

NWMO BACKGROUND PAPERS

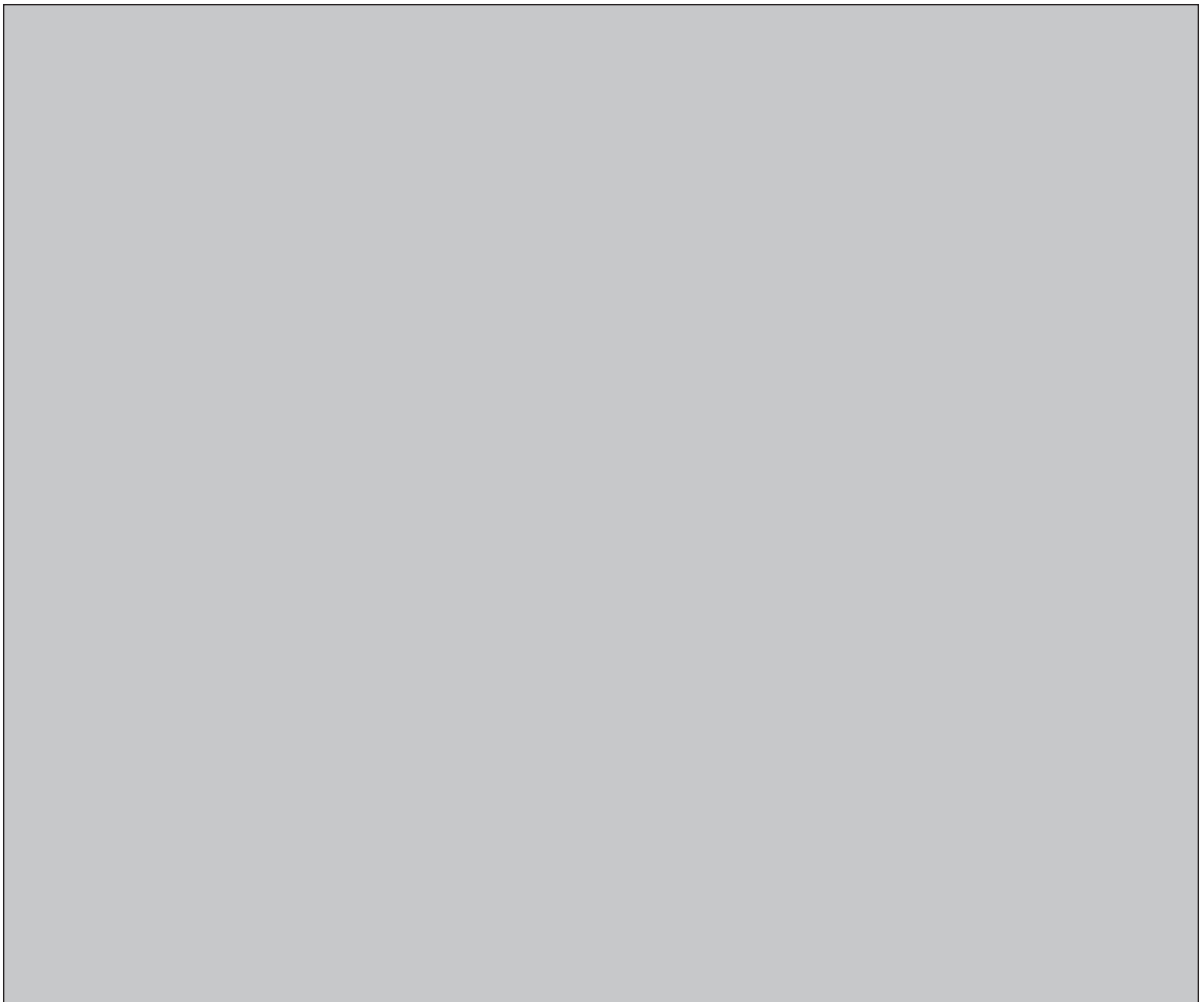
8. WORKSHOP REPORTS

**8-2 WORKSHOP ON THE TECHNICAL ASPECTS OF NUCLEAR FUEL WASTE
MANAGEMENT**

EXECUTIVE SUMMARY

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EXECUTIVE SUMMARY

WORKSHOP ON THE TECHNICAL ASPECTS OF NUCLEAR FUEL WASTE MANAGEMENT

This workshop was organized by the McMaster Institute for Energy Studies to assist the NWMO in its mandate to stimulate a wide ranging public discussion on nuclear waste management issues. Its primary purpose was to identify the key issues, questions and concerns that need to be addressed from a technical perspective. The meeting was attended by 50 to 60 participants from various universities, nuclear energy organizations, and technical and consulting companies with a wide range of expertise, interests, and commitments.

The context of the meeting was set by a plenary address by Phil Richardson of Enviros Consulting (UK) which reviewed the many different international proposals and scenarios for dealing with nuclear waste management. Subsequently, the workshop divided into separate morning and afternoon sessions to deal with:

- Active versus passive approaches to waste management;
- The technology and time horizons involved in the various management options;
- A discussion on whether nuclear fuel should be considered waste or not;
- On-site and off-site storage;
- Permanent disposal options;
- Fuel reprocessing.

Each of these sessions was charged with the following mandate:

- The identification of the key issues pertaining to the particular approach or option;
- The definition of approaches required to address the issues identified;
- The specification of the questions that need to be addressed by the NWMO with respect to the technical aspects of nuclear fuel waste management.

The conclusions from these discussions were then presented and discussed more widely in morning and afternoon plenary sessions. The key issues and concerns raised and discussed at the workshop are summarized as follows:

- The boundaries between storage and disposal are not well defined, and one can view fuel waste management as a flexible set of options encompassing short term on-site storage, longer term central (off-site) storage and permanent disposal. This flexibility is an asset considering the present uncertainties surrounding the nuclear power option.
- Storage of spent fuel is a less expensive option to build and operate and allows the fuel to be more readily retrieved. However, it requires active management and monitoring, and a societal commitment by future generations.

- Of the two possible storage options, on-site at reactor locations and off-site at a central facility, the second may be more secure but could make retrieval more difficult and costly.
- Permanent disposal is a more costly option, initially requiring active management to ensure safety and security, but becoming a passive option once achieved. The societal obligations of future generations would be minimal, but fuel retrieval would be very expensive.
- On-site storage is inevitable, at least for the next fifty years or more, irrespective of any decision made on longer term storage or disposal options. This necessity is based on reasonable estimates of the time required to assess, select, license and construct a longer-term storage or final disposal site.
- This inevitability leaves considerable leeway for the decision-making process on long-term management.
- A fifty-year period of storage leaves a number of options open for the future. These include: (i) a further extended storage period; (ii) permanent disposal; (iii) fuel reprocessing to initiate a second fuel cycle. The chosen option would depend on economic factors and public attitudes at the time.
- Spent fuel management should not be considered in isolation of other nuclear fuel cycle issues, such as reactor decommissioning wastes.
- Nuclear fuel wastes should not be judged by a different standard to that used in the consideration of other industrial wastes.