

BACKGROUNDER: SHIPMENTS OF HIGHLY RADIOACTIVE LIQUID NUCLEAR WASTE

February 2015

Atomic Energy Canada Limited (AECL) is planning to truck 23,000 litres of highly radioactive liquid waste from its Chalk River Laboratory (CRL) facility approximately 2000 kilometres (1,200 miles) to the U.S. Department of Energy (DOE) Savannah River Site (SRS) in South Carolina. The shipments could begin as early as the spring of 2015, if approved by regulators in both countries.

The liquid radioactive waste in question has resulted from almost two decades of using weapons-grade uranium in AECL's National Research Universal (NRU) reactor to produce radioactive isotopes. The liquid waste contains highly radioactive fission products such as cesium-137, iodine-129, and strontium-90. Such high-level waste is the most radioactive material to be found on Planet Earth. From 1986-2003, this intensely radioactive liquid was stored in the Fissile Solution Storage Tank (FISST) at Chalk River. In 2003 this tank was nearly full, and was taken out of service. Since then, this radioactive liquid waste at Chalk River has been routinely solidified and stored on-site. Now the liquid contents of the FISST are to be trucked to the Savannah River site

Key Issues

- The shipment of highly radioactive liquid waste over public roads is unprecedented in North America. The casks to be used to ship the waste have never been used for liquid radioactive waste transport.
- These liquid radioactive wastes could be dispersed into the environment if a serious accident occurs. Cleaning it up would be very difficult, if not impossible. The resulting radioactive contamination could last for centuries.
- One or two-truck convoys, each carrying a single cask of about 256 litres of the FISST solution, each and escorted by armed guards, would travel weekly from Chalk River to Savannah River during the summer months. The entire consignment -- about 40-50 shipments -- would take a year or more.
- Trucks carrying liquid radioactive waste would travel over public highways through or by-passing many communities in Canada and the U.S. Each shipment would cross over numerous waterways.
- Transporting such a highly dangerous payload presents unprecedented risks: the safe containment of the corrosive liquid itself, the hazards to workers and bystanders, the potential for accidents en route, as well as the risks of theft, terrorism and other mishaps.
- The shipment of this liquid waste is purportedly to fulfill non-proliferation objectives, by repatriating US-origin weapons grade uranium (HEU = highly enriched uranium). But the HEU can be "downblended" on-site so that it is no longer weapons-usable material, whereupon it will no longer pose a proliferation risk and will not require repatriation.
- The intense radioactivity of the fission products generates heat. In addition, the presence of weapons grade uranium could lead to an accidental chain reaction (called a "criticality" accident). Together, these factors may conceivably breach the container and allow the liquid waste to be released into the environment.
- There have been no environmental hearings or any other public forum to examine potential impacts of transporting this waste or to consider alternatives means to handle it, such as solidifying it and storing it on site, or denaturing the weapons-grade uranium so that it is no longer weapons usable.

Summary

Shipping highly radioactive waste in liquid form over public roads is unwarranted. It sets a dangerous precedent, as it could legitimize future shipments of liquid radioactive wastes on a global scale. The plan to ship this waste must be halted and a public decision-making process instituted to deliberate on this matter, for the safety and protection of the public, and for the sake of international security.

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