## NATIONAL RESEARCH COUNCIL

## COMMISSION ON GEOSCIENCES, ENVIRONMENT, AND RESOURCES

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BOARD ON RADIOACTIVE WASTE MANAGEMENT (202) 334-3066 Fax: 334-3077

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August 17, 1990

**James Curtiss** Commissioner U.S. Nuclear Regulatory Commission Washington, DC 20555

Dear Commissioner Curtiss,

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Because of the widespread scientific concern and interest in the revisions being made during the remand of 40 CFR Part 191, in September 1990 the Board on Radioactive Waste Management (BRWM) is Holding a Symposium on Radioactive Waste Repository Licensing. The symposium, scheduled for 17-18 September 1990 at the National Academy of Sciences auditorium in Washington, will examine the status of the licensing requirements in the United States and elsewhere. We expect presentations on the U.S. approach to be made by the Department of Energy (DOE), the Environmental Protection Agency (EPA), the Advisory Committee on Nuclear Waste (ACNW) of the Nuclear Regulatory Commission (NRC), the Nuclear Waste Technical Review Board (NWTRB), and other interested parties, including selected international, state and environmental interest groups. On behalf of the National Academies of Science and Engineering and the National Research Council we invite the NRC's participation and ask you personally to make the keynote address.

Numerous concerns about the EPA's standards for geologic disposal provide the impetus for this symposium. Over the past few months a number of organizations have made recommendations on topics to be considered during the EPA's deliberations on the revision of 40 CFR Part 191. On December 21, 1989, the ACNW wrote to Chairman Kenneth E. Carr, recommending that

"...the Commission object to the EPA standards on the basis that

- There are no obvious ways for demonstrating compliance of any specific repository site with the Standards. In this sense, the Standards may be unrealistic.
- The Standards are also overly stringent and inconsistent. There is strong evidence that they will be wasteful of resources with little commensurate benefit."

In March, 1990, the NWTRB, in its report to the Congress and the Secretary of Energy, made a number of suggestions including a re-evaluation of the large degree of conservatism in Section 191.13. The Board recommended that

"...the following modifications should be considered when the Standard: 40 CFR 191 is revised:

- The large degree of conservatism, which is expressed in Section 191.13, and contained in the numerical values in Table 1, Appendix B of that Section, should be re-evaluated in view of presentday environmental and regulatory requirements and also, when appropriate, in view of exposures received routinely and continuously from naturally occurring radiation.
- The vagueness contained in Item c. of Section 191.13 regarding numerical releases of radioactivity in the period 10,000 to 100,000 years post-closure should be removed from 40 CFR 191.

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- The monitoring requirements specified in Section 191.14 should be expressed in more definitive terms.
- The requirement for use of the concept of ALARA in Section 191.14 should be removed for two reasons. First, there is a question of appropriateness and applicability to the high-level radioactive waste repository. Second, if the requirements of 40 CFR 191 can be met, it seems this accomplishment would certainly qualify as ALARA.
- More attention should be given to inherent uncertainties and limitations in geologic information and data projected for periods of tens of thousands of years in regard to the rigor of formulating acceptable and realistic environmental radiation protection standards."

In testimony before the DOE Defense Nuclear Facilities Panel of the House Armed Services Committee, Professor Parker, on behalf of the BRWM of the National Academy of Sciences/National Research Council, testified on some regulations that were not self-consistent. In a letter to the Honorable John M. Spratt, Jr., these points were further elaborated. It was pointed out that some of the detailed regulations could under certain circumstances be counterproductive:

"If one compares the Nuclear Regulatory Commission's (NRC) regulations on low-level waste disposal, with those of the Environmental Protection Agency (EPA) on hazardous waste landfills, one finds that EPA requires minimal leakage with all leakage recovered while NRC designs for controlled leakage. EPA regulates such facilities for 30 years after closure with additional years at the discretion of the Regional Administrator, while NRC requires designs for at least 500 years. Further, on high-level waste disposal where the EPA regulations are presently in remand, NRC limits both rates from the waste, and time of water travel in the undisturbed geological formations. However, one can envisage a situation in a repository in salt where the canister would corrode fairly rapidly yet there would be little transport of the waste away from the site, and therefore a negligible dose. In a crystalline rock repository, one can envisage fairly rapid transport of water but little or no transport of the waste due to its solidification, engineering barriers to its movement, and the waste leachate interaction with the host rock or groundwater. In each of these instances, the dose to man could be well within the EPA limits, yet the site would not be licensable due to failure to meet other requirements of the Nuclear Regulatory Commission."

In an appearance before the ACNW, NMTRB members Drs. M. Carter and W. North also presented their views on 40 CFR Part 191, which, in part, suggested as one option performing a negotiated rule-making on the revision of 40 CFR Part 191.

We believe that with the remand of 40 CFR Part 191 it is worthwhile to examine the impact of recent information from efforts to implement the Waste Isolation Pilot Plant (WIPP) in New Mexico and to characterize the Yucca Mountain site in Nevada for possible use as a repository on the regulatory requirements for licensing repositories (both 40 CFR Part 191 and 10 CFR Part 60 "Disposal of High-Level Radioactive Wastes in Geologic Repositories"). Investigations in Sweden, Canada, Switzerland and other countries have shed further light on safety analyses of repositories. Further, the BRWM has recently issued a position statement "Rethinking High-Level Radioactive Waste Disposal", copy attached, that examines many issues impacting the licensing process.

We understand that there are no plans to release a draft of the revised EPA standard for public comment in the near term. Therefore, we believe that careful and thoughtful reconsideration of 40 CFR Part 191 is of national importance and welcome the active support of the Nuclear Regulatory Commission at this symposium. James Curtiss August 17, 1990 Page 3

Dr. Peter Myers, Staff Director of the BRWM, has indicated your preliminary acceptance of this invitation to address the symposium. The keynote address is scheduled from 9:15 to 10:00 AM on Monday, September 17th, in the Auditorium of the National Academy of Sciences/National Research Council, located at 2101 Constitution Avenue NW, Washington DC. A copy of the draft agenda is also attached for your information. Please furnish a final title for your address to Dr. Myers as soon as possible to complete the final agenda. While written papers are not required, it would be helpful in preparing a synopsis of the symposium to have copies of any written materials and printouts of any slides made available to BRWM staff. Visual materials are limited to 35mm slides, for ease in viewing by symposium participants.

We welcome your valuable assistance to the goals of the symposium and hope you will be present to contribute insights throughout the whole meeting.

Sincerely yours,

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Dr. Frank L. Parker Chairman Board of Radioactive Waste Management

Attachments