

Overview of the Integrated Strategy for Radioactive Waste

In 2020, the Nuclear Waste Management Organization (NWMO) was asked by Natural Resources Canada to lend its technical and public engagement expertise to the development of an Integrated Strategy for Radioactive Waste. The NWMO was asked to develop this Strategy as part of the Government of Canada’s Radioactive Waste Policy Review.

While the majority of Canada’s radioactive waste (84%) has long-term disposal plans, there are some gaps. The Strategy recommends approaches to address the gaps in waste disposal planning for all of Canada’s radioactive waste from electricity generation and the production of medical isotopes. It does not duplicate or replace the many good long-term disposal plans in place and progressing – including Canada’s Plan for used nuclear fuel.

The Strategy a first of its kind for Canada. It is informed by more than two years of engagement with Canadians, Indigenous peoples, and waste generators and owners, as well as detailed studies of both technical considerations and international best practices.

Key Recommendations

The Strategy makes two key recommendations based on waste types – one for low-level waste and another for intermediate-level and a very small amount of non-fuel, high-level waste.

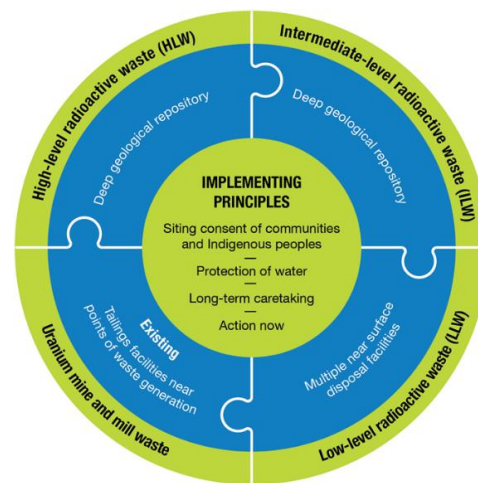
It is recommended that low-level waste be disposed of in near-surface disposal facilities with implementation managed by waste generators and waste owners.

It is also recommended that intermediate-level waste and non-fuel, high-level waste from medical isotope production be disposed of in a deep geological repository, to be implemented by the NWMO and developed through a consent-based siting process.

Implementing Principles

The Strategy includes four principles to support the effective implementation of its recommendations. These principles are based on what Canadians and Indigenous peoples shared was most important through the NWMO’s engagement efforts.

1. **Consent** of the local communities and Indigenous peoples in whose territory future facilities will be planned must be obtained through the siting process.
2. Design of facilities should prioritize the **protection of water**.
3. **Long-term caretaking** should be established for disposal facilities.
4. We need to take **action now** and not defer to future generations.



Frequently Asked Questions

What is this waste?

Low-level waste – Mostly comes from power plants and medical, academic, industrial and other commercial uses of radioactive materials (e.g., mop heads, rags and paper towels, etc.). These items have no heat and contain radioactive levels that require containment and isolation for up to a few hundred years.

Intermediate-level waste – Includes used components such as filters, resins, pumps, etc., from power plants, research reactors and medical isotope manufacturers. This waste produces minimum heat but requires a higher level of containment and isolation for longer time periods than is needed for low-level waste.

High-level waste – Includes mostly used nuclear fuel, but there is a very small amount of non-fuel high-level waste that comes from other activities such as medical isotope production. This waste generates a significant amount of



heat and radioactivity and requires containment and isolation for hundreds of thousands of years in a deep geological repository.

Who will be involved in implementing the Strategy?

As outlined in the Government of Canada's new Policy for Radioactive Waste Management and Decommissioning, the implementation of this Strategy will be a collaborative effort between governments, industry, Indigenous peoples, current and prospective nuclear host communities, scientific experts and other interested Canadians. Waste generators and waste owners will continue to be responsible for the funding and long-term management of waste.

When will the Strategy be implemented?

The timeline for implementation will be determined based on the feedback of Natural Resources Canada. The Strategy was submitted to the Minister for consideration on June 30, 2023.

What does this Strategy mean for Canada's plan for used nuclear fuel?

Canada's plan for used nuclear fuel remains unchanged. The NWMO's work with the two remaining areas involved in the consent-based siting process for a deep geological repository for used nuclear fuel continues and is separate from the development and considerations of this Strategy.

How will a site for a deep geological repository for intermediate- and non-fuel, high-level waste be determined?

The NWMO to support this process, given the organization's technical expertise and more than 20 years of experience engaging with Canadians and Indigenous peoples to develop and implement Canada's plan for used nuclear fuel, including a comprehensive site selection process.

As a next step, the NWMO has proposed to prepare a detailed plan to define a consent-based siting process for a deep geological repository for intermediate-level and non-fuel high-level waste. This planning process would be expected to take 12 to 18 months.

Is it possible that all waste recommended to be disposed of in a deep geological repository be stored in the same facility?

Communities who have participated in the siting process for the deep geological repository for used nuclear fuel may wish to participate in this siting process, if they would like. The siting process for a deep geological repository for intermediate-level and non-fuel, high-level waste will be a separate process, and the consent of local communities and Indigenous peoples will be a key principle.

How will low-level waste be managed?

All of Canada's radioactive waste is safely managed today in licensed interim storage facilities and there are plans for the permanent disposal of much of that waste. For the gaps that exist, the Strategy recommends that low-level waste be disposed of in multiple near surface disposal facilities with implementation by waste generators and waste owners.

There is the possibility of collaboration within industry to develop centralized regional facilities to balance the number of facilities with the distance that the waste would need to be transported. However, transportation or distance will not be the only factor in such a decision.

Who was engaged in the development of these recommendations?

Over the last two years, the NWMO has gathered from more than 4,000 people – including civil society organizations, academics, industry representatives, youth, community leaders, interested Canadians and Indigenous peoples.

