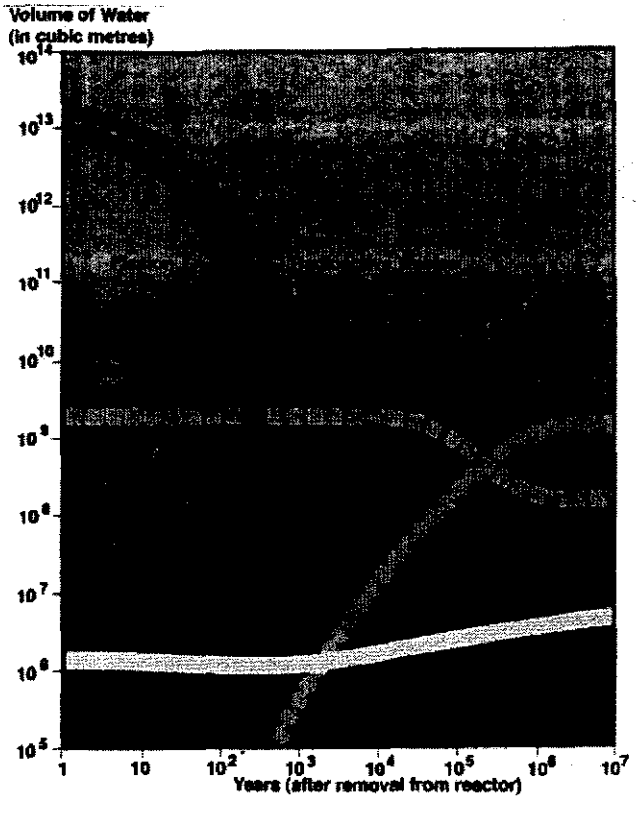
The ingestion toxicity of CANDU nuclear wastes over a period of 10 Million Years

This graph, published in 1978 by the Ontario Royal Commission on Electric Power Planning, shows (over a period of 10 million years) the toxicity of radioactive wastes created in one year by the operation of a (hypothetical) 1000 megawatt CANDU nuclear reactor.

The "high-level wastes" consist mainly of fission products and actinides contained in the spent reactor fuel.

The "uranium mill tailings" are sandy radioactive residues left over from mining and milling uranium ore to produce CANDU fuel.

The vertical axis indicates the "ingestion toxicity": it is the volume of water required to dilute the nuclear wastes to public drinking water standards.



Although this hazard index is only a crude measure of of the potential danger of the radioactivity, because many environmental factors are involved, it nevertheless gives an idea of the serious nature of the danger. The horizontal scale indicates the storage time in years.

For the first 600 years the radioactivity is due, almost exclusively, to the fission products, and for the following 100,000 years the main radioactive isotopes are plutonium and americium.

For comparison purposes, the relative ingestion hazards of uranium ore and uranium mill tailings, as well as the high-level wastes, is also shown.

from A Race Against Time, pp. 91-93 Royal Commission on Electric Power Planning Ontario, 1978.