

In 1971 Prime Minister Pierre Elliot Trudeau warned Prime Minister Indira Gandhi of India that the use of plutonium from the Canadian-supplied CIRUS, RAPP-1 or RAPP-2 reactors "for the development of a nuclear explosive device, would inevitably call on our part for a reassessment of our nuclear cooperation with India." At that time, Gandhi dismissed Trudeau's concern as "hypothetical."

The CIRUS reactor was a copy of Canada's first research reactor, the NRX (National Research Experimental) reactor built at Chalk River, Ontario. The RAPP-1 and RAPP-2 reactors were later sold to India; they were CANDUs, modelled after the Douglas Point reactor built at Kincardine, Ontario.

In 1974, India exploded its first Atomic Bomb using plutonium from the Canadian nuclear reactor CIRUS that had been given as a gift to India in 1954. The Indian government maintained that their Bomb was a "peaceful nuclear explosive" and not a military weapon. India pointed out that the uranium fuel which bred the plutonium was not of Canadian origin. Nevertheless, Canada broke off nuclear cooperation with India (although India remained a member of COG, the CANDU Owner's Group).

In a sense, India was following an example laid down by Canada. The NRX reactor had been designed in a secret wartime laboratory in Montreal, on the slopes of Mount Royal, by a team of scientists from Britain, France, and Canada, as part of the WWII Atomic Bomb project. NRX was built at Chalk River following a decision made in Washington DC in April 1944 by a tripartite wartime committee with American, British and Canadian members. Years later, a bronze plaque at the Chalk River Visitor's Centre proudly stated that the Canadian project was initially conceived as "part of an effort to produce plutonium for bombs".

In fact when Canada gave India the CIRUS reactor in 1954, there were two reprocessing plants operating at Chalk River – one to extract plutonium from irradiated uranium rods and one to extract a man-made isotope of uranium, uranium-233, from irradiated thorium rods. Both of these reprocessing plants were built at the urging of the USA to extract fissile materials that could be used as explosives in nuclear weapons. Indeed, the USA supplied India with the reprocessing plant used to extract plutonium from the used fuel produced by the CIRUS reactor – but supposedly for peaceful purposes, to explore the use of plutonium as a commercial reactor fuel.

For twenty years after the end of WWII, Canada's uranium had been sold under military contracts for use in the American weapons program, as was plutonium from Chalk River. So Canada's nuclear program was still strongly tied to the Cold War nuclear arms race. That changed in 1965, when Lester B. Pearson – Trudeau's immediate predecessor as Prime Minister – announced that Canada would no longer sell uranium (or other nuclear materials) for bombs. The era of "Atoms for Peace" had arrived. India had of course obtained the CIRUS reactor ten years earlier, when that distinction had not been quite so firmly drawn.

When Ontario launched its Royal Commission Inquiry on Electric Power Planning in 1977, Atomic Energy of Canada Limited (AECL) told the Commission that AECL had no plans for embarking on reprocessing (plutonium extraction) in Canada. That statement was disingenuous, for in February 1977, AECL held a day-long seminar with senior civil servants in Ottawa, urging that the government of Canada build two demonstration commercial reprocessing plants without delay, one to extract plutonium from existing CANDU reactor used fuel, and one to extract uranium-233 from newly-proposed thorium/plutonium fuel bundles to be used in a new "advanced fuel cycle" whereby CANDUs would become "near-breeder" reactors. See http://www.ccnr.org/aecl_plute_seminar.html .

But the 1974 Indian explosion had rattled nerves around the world and in the USA had led to an intense re-examination of plutonium and the reprocessing option. In April 1977, just two months after the AECL seminar, President Jimmy Carter announced his intention to halt commercial plutonium reprocessing in the USA and to urge the same policy abroad. This policy was based primarily on concerns over the proliferation of nuclear weapons, accompanied by the observation that plutonium was not needed as a reactor fuel because of ample low-cost uranium supplies (a consideration that is equally true today).

AECL spokesmen tried to distance themselves from the plutonium controversy by denying that CANDU plutonium could be used to make nuclear weapons. On March 10, 1976, Ian MacKay of AECL testified to the Prince Edward Island Legislature as follows: "What is nuclear power? Well, it's just a method of generating electricity using uranium as fuel instead of oil. It has practically no technology in common with nuclear bombs. This, of course, is undramatic, and any possible relationship with bombs is much more news than claiming no relationship, so you can't blame the press for reporting on that sort of thing Now the used fuel contains plutonium, which is about a quarter of one percent of the used fuel, and this is potentially useful in the future. Right now it is not useful. It is not useful for making bombs – I would like to emphasize that. It is about two-thirds the kind of plutonium that is useful for bombs, and the other third is impurities which are very difficult to separate out – other isotopes of plutonium."

In May 1977 the Canadian Coalition for Nuclear Responsibility wrote an open letter to Prime Minister Trudeau urging his government to "Stop and Think". See http://ccnr.org/Stop_and_Think.html . This phrase was borrowed from Sir Brian Flowers, the British Nuclear Physicist who wrote the 1976 UK Royal Commission Report on Nuclear Energy and the Environment, which concluded that "The dangers of the creation of plutonium in large quantities in conditions of increasing world unrest are genuine and serious.... We should not rely for energy supply on a process that produces such a hazardous substance as plutonium unless there is no reasonable alternative." See also. http://www.ccnr.org/Peaceful_Atom.html .

The CCNR Open Letter urged the Prime Minister not to allow AECL to embark upon the reprocessing option in Canada but to "declare a moratorium on reprocessing" because

of proliferation concerns. It also urged him to launch a national inquiry "to acquaint the people of Canada with the hazards and the benefits of nuclear energy development". The proposal for such an inquiry on nuclear power had been passed overwhelmingly and without objection by the Liberal Party policy convention in Ottawa the previous year, attended by the Prime Minister.

In the CCNR May 1977 Open Letter to Trudeau, it was pointed out that all reactor-produced plutonium is nuclear weapons usable material, and therefore all plutonium extraction ought to be prevented on non-proliferation groups. Among others, the letter cited Victor Gilinsky, then an NRC Commissioner: "There is an old notion, recently revived in certain quarters, that so-called 'reactor-grade' plutonium is not suitable to the manufacture of nuclear weapons . The fact is that reactor-grade plutonium may be used for nuclear warheads at all levels of technical sophistication. . . . Whatever we might once have thought, we now know that even simple designs, albeit with some uncertainties in yield, can serve as effective, highly powerful weapons -- reliably in the kiloton range." ["Plutonium, Proliferation and Policy", by Victor Gilinsky, Technology Review, February 1977.] See also http://www.ccnr.org/plute_sandia.html .

In the summer of 1977, CCNR was informed by the Prime Minister's Office that the PM was in general agreement with the points that were raised in the Open Letter, but that the government would have to be convinced of the need for a national inquiry. In the meantime, the Prime Minister would not be approving any plans for plutonium extraction in Canada. As a result, some years later, AECL sent irradiated nuclear fuel to Italy to have the plutonium extracted and returned to Canada. The security was so tight that even the RCMP was not allowed to know what plane the plutonium was on; the plutonium arrived at Mirabel airport in great secrecy and was whisked away to Chalk River. Even though AECL was fully capable of extracting plutonium at Chalk River, using techniques similar to those used to extract medical isotopes from irradiated target material, it had to be done outside of Canada.

In May 1978, Pierre Elliot Trudeau addressed the United Nations Special Session on Disarmament, where he enunciated his famous "strategy of suffocation". He said "only the deaf cannot hear the clamour arising all over the world against the arms race. . . . Men and women from every country are addressing a most urgent appeal to their leaders. They are telling us to start building a system capable of restraining the suicidal rivalry in which we are stuck." If we are to have a world without nuclear weapons, he went on, we must "choke off the vital oxygen on which it feeds" – in other words we must halt the production of highly enriched uranium and plutonium for nuclear weapons. By itself, the strategy of suffocation will not eliminate nuclear weapons but it will prevent adding to the existing nuclear arsenals. It would be a beginning.

When the Royal Commission on Electric Power Planning issued its 1978 report on Nuclear Energy in Ontario, entitled "A Race Against Time", it went out of its way to advise against "advanced fuel cycles" involving the extraction of plutonium, and to emphasize the need for open and transparent public consultation.

“Spent fuel reprocessing and advanced fuel cycles should not be part of Ontario Hydro's system planning Hence, there is no need for a central interim storage facility for spent fuel. All spent fuel should be stored at nuclear generating station sites, either in circulating water storage bays or in "dry storage" if this proves feasible.” (Major Findings and Conclusions, p. xii)

“We prefer on-site (i.e. generating station site) spent fuel storage to a centralized facility. We believe that a central facility would presuppose the reprocessing of spent fuel; it would also involve more transportation and social and environmental problems.” (p. 95)

“New and imaginative approaches to inform and involve the public in nuclear decisions which extend well beyond the public hearing process must be developed.” (Major Findings and Conclusions, p. xv)

“The principle of ‘openness’ of the regulatory process is important. Public participation should increasingly be recognized as an essential component of decision-making on nuclear matters.” (Major Findings, p. xvii)

“Governments must recognize that decisions about nuclear power are fundamentally political in the widest sense of the word; they relate to quality of life and quality of the environment; they cannot be left to the utility alone.” (Major Findings and Conclusions, p. xviii)

Gordon Edwards.