

Deep Geological Repository Conceptual Design

The Municipality of South Bruce and the Nuclear Waste Management Organization (NWMO) are conducting a wide range of studies to inform the community's willingness to host the NWMO Project. All studies are also being reviewed by peer reviewers who are subject matter experts in their field. The Aggregate Resources study as well as the Deep Geological Repository Conceptual Design and Safety Case were presented at the Community Liaison Committee (CLC) on June 16, 2022.

Highlights of DGR Conceptual Design, Safety Case, and Aggregate Study

- The NWMO has developed a conceptual DGR design. While the exact location is yet to be determined, the general design provides for three shafts—a main shaft; service shaft; and ventilation shaft.
- Fuel bundles are secured in a used fuel container made of steel and copper coating. These containers are then enclosed in Bentonite clay and then stored in repository rooms about 650 metres underground, in rock known as the Cobourg Formation.
- The site will be excavated using industry best practices. The NWMO has begun developing strategies to control noise, dust and visual impact during construction and operation. It has also begun developing short and long-term plans for storing the excavated rock.
- So far, the NWMO's safety assessment shows that the South Bruce site would provide a safe, long-term approach to storing used nuclear fuel.
- The Project will require aggregate, which is rock, sand, and gravel used in construction. The study shows that South Bruce and the surrounding municipalities have enough capacity to extract the amount of aggregate needed for the Project.
- Local and regional licensed suppliers would be used for the Project. The Project would significantly increase demand for aggregate for approximately two years out of the entire site preparation process. The rock excavated from the Project would not be sold so as to protect local aggregate suppliers.

Addressing Our Guiding Principles

The studies address several of the community's 36 Guiding Principles to determine if the Project is right for South Bruce. They relate to whether the Project will bring meaningful benefit to the community, specifically:

- 2.** The NWMO must demonstrate to the satisfaction of the Municipality that sufficient measures will be in place to ensure the natural environment will be protected, including the community's precious waters, land and air, throughout the Project's lifespan of construction, operation and into the distant future.
- 6.** The NWMO will minimize the footprint of the repository's surface facilities to the extent it is possible to do so and ensure that public access to the Teeswater River is maintained, subject to meeting regulatory requirements for the repository.
- 21.** The NWMO, in consultation with the Municipality, will commit to implementing a business opportunities strategy that will provide opportunities for qualified local businesses to secure agreements that support the Project and that requires the NWMO to take all reasonable steps to create opportunities for qualified local businesses to benefit from the Project.
- 30.** The NWMO will prepare a review of the existing and projected capacity of South Bruce's road network and will commit to providing appropriate funding for any required upgrades to the road network.
- 31.** The NWMO will enter into a road use agreement with the Municipality that identifies approved transportation routes during construction and operation of the Project and ensures proper funding for maintenance and repair of municipal roads and bridges used for the Project.

Learn more about the...

DGR Conceptual Design and Safety Case

Research By NWMO

NWMO-led Study:

The NWMO conducted this research and prepared it for presentation.

DGR Conceptual Design

What was the scope and purpose of the study?

- The conceptual design provides a generic model of the Deep Geological Repository within the sedimentary rock in the area, as well as a layout of the surface facilities. It also looked at storage of the rock excavated from the repository.

What did we learn?

- The design work is not site-specific because the exact location of the repository has not been identified yet. The general design suggests three shafts elevator-like shafts to transport used fuel and storage equipment and offer ventilation.
- Fuel bundles are secured in a used-fuel container made of steel and copper coating. These containers are then enclosed in Bentonite clay and stored in 340-metre long repository rooms in the Cobourg Formation, about 650 metres underground.
- The site would be excavated using industry best practices, including a “controlled drill and blast” technique. The NWMO has begun developing strategies for noise control, dust control, and visual impact control during the construction and operation phases.
- The NWMO would return disturbed land to a usable state through a practice called land reclamation.
- Operational controls and continual monitoring will be carried out in line with industry best practices to meet or exceed strict regulations.

Safety Case Preliminary Assessment

What is the scope and purpose of the case?

- The NWMO is studying the safety of building a deep geological repository at two locations, one near Ignace and the other here in South Bruce.
- It is looking at safety of the local geology and barrier system, as well as potential transportation plans.
- It is also looking to see if strong partnerships can be created with the local community and surrounding First Nation and Métis communities.

What did we learn?

- This work continues to progress. With the information learned to date, it appears that building the repository at the South Bruce site would provide a safe, long-term approach to storing used nuclear fuel.
- The complete report will be available on the NWMO website by June 17, 2022 and will be presented at the Community Liaison Committee meeting on September 1, 2022.

Learn more about the...

Aggregate Resources Study

Study By Keir Corp.

Peer Review Conducted By R.J. Burnside and Associates

NWMO-led Study:

The NWMO's consultants conducted this study. South Bruce hired independent consultants to peer review the studies, and confirm the methodologies and findings.

What was the scope and purpose of the study?

- Aggregate is sand, stone, and gravel that is excavated out of the ground and used for infrastructure projects.
- The study looked at current and future demand for this important building supply and if there is enough local supply to meet Project needs.
- While the study focused mainly on external aggregate, rather than the rock that will be excavated during construction of the repository, it did look at how this additional rock could impact local aggregate markets.

How was the study conducted?

- Study authors collected baseline information on aggregate demand. They collected information from *NWMO Southwestern Ontario Aggregate Resources Study*, the Ontario Aggregate Resource Council, and the *Huron County Aggregate Resource Strategy*.
- Researchers also interviewed local producers, developers, operations managers, and CEOs of aggregate resource companies to better understand local supply and demand. Then, NWMO designs were analyzed to predict whether local supply would be enough to meet both existing demands and those of the Project.

What did South Bruce's peer reviewers say?

- An independent review of the work said that it provided an initial assessment of aggregate demand. The review noted that future study on aggregate demand would be needed when plans for infrastructure improvements and expansion, and housing/community growth are better known.
- The review also recommended future studies on the impact of excess excavated rock on the potential site and area, and opportunities to reuse this resource.

What did we learn?

- There is enough existing capacity to extract aggregate in South Bruce and the surrounding region to meet Project needs.
- The demand for aggregate would significantly increase for approximately two years out of the duration of the site preparation.
- While it's unlikely that there would be a shortfall of licensed aggregate supply to meet Project and existing demand, there is also enough un-licensed aggregate resources in the area which could be licensed in the future if needed.
- Releasing usable aggregate that could be generated through construction of the Project onto the open market could have a negative commercial impact on other aggregate businesses in the area. Currently, the NWMO's position is that they will not be selling or distributing Project rock.

Stay Involved!

The studies play an important role in ensuring that we can make an informed decision about the Project. There a number of ways you can stay involved, and learn more about the studies.

- Read the full study reports and peer review reports:
 - Visit www.southbruce.ca/Studies for electronic copies.
 - Visit the Municipal Office, or the Mildmay, Teeswater, or Formosa libraries to view print copies.
- Join a monthly virtual question and answer session with the consultants to ask them questions directly about the studies and peer reviews.
- Links will be posted on the Municipal website to join the meetings, which will be held once a month on the fourth Thursday, following the two CLC meetings.
- Mark your calendar for the first virtual "Meet the Experts":

June 23, 2022 7-9 p.m. via Zoom

Authors and experts will be available for The Labour Baseline Study, Workforce Development Study, Local Hiring Effects Study and Strategy, Land Use Study, Housing Needs and Demand Analysis Study, Aggregate Resources Study, and the DGR Conceptual Design and Safety Case

Questions and Comments

- If you have questions or comments about the studies and peer reviews, they can be submitted through our community engagement tool: www.southbruceswitchboard.ca
- The South Bruce Nuclear Exploration Project Team will be pleased to direct your question or comment to the appropriate person (consultant, study manager, etc.) as required.
- We will make every effort to provide a timely response. Thank you again for taking an interest in, and learning about the Project studies!

About the Project

Nuclear power is used in several provinces. In Ontario, it supplies about half of our electricity. The used nuclear fuel from power plants is currently stored securely above-ground at seven sites across Canada.

The NWMO is tasked with finding a safe, permanent solution. Globally, storing the waste in a reinforced facility deep underground is considered the safest long-term option.

The proposed South Bruce facility would be about 660-metres underground, with a Centre of Expertise and other facilities built above ground. About half of the waste that will be stored in this facility is expected to come from within Bruce County.

The Municipality of South Bruce is one of two municipalities in the site selection process. After the NWMO comes to an agreement with an informed and willing host community, a federal licensing and Impact Assessment process will begin. These detailed studies will further ensure it is safe for the community and the local environment.