

It is impossible to trace precisely each and every molecule of Canadian uranium through these complex enrichment plants ... However, for each ounce of Canadian uranium fed into the enrichment plant, the same amount, in both enriched and depleted forms as appropriate, is subject to the Canada-USA nuclear co-operation agreement and to the non-explosive use and non-military use commitments contained therein. This is an example of the application of the internationally - accepted notion of fungibility.¹

After the uranium is enriched to the required three-percent concentration of U235, the depleted uranium (which still contains small amounts of U235) is stored. Depleted U238 can be used in military reactors to breed plutonium--a substance which itself can be used to make nuclear weapons. U238 also constitutes an important element of hydrogen bombs, providing fifty percent of their explosive power.

Following the Indian nuclear explosion in 1974, the Canadian Government announced that no uranium of Canadian origin could be enriched or reprocessed without Canada's prior consent. In January 1977, Canada halted uranium shipments to both the European Economic Community (EEC) and Japan after two years of negotiation failed to produce their agreement to the Canadian stipulations. Although Japan consented to abide by the clause soon afterwards, the EEC remained intransigent. It was not until 1980 that an agreement was signed allowing sales to the EEC, with consultation on a case-by-case basis.

Western European countries purchasing uranium from Canada occasionally have arranged for both its enrichment, and its subsequent retransfer to one of Canada's nuclear partners, by the Soviet Union. This practice has been taking place for several years with the complete knowledge and prior consent of the Canadian Government, which has judged it to be fully consistent with Canadian nuclear export and non-proliferation policy.

Greater formalization of this arrangement was established with the signing of the Canada-USSR Agreement Concerning the Peaceful Uses of Nuclear Energy on 14 October 1988. The Agreement stipulates that Canadian uranium shipped to the USSR "... shall not be used for any nuclear explosive device or other military purpose."² It also provides for the direct exchange of information between the parties on the transfer of Canadian uranium into and out of the Soviet Union.³ The Agreement reflects the desire on the part of both governments to ensure a thorough non-proliferation regime.

Tritium, a radioactive isotope of hydrogen, constitutes another key component of nuclear weapons. It is generally found as tritiated water. Its importance is based on its high rate of fusion with deuterium and the large quantity of high-energy neutrons released as a result. The fusion of the two elements produces ten times as many neutrons

¹ Secretary of State for External Affairs, Letter to the Hon. Edward Broadbent, 3 October 1985.

² "Canada/USSR Agreement Concerning the Peaceful Uses of Nuclear Energy," DEA News Release No. 223 (14 October 1988).

³ *Ibid.*.