



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

October 30, 1992

OFFICE OF THE
COMMISSIONER

MEMORANDUM FOR: The Chairman
Commissioner Rogers
Commissioner Remick
Commissioner de Planque

FROM: James R. Curtiss *Jim R. Curtiss*

SUBJECT: INTERACTION WITH THE NATIONAL ACADEMY OF
SCIENCES ON HIGH-LEVEL WASTE ISSUES

Title VIII of the recently-enacted Energy Policy Act of 1992 directs the Environmental Protection Agency (EPA) to enter into a contract with the National of Academy of Sciences (NAS) for the purpose of evaluating several key issues related to the regulatory framework for a high-level waste repository. The NAS study called for under section 801 of Title VIII is to focus on three basic issues --

- 1) whether a health-based standard based upon doses to individual members of the public from releases to the accessible environment will provide a reasonable standard for protection of the health and safety of the public;
- 2) whether it is reasonable to assume that a system for post-closure oversight of the repository can be developed, based upon active institutional controls, that will prevent an unreasonable risk of breaching the repository's engineered or geologic barriers or increasing the exposure of individual members of the public to radiation beyond allowable limits; and
- 3) whether it is possible to make scientifically supportable predictions of the probability that the repository's engineered or geologic barriers will be breached as a result of human intrusion over a period of 10,000 years.

Once this study is complete, and following promulgation by EPA of a generally applicable standard that takes into account the findings and recommendations of the NAS study, section 801 then requires the NRC to revise its regulations to ensure that the

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agency's technical requirements and criteria are consistent with the standards promulgated by EPA.

The issues that the NAS has been called upon to address in the study required by section 801 are, in my judgment, fundamental policy questions that, in many respects, are central to the issue of how we as a nation will evaluate the acceptability of a high-level waste repository. As such, I believe that the upcoming study by the NAS will likely play a major role in defining the important considerations and recommending a future course of action insofar as the regulatory framework for a high-level waste repository is concerned. In particular, the extent to which the regulatory framework should rely on active institutional controls, the related question regarding our ability to predict the likelihood of human intrusion over a period of 10,000 years, and the propriety and feasibility of establishing a health-based standard based upon doses to individuals are all issues that present fundamental policy questions.

For the foregoing reasons, I believe that it is incumbent upon the Commission to be in a position to interact closely with the NAS, as the need arises, with respect to how these issues are addressed. Accordingly, I would propose that we direct the staff to develop for Commission review and consideration a comprehensive analysis of the three principal issues that the NAS will be called upon to address. The paper should -- (i) review the history and background with regard to these issues, summarizing the considerations that led to the approach reflected in the current regulations, as well as any difficulties encountered in implementing the approach taken to date; (ii) summarize the experience and approach that has been taken by other countries, as well as by the relevant international bodies; (iii) compare and contrast the approach taken for other environmental hazards (both radiation- and nonradiation-related) regulated by the federal government; and (iv) lay out for the Commission's consideration the options for how these issues might be addressed, together with an objective assessment of the pros and cons of each of these options. In view of the timing of the NAS study, I believe it is important for the Commission to receive such a paper by mid-December.

As a separate matter, I would recommend that the staff also provide us with their views on what impact section 801 of Title VIII will have on ongoing agency initiatives in the high-level waste arena. In particular, I believe we need to have the staff's views on whether any of the ongoing activities to address regulatory uncertainties in 10 CFR Part 60 would be affected by the provisions of section 801. I would recommend that this paper be submitted to the Commission by the end of the year.

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