



# AFN ENVIRONMENTAL STEWARDSHIP

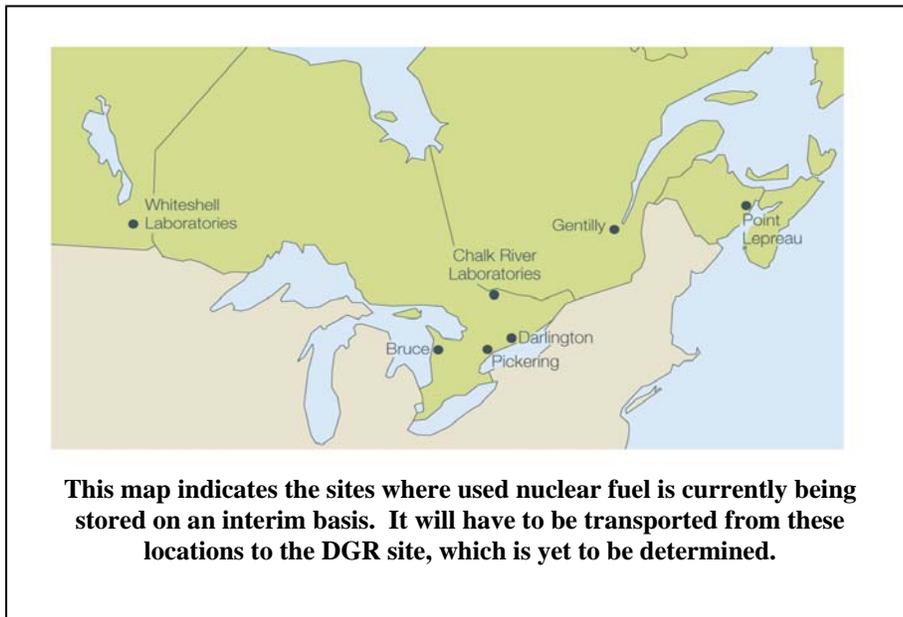
RESPECTING AND PROTECTING MOTHER EARTH

## FACT SHEET: *TRANSPORTATION*

Canada currently has over 2 million used fuel bundles in temporary storage at reactor sites in New Brunswick, Quebec, and Ontario. All those bundles will need to be shipped from their current locations to the deep geological repository (DGR) by road, rail, or water, depending on the location of the facility. It is estimated that by the time the DGR is complete, there will be over 3.5 million used fuel bundles to be transported.



Based on estimates by the NWMO, if all the waste were transported by road, this would require over 50 trips per month over a span of 30 years. This totals about 19,000 shipments.



Fewer trips would be required for rail and water modes of transport, however road transportation would still be required for portions of the trip.

With such extensive transportation requirements, the used nuclear fuel will most likely be transported through First Nation territories or treaty lands.

## TRANSPORTATION PACKAGES

Transportation packages are specially designed to withstand severe accident conditions such as a train accident or truck rollover. The packages themselves are massive and provide physical protection and containment of the radioactive material as well as shielding from radiation. A current package certified for the transport of used nuclear fuel in Canada is made of 30cm thick stainless steel and weighs approximately 35 tonnes.

Every package design must meet severe performance requirements outlined in regulations to demonstrate the ability to withstand impact, fire, and immersion in water. Some of the specific tests conducted on these containers are:



**A free drop of 9 meters onto a solid, unyielding surface**



**A 1 meter free drop onto a rigid vertical bar to test penetration resistance**



**Exposure to an 800 degree Celsius fire for 30 minutes**



**Immersion in 15 meters of water for 8 hours**

Packaging for used nuclear fuel transport casks includes shielding to prevent radiation exposures. Packages of used nuclear fuel are also labelled in accordance with the requirements of Canadian and international regulations. These labels indicate that the material is radioactive by including a radiation symbol.

Every year, about 1 million packages of nuclear materials (mostly for medical use) are successfully shipped in Canada without any notable incidents.

The regulation of dangerous goods (which include radioactive materials) transported in Canada is shared between Transport Canada and the Canadian Nuclear Safety Commission (CNSC). Canada's regulations are in part based upon the regulations of the International Atomic Energy Agency, an international organization created by the United Nations to promote the safe, secure, and peaceful use of nuclear technologies.

