nuclear regulation by setting Canadian standards for all toxic substances, including radioactive substances, in the environment. Transport Canada shares responsibility with the AECB for transportation of radioactive substances, and sets standards for carriers in accordance with the *Transportation of Dangerous Goods Act*. Finally, Health and Welfare Canada is the AECB's principal adviser on the health aspects of radiological exposure and radiation safety.[37]

The following pages provide additional information on the organizations that play important roles in the management of high-level radioactive wastes in Canada, along with comments from the witnesses on their performance.

A. Atomic Energy of Canada Ltd.

In Canada, the leading role in the development of peaceful uses for nuclear energy is played by Atomic Energy of Canada Ltd. (AECL). It has vast responsibilities, which translate into activities ranging from fundamental research to commercial operations and national and international transfers of nuclear technology. To carry out all of these aspects of its mandate successfully, AECL has set up a number of administrative entities. There is, for example, the AECL Research Company, which is responsible among other things for conducting research into management of nuclear fuel wastes.

Under an agreement signed by the governments of Canada and Ontario in 1978, Ontario Hydro is responsible for developing technologies for temporary storage and transportation of spent fuel. AECL is in charge of coordinating and administering the research and development program for seeking safe immobilization and disposal of fuel wastes.[38]

Under the generic disposal method that AECL is currently investigating, waste would be deposited in vaults some 500 to 1,000 metres deep in, what is considered to be stable, crystalline rock formations within the Canadian Shield. A disposal site will not be chosen unless and until this method has been assessed and approved by the governments.

The Canadian Nuclear Fuel Waste Management Program (CNFWMP) is administered by the Whiteshell Nuclear Research Establishment in Pinawa, Manitoba. Its research focuses mainly on immobilization of fuel wastes (i.e. techniques for making them insoluble and sealing them in durable containers), container technology (100,000 containers will be needed by the year 2000 to immobilize spent fuel), buffer and backfill materials, geological barriers and assessment of the behaviour of waste during burial lasting thousands of years.[39] With the concept of burying waste in hermetically-sealed vaults goes that of a "multiple barrier system", designed to create a series of barriers between the waste and the surface of the earth.

Pointing out that Canada's research program is considered by international researchers to be one of the best in the world, the President of AECL's Research Company, S.R.

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(37) Atomic Energy Control Board (1986), p. 9-10.

(38) T.E. Rummery and F.L.J. Rosinger, *Nuclear Fuel Waste Management: The Canadian Approach*, Whiteshell, September 1981, p. 2-3.

(39) According to AECB, taking into account the characteristics of radioactive wastes, the options for their disposal, and the uncertainties in long-term predictions, it is considered that 10,000 years, after the time of waste emplacement, is a reasonable maximum period for assessments of individual risk.