

How Dangerous is a Used CANDU Nuclear Fuel Bundle?

The typical age of a used (irradiated and removed from the reactor) CANDU nuclear fuel bundle that would be shipped to a DGR by the NWMO is **40 years**. Some bundles would be older, and possibly some would be newer.



Fuel bundles being transported would be contained in casks intended to shield people and the environment from most of the radiation, but ... what if such a cask were breached? How dangerous are the fuel bundles within?

One hour a foot from a 40-year-old used CANDU fuel bundle can give you radiation sickness – possibly fatal

The radiation dose at 300mm (about one foot) from a 40-year-old irradiated CANDU fuel bundle is about one Sievert per hour. One Sievert is enough to cause **radiation sickness** – nausea, vomiting, hair loss, etc. Radiation sickness is a serious, often fatal medical condition.

Four hours a foot from a 40-year-old used CANDU fuel bundle will cause 50% of people to die painfully within 30 days

Four Sieverts (400 rems) of exposure will kill half of exposed people within the following 30 days, during which they will experience extreme radiation sickness.

For reference, the annual permissible dose (ref: CNSC, "[Radiation Doses](#)" webpage) for an atomic worker is 50 *milli*Sieverts (0.05 Sieverts); that limit would be reached in 3 minutes at 300mm from a 40-year-old irradiated CANDU fuel bundle.

References:

Canadian Nuclear Safety Commission: Radiation Doses

<http://nuclearsafety.gc.ca/eng/resources/radiation/introduction-to-radiation/radiation-doses.cfm>

Atomic Energy of Canada Ltd. : Characteristics of Used CANDU Fuel

<https://www.osti.gov/etdeweb/servlets/purl/169800> (special attention to Figure 90)

We the Nuclear Free North is an alliance of Indigenous and non-Indigenous people & groups opposed to transporting and burying highly radioactive nuclear waste in NW Ontario. Get in touch!

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