



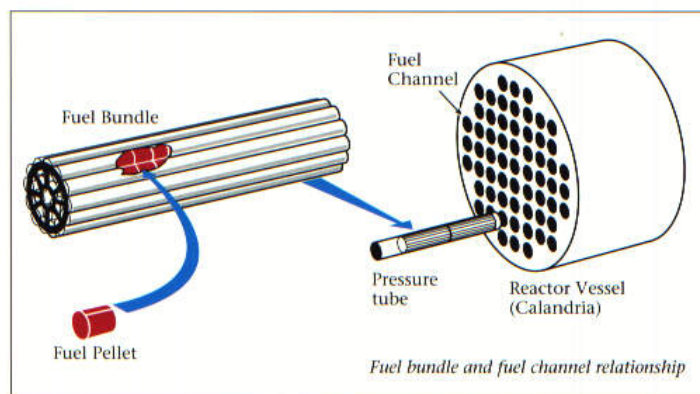
AFN ENVIRONMENTAL STEWARDSHIP

RESPECTING AND PROTECTING MOTHER EARTH

USED NUCLEAR FUEL

Nuclear Fuel

Nuclear fuel is made up of uranium components in the form of ceramic pellets. These pellets are inserted into rods and assembled into fuel bundles. Each bundle is about the size and shape of a fireplace log, weighing about 24 kilograms and measuring half a meter long.



For more information on the fuel cycle from uranium mining to the production of fuel bundles, see fact sheet, [Nuclear Fuel Cycle](#)

Nuclear Power

There are 22 nuclear power plants in Canada: 20 are owned by Ontario Power Generation and the remaining two are each owned by Hydro Quebec and New Brunswick Power. Nuclear power plants use fuel bundles to generate electricity. The energy produced through using these fuel bundles produces heat which transforms water into steam. The steam spins large turbines, which in turn drive the generators that produce electricity. Electricity produced by nuclear power plants is used in homes, and by industry and commercial developments.

Once a fuel bundle is removed from a nuclear power reactor it becomes **used nuclear fuel** which is highly radioactive. Because used nuclear fuel remains radioactive for a long period of time, it must be safely contained and isolated from people and the environment essentially indefinitely.

QUICK FACTS

- Canada's nuclear power program has produced just over 2 million used fuel bundles (to January 2009)
- About 85,000 CANDU used nuclear fuel bundles are generated in Canada every year
- If the current fleet of nuclear reactors operate to the end of their design lives, the number of used nuclear fuel bundles would approximately double to 4 million bundles

Nuclear power producers are responsible for about 98% of used nuclear fuel in Canada - Ontario Power Generation (87%), Hydro-Quebec (5%) and New Brunswick Power (6%). The remainder is owned by Atomic Energy of Canada Ltd (2%) which is responsible for managing legacy waste from its previous operations at the Chalk River Laboratories and Whiteshell Laboratories.

Licensed interim storage facilities



At present, there are currently no operating long-term facilities for used nuclear fuel anywhere in the world although many countries, like Canada, are working towards containment and isolation of used nuclear fuel in a deep geological repository. All used nuclear fuel in Canada is safely contained in licensed interim storage facilities at nuclear power reactor sites and nuclear research sites. This is a temporary management option until a long-term plan is formulated.

For more information on how to get involved, contact the Assembly of First Nations at 613-241-6789 or toll-free 1-866-869-6789 or send an email to environment@afn.ca