

Manitouwadge CLC Questions

1. Once all of the used fuel is placed deep underground in the DGR, how will animals be affected?

The repository will only be situated in a location where the health and safety of people and the environment can be assured, now and into the future. The NWMO is required to demonstrate the safety of the repository to the satisfaction of the regulator before a licence for the project to proceed would be granted.

To protect people and the environment, the repository will consist of a number of engineered barriers and be located deep underground in an area with favourable geological characteristics. The engineered barriers and the natural barrier of the geosphere work together to contain and isolate the used nuclear fuel from the surface environment. More information about the multi-barrier system can be found on the NWMO's website at: <http://www.nwmo.ca/backgrounders>.

While the search for a willing and informed host community is proceeding, in parallel the NWMO conducts postclosure safety assessments for hypothetical geospheres and conceptual repository designs. As required by the regulator, these postclosure safety assessments examine four key topics:

1. Radiological protection of persons.
2. Protection of persons from hazardous substances.
3. Radiological protection of the environment.
4. Protection of the environment from hazardous substances.

The effects of the repository on animals are addressed in the work undertaken to address items 3 and 4 in the above list.

Although no specific site has yet been identified, the NWMO has conducted a postclosure safety assessment for a conceptual repository in a hypothetical crystalline rock geosphere – this is the type of rock generally found in the Manitouwadge area. This assessment concludes that the environment (including animal species) is well protected from both the radiological and non-radiological consequences arising from the repository.

This assessment is described in NWMO TR-2012-16 *Used Fuel Repository Conceptual Design and Postclosure Safety Assessment in Crystalline Rock*, available on our website: www.nwmo.ca/news?news_id=424

2. During a recent transportation of nuclear material incident at a port on Canada's east coast there seemed to be a comprehensive response plan in place even though there was no release of nuclear materials, would something similar be in place for NWMO's program?

Yes, the NWMO will provide an emergency response plan to the Canadian Nuclear Safety Commission (CNSC), Transport Canada and the provinces to demonstrate that appropriate emergency measures are in place and that information is available to relevant public emergency response agencies.

3. What happens if a long term storage container for used nuclear fuel leaks once it is underground?

Due to the robust containers, the low permeability backfill materials, and the natural barrier of rock provided by the geosphere, as well as the natural decrease in radioactivity of the waste with time, it is anticipated that little if any contamination will escape the repository and reach the surface environment in the one million year time frame of interest.

Nevertheless, postclosure safety assessments consider a number of hypothetical scenarios, including extremely unlikely scenarios such as failure of all containers. The assessments test the potential impact on a hypothetical family in the future, with all of its members living and working directly above the closed and sealed repository and obtaining all its food and water from local sources. The analysis completed to date on hypothetical sites shows the potential dose rates to the family are well below regulatory levels.

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4. The CNSC has announced a requirement for the distribution of pills to residents near nuclear reactors to have available in case of an incident, would something similar be planned for NWMO's DGR?

Distribution of potassium iodide pills – often referred to KI Pills – is not planned for the DGR.

KI pills are used to protect the thyroid gland from radioactive Iodine-131 (I-131) that could be released into the air during a nuclear power plant accident that involves fuel damage and off-site radiological releases. Because I-131 has a half-life of about 8 days, essentially all I-131 will have disappeared before the used fuel is transported to the DGR. Consequently, release of I-131 into the air from a hypothetical DGR accident is not a concern.