedimentary rock formations found in southern Ontario.

The next phase of activities in South Bruce will include several site-specific safety assessments including deep borehole drilling to further understand the geology, environmental baseline studies along with engineering design studies. This work will give us the confidence that the proposed deep geological repository will safely contain, and isolate used nuclear fuel at this specific site.

In parallel to the technical investigations, the NWMO is working with the community to plan well-being studies to ensure that the project is implemented in a manner that is responsive to community members' concerns, objectives and aspirations, and can be implemented in a manner that will enhance the well-being of the community

Q. To what degree can the proposed DGR plans be altered after the NWMO has been given the authority to proceed?

A. Authority to proceed will come in stages through the regulatory approval process. The NWMO will seek approvals from the federal government and the regulator at various steps through our process, including approval of the Impact Assessment work, license to prepare the site, license to construct facilities and license to operate the facilities.

The plans for the repository will become more definite as we progress through the regulatory approvals process and the design can change as we move from conceptual design, to detailed design, and to construction. New information about the site and new technical innovations will occur that enable us to improve the design in order to meet the regulatory requirements for safety. We will also continuously improve the programs that we follow to make sure we are completing the work safely.

What does not change is the need to satisfy the requirements for safety that are established by the Canadian Nuclear Safety Commission. The CNSC has established requirements for the safety of the design, and the programs that the NWMO must implement to provide assurance that the activities will protect the public, our workers, and the environment.

Q. If for whatever reason the project is abandoned during its construction phase, will those in charge be bound to return the site to its original condition?

A. Yes, the NWMO would be obliged to obtain a licence to decommission the project if at any time after the licence to prepare site is issued the project does not proceed. A licensee must receive approval from the CNSC and cannot simply walk away from a nuclear facility, regardless of how far along construction is. The CNSC also requires the NWMO provide a financial guarantee that would enable the CNSC to decommission the facility if the NWMO were unavailable to do so.
