Deep geological repositories: Internationally recognized as best practice

- There is a technical consensus that the end point for spent fuel disposition must include geological disposal, either of the spent nuclear fuel itself or of long-lived waste products produced by reprocessing the fuel. This is the only approach judged feasible for providing the necessary long-term passive protection of humans and the environment.
  - International Atomic Energy Agency, 2011

- For high-level and long-lived radioactive waste, the consensus of the waste management experts internationally is that disposal in deep underground engineered facilities – geological disposal – is the best option that is currently available or likely to be available in the foreseeable future.
  - International Atomic Energy Agency, 2003

- It is broadly accepted at the technical level that, at this time, deep geological disposal represents the safest and most sustainable option as the end point of the management of high-level waste and spent fuel considered as waste.
  - European Commission, 2011

- There is a worldwide consensus amongst technical experts in the field that properly established deep geological disposal is an entirely appropriate management approach for high-level waste and spent nuclear fuel (HLW/SF).
  - Nuclear Energy Agency of the Organisation for Economic Co-operation and Development, 2005

- The conclusion that disposal is needed and that deep geologic disposal is the scientifically preferred approach has been reached by every expert panel that has looked at the issue and by every other country that is pursuing a nuclear waste management program.
  - Blue Ribbon Commission on America’s Nuclear Future, 2012

For more information, please contact: Nuclear Waste Management Organization
22 St. Clair Avenue East, Sixth Floor
Toronto, Ontario M4T 2S3, Canada
Tel.: 416.934.9814 Toll Free: 1.866.249.6966
Email: contactus@nwmo.ca
Website: www.nwmo.ca

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A site has been selected

Country | Status of site selection process
--- | ---
Finland | Has a multi-step process and has received regulatory acceptance for the first step to construct a repository in Olkiluoto. Construction is in progress.
France | Is seeking license to build a repository in Bure.
Sweden | Has submitted a licensing application to build a repository in the municipality of Östhammar. Availing decision by Environmental Court.

Active site selection process

Country | Status of site selection process
--- | ---
Canada | At the preliminary assessment step of a nine-step process for selecting a site, currently working with communities interested in learning more about the project.
China | Preliminary site characterization activities at a potential site in Gansu province, to be followed by in-situ research and development in an underground research laboratory. Site selection expected in 2020.
Czech Republic | Seven areas currently being considered based on technical process, with goal of selecting final and backup sites by 2025.
Germany | Passed a new siting law in 2013; first step in a stepwise process was the establishment of a Commission for discussing basics of how to manage high-level waste and site selection criteria, which was completed in 2016. Proceeding to second step to establish actual siting criteria. A new government agency – BGE (Bundesgesellschaft für Endlagerung) – was established as the implementing organization.
India | Siting based on technical process to identify repository site in stages; focus of siting activities in northwest Rajasthan region.
Russia | Government-directed, technical siting process with local government and public participation. Focus is on the Krasnoyarsk region. Underground research laboratory under construction at Verni, following approval by local community residents.
Switzerland | Implementing a stepwise siting approach with participation of stakeholders and public; has identified six potentially suitable siting areas for low- and intermediate-level waste and three for high-level waste. The two facilities could be co-located at the same site.
United Kingdom | Has invited communities for “no commitment” discussions on hosting a repository.
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International high-level radioactive waste management programs
A site has been selected

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Canada’s plan for the long-term management of used nuclear fuel calls for it to be contained and isolated in a deep geological repository. Canada’s approach is consistent with best practice around the world. Most countries with commercial nuclear power production are planning to isolate the waste byproduct of their nuclear fuel cycle in a deep geological repository. Deep geological repositories use a combination of engineered and natural barriers to safely contain and isolate used nuclear fuel from people and the environment. There is a consensus among major nuclear regulatory and monitoring organizations that repositories are the responsible way forward for long-term management of these materials. A small number of countries partly recycle their used nuclear fuel in existing reactors. Some countries are conducting research on advanced reactors that could also recycle used nuclear fuel. These advanced fuel cycles generate high-level waste, a byproduct with characteristics similar to used nuclear fuel. Studies conducted around the world have concluded that high-level waste from reprocessing should also be contained and isolated in a deep geological repository.