

BRIEFING NOTE: NATURAL RESOURCES CANADA DISCUSSION PAPER ON “WASTE STORAGE FACILITIES”

As part of the review of radioactive waste policy announced by Natural Resources Canada (NRCan) in November 2020, NRCan has produced four discussion papers and created online forums for comment.

The NRCan discussion paper on “Waste Storage Facilities” combines background information, description of current management practices (strategies) and presents current policy points. See more at www.nuclearwastewatch.ca about the review and other topics.

General Comments on the Discussion Papers

- the linkages between the discussion papers are not acknowledged or identified
- the discussion papers are not placed in an overall context of radioactive waste management principles and policy objectives
- the discussion paper descriptions present a non-critical approach to current practices
- the discussion papers lack references or links to support the statements and content

Summary of NRCan’s “Waste Storage Facilities” Discussion Paper

The paper begins by listing four “reasons for storing radioactive waste”, including 1) allowing it to “decay” (reduce its radioactivity) to “clearance levels”, i.e. to be able to send it to local landfills, 2) to accumulate enough volume to reduce the cost of transporting to another facility, 3) to reduce the amount of heat it gives off before “disposal”, and 4) to store it until a “disposal” facility is available. It goes on to claim that all wastes are being managed “in interim storage facilities that are safe, secure and environmentally sound”, and that progress is being made – it particularly notes – on a long term management approach (they mean “disposal”) for high level nuclear fuel waste. It provides a very brief and very general description of current storage of fuel waste, and then of low and intermediate level wastes. It assigns the most page space to its partial citing of the “Canadian Standards Association (CSA) Group’s standard, CSA N292, General Principles for the Management of Radioactive Waste and Irradiated Fuel” and the CSA “design considerations as guidance for operators” which “require that the radioactive waste is safely stored in a manner that provides for the protection of people, the environment and national security, and is in accordance with regulatory requirements”. The paper then presents a map of radioactive waste storage facilities in Canada, before moving to a very general description of the “international context” and a summary of IAEA Safety Standards Safety Guide No. WS-G-6.1, Storage of Radioactive Waste:

- The storage of radioactive waste must ensure that both human health and the environment will be protected, both now and in the future, without imposing undue burdens on future generations.
- Discharges to the environment from storage facilities should be controlled in accordance with IAEA guidance and any facility specific conditions imposed by the regulatory body.
- The adequacy of control measures taken to limit the exposure to workers should be verified by means of individual monitoring and area monitoring.
- The document outlines specific guidance on waste storage for each of the responsible parties (Government, Regulator, and Operator) as well as guidance on the degree of shielding, ventilation, fire protection systems, radiation protection, maintenance, testing, inspection, security, and decommissioning of storage facilities at each stage of the facility lifecycle.

What’s Missing from the NRCan Discussion Paper on Radioactive Waste Storage Facilities

- Discussion of waste categories, classification, inventories, or volumes
- Information about the current practice of consolidating radioactive waste at centralized sites (such as the Western Waste Management Facility at the Bruce Nuclear Generating Station (NGS) where low and intermediate level wastes from Ontario Power Generation’s Darlington and Pickering wastes are sent, as well as the wastes from Bruce NGS, and at the Chalk River Laboratory (CRL) where commercial waste and waste from other federal properties are centralized)
- Information about radioactive waste transportation, which is necessitated by current practices of waste consolidation, such as at the WWMF and CRL

- Acknowledgement of issues and failures with current radioactive waste storage systems, such as leaking irradiated fuel bays where high level nuclear fuel waste is stored, uncertain and missing inventories of low and intermediate level wastes at the WWMF, CRL and at Whiteshell Laboratory in Manitoba
- Discussion of environmental and health effects and risks related to current storage practices, such as release of tritium to groundwater from storage systems at the Western Waste Management Facility and as a result of multiple failures of irradiated fuel bays at Pickering and Bruce, and contamination
- Acknowledgement of issues arising from absent, inadequate or incomplete waste inventories, including at Chalk River, Whiteshell and the Western Waste Management Facility
- Risks related to delayed transfer of spent fuel waste from wet to dry storage and excess debris in fuel bays
- Consideration of security risks and increased vulnerability due to non-hardened storage systems
- Principles of protection of human health and the environment
- Linkages between this discussion paper and the decommissioning discussion paper, particularly related to decommissioning challenges which are increased as a result of poor storage practices

Natural Resources Canada poses two questions to those commenting on the Waste Minimization paper

NRCan Discussion Questions on Radioactive Waste Storage Facilities	Sample Comments in Response
1. What are your views on how radioactive waste is currently stored in Canada?	A key issue with current storage practices is the lack of transparency and public access to information about design and performance of these systems. In general, storage systems have been constructed with the shortsighted assumption that they are temporary or interim, and their design have not been subject to public review and they have not maximized security features (for example, irradiated fuel waste is left in the reactor pool for much longer than the specified time period, where it is most vulnerable to infrastructure failure and to malevolent acts, and then is moved into “temporary” dry storage which is not hardened and in the majority of cases is exposed to extreme weather and malevolent acts by placing it in proximity to large water bodies).
2. What should be the roles and responsibilities of government, the regulator, and waste owners with respect to radioactive waste storage?	Government should establish an independent agency to oversee radioactive waste management, removing the policy function from the regulator. The regulator should demonstrate independence and apply regulatory standards developed through a public process and which are prescriptive and objective. The waste owners should fund the waste management systems, with public scrutiny, regulatory oversight, and detailed reporting.

Additional Reading

[ENGO Backgrounder on Principles of Radioactive Waste Management](#)

[ENGO Backgrounder on Radioactive Waste Classification and Characterization](#)

ENGO Backgrounder on the Transportation of Radioactive Waste

[Transport of Radioactive Wastes to Chalk River Laboratory in Chalk River](#) (CCRCA)

[Problems with radioactive waste classification put Canadians at risk](#) (CCRCA)

Visit www.nuclearwastewatch.ca for additional information about the current review of Canada’s radioactive waste policy, including notices of upcoming events, comment opportunities and information to support public participation.

To read the NRCan discussion paper click [HERE](#). To comment on the NRCan discussion paper click [HERE](#)