4. What is the safety record of such transportation including the number of accidents that have happened since transportation commenced and how many of the accidents could be classified as being in any way potentially dangerous whatsoever?

5. What tests, if any, have been taken by any branch of government or Crown corporation to determine the dangers involved and what precautionary measures should be taken as a result?

6. Is it the government's intention to continue the transportation of such material and, if so, for what reason?

7. What is the purpose of the transportation of such material from Canada and what is it used for at its destination?

8. Is the government remunerated for such nuclear waste material by recipients and, if so, to what extent?

Hon. Marc Lalonde (Minister of Energy, Mines and Resources): Atomic Energy of Canada Limited and Atomic Energy Control Board report as follows:

1. (a) and (b) It is assumed that the term "nuclear waste material" is a reference to irradiated nuclear reactor fuel discharged from reactors and which contains radioactive fission products and activation products. In the nuclear power program most irradiated fuel produced in CANDU power reactors has been stored on the site of power plants. However, for experimental purposes small quantities of spent fuel have been transported from the Chalk River Nuclear Laboratories—CRNL—since the early 1950s. Such shipments have been made to and from the Whiteshell Nuclear Research Establishment—WNRE—at Pinawa, Manitoba and from the Nuclear Power Development—NPD— reactor at Rolphton, Ontario to CRNL. In addition, shipments have been made from CRNL to the Savannah River Plant of the United States' Department of Energy in South Carolina and irradiated fuel has been sent from the McMaster University research reactor in Hamilton, Ontario to the United States for reprocessing.

In the late 1960s and early 1970s a substantial number of Candu power reactor fuel bundles were shipped to Europe from the NPD, Douglas Point and Pickering reactors.

Atomic Energy of Canada Limited reports as follows:

2. On average there are about 20 spent fuel shipments per year from CRNL of research reactor fuel. Approximately 6-7 per year are made from CRNL to the Savannah River Plant, South Carolina. In some years, no shipments are made with a commensurate increase in subsequent years. As regards the shipping routes of the spent fuel from CRNL, shipments are made in accordance with security plans approved by AECB. In order for these plans to be effective, the information in the plans and details of the actual shipments must be withheld from public exposure.

3. See answer to part 7. Any available port of access to the U.S. could be used for shipments.

4. Since 1964 when shipments by the current transport contractor commenced and a different type of container was introduced for shipping spent fuel, there have been no accidents or accidents involving the shipment of spent fuel from CRNL. However, prior to this date there were five cases involving the release of radioactive material. Three of these shipments were by rail and two by road. Four of these incidents resulted in contamination of the trailer or railway car which were then decontaminated. In one instance, there was leakage onto six square metres of ground outside the railway car. The ground was decontaminated by removing 3°°-6°° of the soil. In no case was there any personnel overexposure. None of these incidents exposed the public to any danger.

6. It is AECL's intention to continue the transportation of spent fuel from Chalk River to the USDOE Savannah River Plant as long as the current fuelling arrangement is used for the research reactors at Chalk River. Some of the reasons for this policy are:

(a) A significant amount of enrichment still remains in the spent fuel after it is no longer usable in the reactor. It is economically advantageous to recover this material.

(b) Canada does not have an operational plant capable of processing irradiated uranium fuel.

(c) Part of the current non-proliferation policy of the United States Government encourages the return of enriched uranium spent fuel to the United States for reprocessing on a timely basis.

It should be noted that the research reactors at Chalk River are used for research and development in support of the Canadian nuclear power program and also to provide isotopes for medical use in Canada and throughout the world.

7. The spent fuel from the research reactors at Chalk River is transported to a reprocessing plant in the United States for the purpose of recovering valuable unused enriched uranium. This recovered material is fed back into the United States government's enriching facilities for re-enrichment. AECL is credited the value of the recovered material. A quantity of enriched uranium, equal in value to the recovered material, is returned to AECL for use in making new fuel for use in its research reactors.

8. See answer to part 7.

Atomic Energy Control Board reports as follows:

5. Shipping containers for irradiated nuclear fuel are certified by AECB to meet internationally recognized standards for safety set by the International Atomic Energy Agency. Some containers of older design are certified with additional administrative precautions being specified if the international standards are not fully met. Such administrative precautions ensure that the same level of safety is achieved. Shipping containers originating outside Canada are certified by the national authority for that country. The foreign-origin containers are reviewed by AECB and the certificate endorsed for use in Canada. The international standards ensure that packages built to those standards are safe for shipment with minimal administrative control and precautions. The use of international standards and the certification procedures permit safe and free international shipment of radioactive material, including irradiated nuclear fuel.