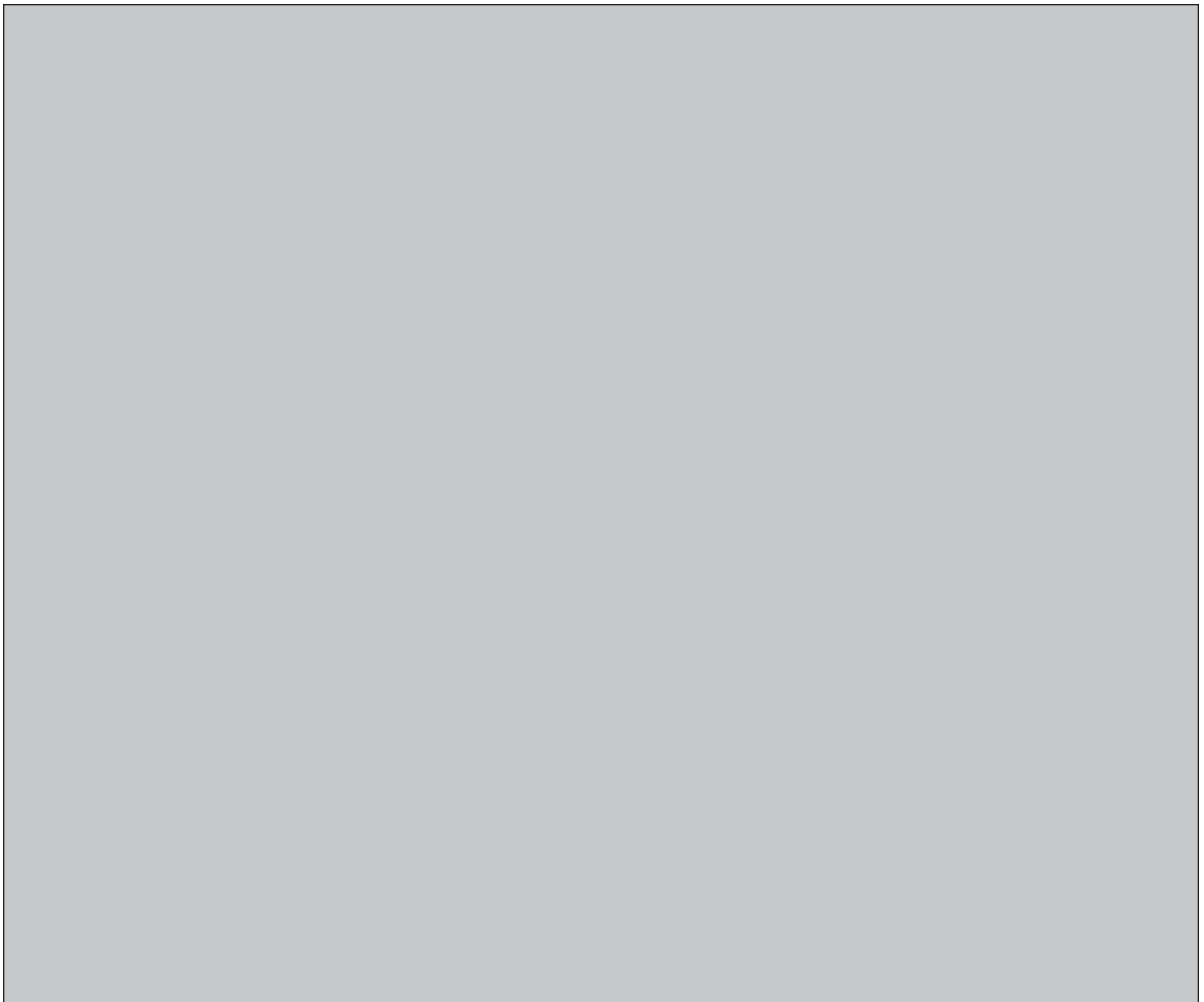


**NWMO BACKGROUND PAPERS**  
**2. SOCIAL AND ETHICAL DIMENSIONS**

**2-7 ETHICAL AND SOCIAL FRAMEWORK**

**NWMO Roundtable on Ethics**



## **NWMO Background Papers**

NWMO has commissioned a series of background papers which present concepts and contextual information about the state of our knowledge on important topics related to the management of radioactive waste. The intent of these background papers is to provide input to defining possible approaches for the long-term management of used nuclear fuel and to contribute to an informed dialogue with the public and other stakeholders. The papers currently available are posted on NWMO's web site. Additional papers may be commissioned.

The topics of the background papers can be classified under the following broad headings:

1. **Guiding Concepts** – describe key concepts which can help guide an informed dialogue with the public and other stakeholders on the topic of radioactive waste management. They include perspectives on risk, security, the precautionary approach, adaptive management, traditional knowledge and sustainable development.
2. **Social and Ethical Dimensions** - provide perspectives on the social and ethical dimensions of radioactive waste management. They include background papers prepared for roundtable discussions.
3. **Health and Safety** – provide information on the status of relevant research, technologies, standards and procedures to reduce radiation and security risk associated with radioactive waste management.
4. **Science and Environment** – provide information on the current status of relevant research on ecosystem processes and environmental management issues. They include descriptions of the current efforts, as well as the status of research into our understanding of the biosphere and geosphere.
5. **Economic Factors** - provide insight into the economic factors and financial requirements for the long-term management of used nuclear fuel.
6. **Technical Methods** - provide general descriptions of the three methods for the longterm management of used nuclear fuel as defined in the NFWA, as well as other possible methods and related system requirements.
7. **Institutions and Governance** - outline the current relevant legal, administrative and institutional requirements that may be applicable to the long-term management of spent nuclear fuel in Canada, including legislation, regulations, guidelines, protocols, directives, policies and procedures of various jurisdictions.
8. **Workshop Reports** - provide information on the outputs and outcomes of some NWMO engagement activities including discussions and expert workshops.
9. **Assessments** - provides perspectives on the advantages and limitations of the management approaches under study.

### **Disclaimer**

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March 4, 2005

## **Nuclear Waste Management Organization**

### **Roundtable on Ethics**

The Roundtable on Ethics has developed the following Ethical and Social Framework within which to consider the management of spent nuclear fuel, as was recommended by the Environmental Assessment Panel in its report to the federal cabinet. The Roundtable recommends that the NWMO adopt this framework, publish it in NWMO documents and on the NWMO Website, and conduct its activities in the light of it. The Roundtable may refine the framework further as the work of the NWMO progresses.

Andrew Brook  
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(in alphabetical order)

### **Ethical and Social Framework**

Recognizing that everyone contributing to NWMO's work seeks to use procedures and make recommendations that are ethically sound, NWMO commits itself to embed ethics in all its activities. The aim is to ensure that its work, its ultimate recommendations, and their implementation reflect the highest ethical standards. To assist NWMO in achieving its ethical goals, the Roundtable on Ethics has constructed a framework of questions designed to guide its deliberations and its ultimate recommendations. These questions aim to identify basic values, principles, and issues.

The ethical principles incorporated in the framework include: Respect for life in all its forms, including minimization of harm to human beings and other sentient creatures; respect for future generations of human beings, other species, and the biosphere as a whole; respect for peoples and cultures; justice (across groups, regions, and generations); fairness (to everyone affected and particularly to minorities and marginalized groups); and sensitivity to the differences of values and interpretation that different individuals and groups bring to the dialogue. These principles apply both to the consultative and decision-making procedures used by NWMO and to the recommendations that it will make.

Given the large stockpile of highly radioactive spent fuel that already exists or will be created in the lifespan of existing reactors and that will be hazardous for thousands of years, some solution to managing this material as safely and effectively as possible must be found.

The goal is to find and implement an ethically sound management approach. However, if no ethically sound management approach exists, adopting the ethically least-bad option available to deal with existing and committed spent fuel would be justified.

By contrast, the creation of new spent fuel (that is, beyond what already exists or will be created in the lifespan of existing reactors) and, thereby, the issue of its disposal, must be judged by the standard of full ethical soundness. If the best current proposal does not meet this standard, then it would not be justified to create new material. To justify creating new spent fuel from an ethical point of view, there must be a management solution that is ethically sound, not just least bad. (The other ethical issues associated with nuclear power generation would have to be resolved, too, problems such as the effects of uranium mining and mine tailings, vulnerability of spent fuel to terrorist attacks, safety of the reactors, danger of diversion for nuclear weapons, and whether increased nuclear power generation can be justified, given the available options.) Moreover, even a least-bad option acceptable for the existing problem might cease to be acceptable if there were changes in the nature of the spent fuel, such as adding spent enriched fuel.

In short, a solution that is ethically acceptable for dealing with existing spent fuel is not necessarily a solution that would be ethically acceptable for dealing with new or changed materials. Thus, a question that urgently needs to be addressed is whether NWMO is dealing simply with existing materials and those that will be created in the lifespan of existing reactors or also with substantial additional spent fuel? And this is no less than the question: What will the future of nuclear power in Canada be?

### **Ethical Questions Relevant to NWMO's Procedures**

Some of the questions that arise concerning procedures are:

- Who should participate in the decision-making process?
- What principles should guide consultations, deliberations, and the making of decisions?
- When facts are in dispute or unavoidably uncertain, how should NWMO proceed?

These general questions give rise to more specific ones. The list of questions that follow is not meant to be exhaustive. For each question, the principle/s involved is/are in boldface type.

Q1. Is NWMO conducting its activities in a way appropriate to making public policy in a **free, pluralistic, and democratic society**? In particular, are its activities **open, inclusive, and fair** to all parties, giving everyone with an interest in the matter an opportunity to have their views heard and taken into account by NWMO? Are groups most likely to be affected by each spent fuel management option, including the transportation required by some of the options, being given full opportunity to have their views heard and taken into account by NWMO? Is NWMO giving special attention to aboriginal communities, as is mandated by the governing legislation?

Q2. Are those making decisions and forming recommendations for NWMO **impartial**, their deliberations not influenced by conflict of interest, personal gain, or bias?

Q3. Are groups wishing to make their views known to NWMO being provided with the **forms of**

**assistance** they require to present their case effectively?

Q4. Is NWMO committed to basing its deliberations and decisions on the **best knowledge** in particular, the best natural science, the best social science, the best aboriginal knowledge, and the best ethics – relevant to the management of nuclear materials, and to doing assessments and formulating recommendations in this light? Equally, have limits to the current state of knowledge, in particular **gaps** and areas of **uncertainty** in current knowledge, been publicly identified and the interpretation of their importance publicly discussed and justified?

Q5. Does NWMO provide a **justification** for its decisions and recommendations? In particular, when a balance is struck among a number of competing considerations, is a justification given for the balance selected?

Q6. Is NWMO conducting itself in accord with the **precautionary approach**, which first seeks to **avoid harm and risk of harm** and then, if harm or risk of harm is unavoidable, places the burden of proving that the harm or risk is ethically justified on those making the decision to impose it?

Q7. In accordance with the doctrine of **informed consent**, are those who could be exposed to harm or risk of harm (or other losses or limitations) being **fully consulted** and are they willing to accept what is proposed for them?

### **Ethical Questions Relevant to NWMO's Recommendations**

As before, key ethical principles are in boldface type.

Q8. Do NWMO's recommendations reflect **respect for life**, whatever form it takes, wherever it occurs, and whenever it exists (now and into the foreseeable future)? In particular, are NWMO's recommended solutions likely to protect human beings, including future generations, other life-forms, and the biosphere as a whole into the indefinite future?

Q9. Is a reasonable attempt being made to determine, in so far as it is possible to do so, the **costs, harms, risks, and benefits** of the options under consideration, including not just financial costs but also physical, biological, social, cultural, and ethical costs (harm to our values)?

Special ethical issues arise with respect to risk assessment in the nuclear industry. For example, might some scenarios be so horrendous that even a slight risk of their occurrence would be morally unacceptable or unacceptable by Canadians?

Q10. If implemented, would NWMO's recommendations be **fair**?

This question breaks down into a number of sub-questions:

Are the beneficiaries of nuclear power (past, present and perhaps future) bearing the costs

and risks of managing spent fuel and other nuclear materials in need of treatment?  
Do the recommended provisions avoid imposing burdens on people who did not benefit from the activities that created the spent fuel?

Are costs, risks, and benefits to the various regions affected by the use, possible transport, and disposal of the materials being distributed fairly?

Are the interests of future generations and nonhuman life forms being respected?

Are the rights of individuals and minorities being respected, especially vulnerable individuals and minorities?

Q11. Do the recommended provisions protect the **liberty** of future generations to pursue their lives as they choose, not constrained by unresolved problems caused by our nuclear activities? Do the recommended provisions maximize the range of choice open to future generations?

### **Important Specific Issues**

In connection with Q8 to Q11, at least four specific issues merit special consideration.

**1. Monitoring, remediation, and, if needed, reversal.** Are sound provisions being made to check on whether management provisions are working as designed? If problems appear, are provisions being made to gain the access needed to fix them? Is the issue of reversal if something goes seriously wrong being taken into account?

**2. Risk reduction vs. access.** What is the appropriate balance between reducing risk to the greatest extent possible and retaining access to the materials, for remediation, for example, or to recover valuable materials from them?

**3. Permanent or interim?** Is it ethically acceptable to seek a permanent solution now or would it be preferable to recommend an interim solution in the hope that future technological improvements might significantly lower the risks or diminish the seriousness of the possible harms?

**4. Lessons to be learned.** What lessons can we learn for the future of the nuclear power generation industry from the problem of management of spent fuel and NWMO's efforts to resolve it?

In closing, we will repeat a point made earlier. Because we must manage already-existing and already-committed spent fuel in some way, here the least-bad option is an ethically acceptable option. By contrast, new spent fuel – whether generated by new reactors, by replacing existing reactors as they reach the end of their serviceable life, or by importing material from other countries – is ethically another matter altogether. For the creation of new spent fuel to be ethically justified, it would have to be shown that there exists a management option that is ethically sound, not just least-bad. (Other ethical issues to do with nuclear power generation such as the ones mentioned above would have to be resolved, too.)