

## Flagrant disregard of IAEA safety standards in the proposed NSDF

by Ole Hendrickson, Ph.D., Researcher for Concerned Citizens of Renfrew County and Area

March 26, 2017

The [2009 International Atomic Energy Agency \(IAEA\) Waste Classification System](#) identifies six types of radioactive waste (and a management strategy for each): high level waste (deep geological disposal), intermediate level waste (intermediate depth disposal), low level waste (near surface disposal), very low level waste (landfill disposal), very short lived waste (decay storage), and exempt waste (exemption/clearance). The six waste types are defined based on quantities and half-lives of the radionuclides present in the waste.

The IAEA says that very low level waste (VLLW) and low level waste (LLW) “present a potential hazard for durations not exceeding a few centuries,” and “can safely be contained in a near surface facility.” For VLLW, it recommends “landfill-type surface trenches utilizing a limited barrier,” and for LLW “a combination of site properties and engineered barriers such as liners, concrete disposal vaults and covers of alternating impermeable and water diverting features.”

The IAEA says that intermediate and high level waste (ILW and HLW) “may present a hazard for durations exceeding hundreds of thousands of years,” and “require disposal in a stable, geological environment, capable of ensuring long term safety without human intervention for several thousands (in the case of ILW) or several hundreds of thousands of years (in the case of HLW).”

The [IAEA Safety Standard for Disposal of Radioactive Waste](#) says that the fundamental safety objective of radioactive waste management, including disposal, is “to protect people and the environment from harmful effects of ionizing radiation.” The strategy to achieve this objective with regard to disposal of radioactive waste is “to contain the waste and to isolate it from the accessible biosphere... [which] is taken generally to include those elements of the environment, including groundwater, surface water and marine resources, that are used by people or accessible to people.”

The NSDF proposal turns the IAEA standard on its head. Rather than isolating radioactive wastes from groundwater and surface water, and disposing of them in stable environments ensuring long-term safety, it would use a design similar to a municipal landfill, in which wastes would be deliberately and routinely allowed to come into contact with the environment, including rain and snow.

The NSDF proposal calls for a giant mound of VLLW, LLW and ILW, exposed to the elements. Surface run-off from the mound would carry radionuclides into three storm-water management ponds. These would discharge directly into the East Swamp wetland. Sub-surface waters leaching through the mound would carry radionuclides through a collection system to a newly constructed water treatment facility. This facility would remove some radionuclides (presumably for disposal using an unspecified method), while allowing others (e.g., tritium) to pass through untreated for release into the East Swamp stream, Perch Creek and the Ottawa River.

The NSDF proposal flaunts IAEA guidance calling for “impermeable and water diverting features” for LLW disposal, and a “stable, geological environment” for ILW disposal. Canada, which participates actively in development of IAEA Safety Standards, should not be allowed to flagrantly disregard them at a government-owned facility.