

# Shipment of Highly-Radioactive Liquid Waste - Background

## Current Plan

Atomic Energy Canada Limited (AECL) is planning to truck 23,000 litres of highly radioactive liquid waste containing highly-enriched uranium (HEU) from its Chalk River Laboratory (CRL) facility approximately 2000 kilometres to the U.S. Department of Energy (DOE) Savannah River Site (SRS) in South Carolina. The shipments could begin this summer, if approved by both countries.

This liquid HEU-bearing waste has resulted from using weapons-grade HEU in Chalk River's National Research Universal (NRU) reactor for decades to produce radioactive isotopes for medical diagnostic procedures. The waste contains not only residual HEU, but also plutonium, tritium, and mercury, and numerous other highly radioactive dangerous fission products.

From 1986-2003, this waste has been stored in a 24,000 litre tank known as the Fissile Solution Storage Tank (FISST) at Chalk River. Since 2003, after the tank was near capacity and taken out of service, the waste has been solidified and stored at Waste Management Areas at Chalk River. The contents of the FISST are presumably the material to be shipped.

## Key Issues

- The intense radioactivity of the fission products in the waste generates heat that could cause an accidental chain reaction, if not a nuclear explosion. The residual HEU is a security issue, as HEU can be used as a nuclear explosive material.
- The shipment of highly radioactive liquid waste containing HEU is unprecedented in Canada, as far as we know. The casks being used to ship the waste have never been used for **liquid** radioactive waste.
- Several truckloads would be needed to transport all this waste and that could take about four years. Trucks would travel through or near many communities in Canada and many more in the US and would need to cross numerous waterways.
- Transporting such a highly dangerous payload presents *unprecedented risks*: the safety of containment of the liquid itself, the hazards to workers, the potential for accidents enroute, theft, terrorism and other scenarios, including the potential of accidentally triggering a self-sustaining chain reaction.
- Unlike solid waste, liquid waste can leak into the environment, in very large quantities, if a serious accident occurred. Cleaning it up would be very difficult, if not impossible. ***Any incident that resulted in human and environmental exposure to this material would be disastrous and unconscionable.***
- The shipment of this liquid waste is purportedly being considered to fulfill non-proliferation requirements, by consolidating and repatriating US-origin HEU. But because this liquid waste is highly radioactive, the HEU it contains is much harder to make into nuclear weapons than the HEU being shipped to Chalk River in the first place. ***Hence, there is no non-proliferation urgency for these shipments.***
- There has been no process for public discourse on transporting this waste or on other options to handle it, such as solidifying it and storing it on site, as has been done since 2003.

## Summary

Shipping highly radioactive HEU-bearing waste in liquid form to the U.S. is unwarranted and sets a highly dangerous precedent. It could legitimize shipments of similar wastes on a global scale. The plan to ship this waste must be halted and a public decision-making process instituted to investigate this matter, for the safety and protection of the public good, and for international security.

For more information, contact:

Anna Tilman, Vice-President, International Institute of Concern for Public Health

[annatilman@sympatico.ca](mailto:annatilman@sympatico.ca)

Tel: 905-841-0095