

Inventory of Radioactive Waste in Canada

EXECUTIVE SUMMARY

This report presents the inventory of radioactive waste in Canada to the end of 2007. It is intended to provide an overall review on the production, accumulation and projections of radioactive waste in Canada. The data presented in this report has been gathered from many sources including regulatory documents, published reports and supplemental information provided by the regulatory agency, waste producers and waste management facilities.

Radioactive waste has been produced in Canada since the early 1930s when the first radium mine began operating at Port Radium in the Northwest Territories. Radium was refined for medical use and uranium was later processed at Port Hope, Ontario. Research and development on the application of nuclear energy to produce electricity began in the 1940s at the Chalk River Laboratories (CRL) of Atomic Energy of Canada Limited (AECL).

At present, radioactive waste is generated in Canada from: uranium mining, milling, refining and conversion; nuclear fuel fabrication; nuclear reactor operations; nuclear research; and radioisotope manufacture and use.

Radioactive waste is grouped into three categories: nuclear fuel waste, low- and intermediate-level radioactive waste, and uranium mining and milling wastes.

In accordance with the Radioactive Waste Policy Framework, the owners of radioactive waste are responsible for the funding, organization, management and operation of long-term waste management facilities required for their waste. The policy recognizes that arrangements may be different for each of the three waste categories.

Radioactive waste is currently managed in a safe and environmentally responsible manner by storing the waste in accordance with the requirements set out by the Canadian Nuclear Safety Commission (CNSC), Canada's independent nuclear regulator.

The following table presents a summary of the quantity of radioactive waste produced in 2007 and the cumulative inventory to the end of 2007.

Waste Data to 2007

WASTE CATEGORY	WASTE PRODUCED IN 2007	WASTE INVENTORY TO THE END OF 2007
Nuclear Fuel Waste	311 m ³	8,130 m ³
Intermediate-Level Radioactive Waste	890 m ³	30,350 m ³
Low-Level Radioactive Waste	4,560 m ³	2.33 million m ³
Uranium Mill Tailings	0.7 million tonnes	216 million tonnes
Waste Rock	N/A	175 million tonnes

Note: N/A - not available

In order to assess the future requirements for the management of radioactive waste, a projection of the inventory to the end of 2008 and 2050 is also provided in the table below. The year 2050 is selected as a future reference because it was forecasted as the end of operation for the last constructed power reactors (Darlington Generating Station).

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Waste Inventory Projections to 2008 and 2050

WASTE CATEGORY	WASTE INVENTORY TO END OF 2008	WASTE INVENTORY TO END OF 2050
Nuclear Fuel Waste	8,500 m ³	21,300 m ³
Intermediate-Level Radioactive Waste	31,000 m ³	79,000 m ³
Low-Level Radioactive Waste	2.33 million m ³	2.57 million m ³
