Decision-Making on Irradiated Nuclear Fuel

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based on the Canadian Experience

Canadian Coalition for Nuclear Responsibility
www.ccnr.org

The Shock of Recognition

- production of irradiated fuel began: 1945
- first commercial nuclear power plant: 1966
- Canadian Coalition for Nuclear Responsibility: 1975
- first official gov’t recognition of problem: 1976

The Shock of Recognition

- “The Flowers Report” UK Royal Commission 1976
- “The Hare Report” Canadian Gov’t 1977
- “A Race Against Time” Ontario Royal Comm. 1978
- “Nuclear Wastes: What, Me Worry?” CCNR 1978

The Shock of Recognition

- House of Commons Inquiry (aborted) 1977-78
- Ontario-Canada Agreement signed July 1978
- Massive Citizen Opposition (Ontario) 1978-1981
- Select Committee on Ontario Hydro Affairs 1980

The Shock of Recognition

- Massive Citizen Opposition (Ontario) 1978-1981
- Underground Research Laboratory (Manitoba) 1982
- Seaborn Environmental Assessment Panel 1988
- Seaborn Panel Report 1998

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“A Race Against Time” 1978

nuclear moratorium

- An independent review committee should be established to report to the Atomic Energy Control Board (AECB) on progress on waste disposal research and demonstration. If the committee is not satisfied with progress by 1985, a moratorium on additional nuclear power plants would be justified.

  - Royal Commission on Electric Power Planning
    - (Major Findings and Conclusions, p. xiii)

“A Race Against Time” 1978

risks and benefits

- The hazards associated with transportation, in particular the possibility of accidents and the threat of hijacking, are real possibilities. Hence, the minimization of handling and transporting spent fuel is a desirable objective. (p. 91)

- An assessment of the acceptability of the risks and benefits of nuclear power must include an assessment of the social, ethical and political implications of its use. (Major Findings and Conclusions, p. xv)

“A Race Against Time” 1978

plutonium and centralization

- Spent fuel reprocessing and advanced fuel cycles should not be part of Ontario Hydro's system planning to the year 2000. 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)

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decision making

- 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)

“The Flowers Report” 1976

- We are agreed that it would be irresponsible and morally wrong to commit future generations to the consequences of fission power on a massive scale unless it has been demonstrated beyond reasonable doubt that at least one method exists for the safe isolation of these wastes for the indefinite future.

- Nuclear Physicist Sir Brian Flowers
- U.K. Royal Commission on Environmental Pollution
- Sixth Report "Nuclear Power and the Environment"
- September 1976 -- page 81 paragraph 181

Seaborn Panel Report

- Broad public support is necessary in Canada to ensure the acceptability of a concept for managing nuclear fuel wastes.

- Safety is a key part, but only one part, of acceptability. Safety must be viewed from two complementary perspectives: technical and social.

- *On this basis, the Panel defined the safety and acceptability criteria as follows:*

Seaborn Panel Report

- To be considered acceptable, a concept for managing nuclear fuel wastes must
- a) have broad public support;
- b) be safe from both a technical and a social perspective;
- c) have been developed within a sound ethical and social assessment framework;
- d) have the support of Aboriginal people;
- e) be selected after comparison with the risks, costs and benefits of other options; and
- f) be advanced by a stable and trustworthy proponent and overseen by a trustworthy regulator.

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- To be considered safe, a concept for managing nuclear fuel wastes must be judged, on balance, to
- a) demonstrate robustness in meeting appropriate regulatory requirements;
- b) be based on thorough and participatory scenario analyses;
- c) use realistic data, modelling and natural analogues;
- d) incorporate sound science and good practices;
- e) demonstrate flexibility;
- f) demonstrate that implementation is feasible; and
- g) integrate peer review and international expertise.

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- From a technical perspective, safety of the AECL concept has been on balance adequately demonstrated for a conceptual stage of development, but from a social perspective, it has not.

- As it stands, the AECL concept for deep geological disposal has not been demonstrated to have broad public support. The concept in its current form does not have the required level of acceptability to be adopted as Canada's approach for managing nuclear fuel wastes.

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- we have developed the following basic recommendations to governments with respect to a management agency:

- that an NFWMA as described in Chapter 6 be established quickly, at arm's length from the utilities and AECL, with the sole purpose of managing and co-ordinating the full range of activities relating to the long-term management of nuclear fuel wastes;

- that it be fully funded in all its operations from a segregated fund to which only the producers and owners of nuclear fuel wastes would contribute;

- that its board of directors, appointed by the federal government, be representative of key stakeholders;

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- that it have a strong and active advisory council representative of a wide variety of interested parties;

- that its purposes, responsibilities and accountability, particularly in relation to the ownership of the wastes, be clearly and explicitly spelled out, preferably in legislation or in its charter of incorporation; and

- that it be subject to multiple oversight mechanisms, including federal regulatory control with respect to its scientific

“The Lord of the Rings”

- "Two things only remain for us to attempt: to send it over the Sea, or to destroy it," said Glorfindel.
- "But Gandalf has revealed to us that we cannot destroy it by any craft that we here possess," said Elrond.
- "And they who dwell beyond the Sea would not receive it: for good or ill it belongs to us; it is for us who still dwell here to deal with it."
- "Then," said Glorfindel, "let us cast it into the deeps. In the Sea it would be safe."

- "Not safe for ever," said Gandalf. "There are many things in the deep waters; and seas and land may change. And it is not our part here to take thought only for a season, or for a few lives of Men, or for a passing age of the world. We should seek a final end to this menace."

- "Then," said Erestor, "there are but two courses, as Glorfindel has already declared: to hide it for ever, or to unmake it. But both are beyond our power. Who will read this riddle for us?"

- "None here can do so," said Elrond gravely. "At least none can foretell what will come to pass, if we take this road or that. But it seems to me now clear which is the road that we must take."

- Lord of the Rings,
- “The Council of Elrond”
- by J.R.R. Tolkien,
- Book 2, Chapter 2