

March 8, 1991

MEMORANDUM FOR: James M. Taylor
Executive Director for Operations

FROM: Raymond F. Fraley
Executive Director, ACNW

SUBJECT: 28TH ACNW MEETING FOLLOW-UP ITEMS

Based on discussions regarding methods for improving implementation and follow-up of ACNW recommendations, a summary of "Actions, Agreements, Assignments, and Requests" made during each ACNW meeting is sent to your office following each meeting.

Attached is a summary of the "Actions, Agreements, Assignments, and Requests" made at the 28th ACNW meeting, February 21-22, 1991, that deal with requests made of the NRC Staff or that are pertinent to NRC Staff activities.

Attachment: As stated

cc. H. L. Thompson, EDO
J. L. Blaha, EDO
S. J. Chilk, SECY
E. J. Jordan, AEOD
R. M. Bernero, NMSS
T. E. Murley, NRR
E. S. Beckjord, RES
A. L. Eiss, NMSS
H. Pastis, NRR
M. Weber, OCM/KC
M. V. Federline, OCM/KC
S. Bilhorn, OCM/KR
J. Kotra, OCM/JC
R. R. Boyle, OCM/FR

SUMMARY OF ACTIONS, AGREEMENTS, ASSIGNMENTS, AND REQUESTS
28TH ACNW MEETING - FEBRUARY 21-22, 1991

REPORTS

- Regulation of Mixed Wastes (Report to Chairman Carr, dated February 28, 1991. See attachment 1.)

In response to a request from Commissioner James R. Curtiss, the Committee reported on the problems and issues associated with the disposal of mixed waste.

- Comments on 10 CFR Part 60.113, Subsystem Requirements (Report to Chairman Carr, dated March 1, 1991. See attachment 2.)

In response to a request from Commissioner James R. Curtiss, the Committee reported on the relationship between subsystem performance requirements of 10 CFR Part 60 and the EPA high-level waste (HLW) standards.

HIGHLIGHTS OF MATTERS CONSIDERED BY THE COMMITTEE

1. Expert Judgment

The Committee discussed the insights gained from a recent ACNW Working Group meeting on how expert judgment can be used in conducting performance assessments used in the licensing of HLW and LLW repositories. The Committee also addressed possible options for future Working Group meetings on the use of expert judgment.

The Committee discussed the merits of having a combined expert judgment and human intrusion working group meeting during the week of May 20, 1991. Dr. Pomeroy suggested that the NRC staff prepare a technical position that outlines the uses of expert judgment in the prelicensing and licensing processes and indicates how much expert judgment is possible or acceptable.

2. Revision to 10 CFR Part 20

The Committee was briefed on the proposed final revision to 10 CFR Part 20, "Standards for Protection Against Radiation." The NRC staff focused on changes that effect requirements for waste disposal.

The NRC staff is developing thirteen new or revised regulatory guides that will provide more details on the methods of implementing the new rule. ACRS and ACNW agreed to apportion the review of the regulatory guides. The Committees will conduct their reviews during the public comment period to expedite the normal review and comment schedule.

Regulatory Guides to be Reviewed by ACNW

- Interpretation of Bioassay Measurements [R.G. 8.9]
- Instruction on Health Risks from Occupational Radiation Exposure [R.G. 8.29]
- Instructions to Pregnant Women [R.G. 8.13]
- Preparation of Applications for Use of Sealed Sources and Devices for Performing Industrial Radiography [Appendix to R.G. 10.6]
- Preparation of Applications for Medical Uses [Appendix to R.G. 10.8]
- Criteria and Procedures for Summation of Internal and External Occupational Doses
- Dose to Embryo/Fetus
- Assessing External Radiation Doses from Airborne Radioactive Materials
- Air Sampling

Regulatory Guides to be Reviewed by ACRS

- Radiation Protection Programs for Nuclear Power Plants
- Control of Access to High and Very High Radiation Areas in Nuclear Power Plants
- Instructions for Recording and Reporting Occupational Radiation Exposure Data [including formats for "Electronic Media"]
- Planned Special Exposures

Working Group meetings may be scheduled to examine some of the regulatory guides. Dr. Donald Cool, RES, stated that two or three regulatory guides are expected to be completed within the next few weeks. The remaining guides will be prepared as resources allow.

3. Annual Report of Radioactive Materials Released from U.S. Nuclear Power Plants, NUREG/CR-2907

The Committee was briefed by the NRC staff on data collected, reported, and published in the NRC staff report, "Annual Report on Radioactive Materials Released from U.S. Nuclear Power Plants," (NUREG/CR-2907). The members discussed the limited scope of the isotope release data and the relative merits of an electronic transfer system for data reported by the utilities. Dr. Moeller plans to meet with the NRC staff to develop a better understanding of NRC's views and policies.

4. Leaching Resistance of Waste Form

The Committee discussed its response to the Staff Requirements Memorandum (SRM), dated December 31, 1990, concerning revising Part 61 with regards to leaching resistance of the LLW form. The Committee agreed to continue its discussion during the 29th ACNW meeting.

Dr. Steindler requested additional background information and supporting documentation on how explicit Part 61 was, insofar as (1) the criteria for groundwater protection and (2) chemical stability in terms of the multibarrier approach. Dr. Michael Tokar, NMSS, agreed to provide related information in response to this request.

5. ACNW Future Activities

- The Committee selected the tentative dates of June 26-28, 1991 or June 24-25, 1991, for its visit to the Center for Nuclear Waste Regulatory Analyses in San Antonio, Texas. The Committee will be briefed on the status of the Systematic Regulatory Analysis and receive an update on other activities of the Center.
- The Committee agreed to postpone a briefing by HLWM staff on its plans for the review of the DOE ESF Alternatives Study until the staff has developed its review plan.
- The Committee agreed to invite Mr. Harold Denton, GPA, to brief the Committee on NRC oversight and monitoring of existing LLW disposal facilities through the Agreement State Program. The Committee is interested in understanding how the NRC/State oversight function is carried out in the agreement states.

Appendix A summarizes the proposed items for future meetings of the Committee and related Working Groups. This list includes items proposed by the Commissioners and NRC staff as well as ACNW members.

APPENDIX A. FUTURE AGENDA

29th ACNW Committee Meeting March 20-22, 1991 (Tentative Agenda)

Technical Position Regarding Regulatory Considerations in the Design and Construction of the Exploratory Shaft Facility - The Committee will review and comment on the NRC staff's Technical Position regarding Regulatory Considerations in the Design and Construction of the Exploratory Shaft Facility.

Massachusetts' Strategic Plan for LLW Disposal - The Committee will meet with the low-level waste coordinator from the State of Massachusetts to hear about the development of the state's strategic plan for LLW disposal. This briefing is for information.

Meeting with the NRC Commissioners - The Committee will meet with the Commissioners to discuss items of mutual interest, including:

- Mixed Wastes
- Priorities for Future ACNW Activities
- Dose Limits - Risk to Individuals
- Stringency of EPA Standards
- Part 60 Subsystem Performance Criteria

Leaching Resistance of Waste Form - The Committee will develop a response to a recent Staff Requirements Memorandum (SRM) concerning revising Part 61 with regards to leaching resistance of the LLW form. [Note: SRM suspense date is April 27, 1991]

Agreement State Program - The Committee will be briefed on NRC oversight and monitoring of existing low-level waste disposal facilities through the Agreement State Program.

Working Group Meetings (Dates to be determined)

Geologic Dating - The Working Group will review and discuss the problems and limitations associated with the various quaternary dating methods to be used in site characterization of a HLW repository.

Integration of Geophysics into Site Characterization of a High-Level Waste Repository - The Working Group will discuss the use of geophysical testing in resolving issues associated with potentially adverse conditions and will include a discussion of the DOE "white paper" on geophysical studies, NRC Site Characterization Analysis comments on the DOE geophysical testing program, geologic

information needed for site characterization, and what specific geophysical methods may be most applicable.

Long-Term Climate Change - The Working Group will review and discuss potential long-range climate changes and their impact on performance assessments and ultimately on the suitability of the proposed HLW repository.

Expert Opinion - The Working Group will continue the examination of methodologies of expert judgment with emphasis on the methodology of an expert elicitation and the use of expert judgment in the resolution of the human intrusion issue. Speakers will be invited from Federal agencies and nongovernment organizations, such as the Decision Analysis Company and Golder Associates.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON NUCLEAR WASTE
WASHINGTON, D.C. 20555

February 28, 1991

The Honorable Kenneth M. Carr
Chairman
U. S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Chairman Carr:

SUBJECT: REGULATION OF MIXED WASTES

In response to a request from Commissioner James R. Curtiss, the Advisory Committee on Nuclear Waste (ACNW) has reviewed the problems and issues associated with the disposal of mixed wastes. One focus of this review was the comparability of protection afforded by NRC and EPA regulations when applied to the disposal of mixed wastes. This matter was the subject of an ACNW Working Group meeting held on December 11, 1990, and also a matter for discussion during the 24th, 25th, 26th, 27th and 28th meetings of the Committee. Interacting with the Committee during these meetings were representatives from the California Radioactive Materials Management Forum; Chem-Nuclear Systems, Inc.; the Edison Electric Institute; the Nuclear Management and Resources Council, Inc.; the National Institutes of Health; New England Nuclear (du Pont); the State of Nebraska; the Lawrence Livermore National Laboratory; the Oak Ridge National Laboratory; the Savannah River Laboratory; the U.S. Environmental Protection Agency; the U.S. Department of Energy; and the U.S. Nuclear Regulatory Commission. The Committee also had the benefit of a wide range of documents, some of which are listed at the end of this report.

As you know, the subject of regulation of mixed wastes involves a wide range of issues and has the potential for having an impact on NRC and Agreement-State licensees. Further, the regulatory process will have a significant economic impact on the disposal of these wastes. We provide herein a summary of our findings and our recommendations. We have included some background information as well as highlights of recent and relevant studies and assessments conducted by the NRC staff and other groups.

1. Nature of the Problem

Mixed wastes (i.e., those wastes that contain radioactive materials at concentrations equivalent to low-level wastes and

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also contain hazardous waste materials) are subject to regulation by both the NRC and the EPA as a result of congressional actions. Complicating this dual regulation are fundamental differences between the requirements of the two agencies. For example:

- a. The EPA regulations [pursuant to the Resource Conservation and Recovery Act (RCRA)] require that a disposal facility for hazardous wastes be equipped with a dual liner and leachate collection system; the NRC regulations for low-level waste disposal discourage the use of trench liners because of the concern that infiltrating water will be retained and create a "bathtub" effect.
- b. The EPA regulations place primary reliance on active systems (e.g., the leachate collection system) to control releases of the waste; the NRC regulations place primary emphasis on the protection afforded by the waste form and the location and design of the disposal facility.
- c. Treatment and packaging of radioactive wastes are generally performed by the generator prior to shipment of the wastes to the disposal facility; in contrast, hazardous wastes are generally treated at offsite facilities or at the disposal site. In addition, the EPA regulations prohibit the disposal of hazardous wastes that have not been treated in accordance with EPA standards. However, EPA has not published standards for the treatment of mixed wastes.
- d. The EPA regulations require that radioactive wastes containing hazardous materials be subject to sampling and analysis and that mixed wastes in storage be periodically inspected. These requirements were developed without taking into account the risks associated with radioactive wastes and could add to occupational exposures and costs when applied to mixed wastes.
- e. Whereas the NRC regulations for low-level wastes are incorporated into 10 CFR Part 61 and represent a fairly stable set of requirements, the EPA regulations are based on the RCRA, which has been subject to periodic amendment by the Congress and includes an ever-increasing number of substances that the EPA has classified as hazardous.
- f. The NRC regulations for Class C low-level wastes require the construction and operation of a facility designed to retain these wastes for up to 500 years; the EPA regulations for hazardous wastes provide for institutional protection and surveillance for only a maximum of 30

years beyond closure of the disposal facility and appear to require no inherent waste retention beyond that period.

These observations summarize the major differences between the EPA regulations for the disposal of hazardous wastes and the NRC regulations for the disposal of low-level radioactive wastes.

2. Protection Provided by EPA and NRC Regulations

Commissioner Curtiss specifically requested that the ACNW compare the protection provided for public health and safety by NRC and EPA regulations. Unfortunately, only minimal direct information appears to be available on this important comparison.

- a. A relevant study conducted by the Nuclear Management and Resources Council, Inc. (NUMARC, 1990) contains a comparison of the doses associated with the disposal of mixed wastes in a generic above-grade or below-grade facility and in a conventional shallow land burial facility. The above-grade facility represented the NRC/EPA conceptual design for a mixed waste disposal facility. To provide a full range of assessments, the facilities were assumed to have been located at two distinctly different sites -- a humid impermeable site (typical of the northeastern United States) and a humid permeable site (typical of the southeastern United States). Although NUMARC stated that its data should be interpreted with caution, NUMARC found that the performance of a shallow land burial facility, designed and constructed in accordance with the NRC regulations, was superior by a small margin. NUMARC concluded that, in general, inclusion of EPA regulation 40 CFR Part 264 design features neither demonstrates nor guarantees that the environmental performance of the mixed waste disposal facility will be superior to a disposal facility based on the requirements of 10 CFR Part 61.
- b. The NRC staff, in apparent contrast, has stated (NRC, 1989) that certain features of the disposal facility based on EPA regulations, such as the double liner and the leachate collection and retention provisions, "appear to offer enhanced protection of groundwater, at least temporarily." In view of the proposed EPA "subsystem requirement" that groundwater contamination be limited so that no offsite person will receive an effective dose rate greater than 0.04 mSv (4 mrem) per year, this potential attribute of the EPA regulations may be important.

- c. A study conducted by the U.S. Department of Energy (DOE, 1987) was designed to provide a comparative evaluation of the predicted performance of a full range of low-level radioactive waste disposal facilities constructed and operated in accordance with the NRC regulations. Six types of disposal facilities were evaluated: shallow land burial, intermediate-depth disposal, below-ground vaults, above-ground vaults, modular concrete canister disposal, and earth-mounded concrete bunkers. One of the conclusions of the DOE study, relevant to the comparative performance of facilities constructed and operated in accordance with EPA and NRC regulations, is that the dominant exposure pathway for an above-ground vault is "through release of radionuclides to surface water, and this results in a peak dose which is approximately one order of magnitude higher than the peak dose for the other (five) concepts." In fact, under the conditions assumed in the study, the above-ground vault concept did not meet the licensing requirements of 10 CFR Part 61 that the maximum effective (whole-body) dose rate to a member of the public be less than 0.25 mSv (25 mrem) per year and that the dose rate to the thyroid be less than 0.75 mSv (75 mrem) per year.
- d. Although one conclusion of the NUMARC study was that all three types of disposal facilities could meet the effective dose rate limit of 0.25 mSv (25 mrem) per year, this was not the case in terms of the protection of the groundwater pathway. That is, for the conditions used to characterize the humid impermeable site and for the assumed design features, all three disposal facilities were projected to exceed EPA's draft proposed environmental protection standards for low-level waste disposal [0.04 mSv (4 mrem) per year if groundwater is involved].

3. Possible Solutions

In evaluating possible solutions to these problems, we have focused our attention on the difficulties of managing dual regulations and on the adequacy of either set of regulations in meeting the requirements of the other agency. Staff members of EPA and NRC have been attempting for some time to develop an approach through which dual regulation of mixed wastes can be made more practical. As a result of these efforts, three joint guidance reports have been issued pertaining to (a) the definition of mixed wastes, (b) siting requirements for a mixed waste disposal facility, and (c) a conceptual design for a mixed waste disposal facility that will meet both EPA and NRC regulations. The efficacy of these joint guidance reports is not entirely clear and discussions with State representatives indicate that additional guidance

is needed. Examples of areas needing to be addressed include joint guidance on the sampling and analysis of wastes in storage, on methods for integrating the administrative licensing procedures in the two sets of regulations, and on procedures for the consultative review and preapproval of State conceptual designs by Federal agencies (LLRWF, 1988). The joint guidance reports do not alleviate the dual regulation burden. Other developments also have bearing on the question posed by Commissioner Curtiss.

- a. In response to technical considerations and concerns of the public, some State compacts have received proposals to build concrete bunker facilities for the disposal of low-level wastes. These facilities appear to be readily adaptable to meet EPA requirements for the disposal of hazardous wastes. It is our belief that such a facility, when slightly modified, would provide adequate protection of the public health and safety and meet the requirements of both agencies as they apply to mixed wastes. The projected unit costs for the disposal of mixed wastes in such a modified facility would be relatively high compared to those for the disposal of low-level wastes. This high cost is primarily a result of the unusually low volumes of mixed wastes anticipated to be sent to such facilities, and could be exacerbated by difficulties and delays in obtaining the necessary RCRA permits.
- b. Dual jurisdiction of the regulatory process for mixed wastes appears to be wasteful of resources and lacks justification on the basis of benefit to the public. Some groups have urged strongly that the responsibility for regulating mixed wastes be assigned to a single Federal agency. One approach would be to request Congress to resolve this issue, but comments provided to the Committee indicate that this avenue is not likely to be viable at present. A second approach would be for the NRC to exercise the option provided under Section 1006(a) of the RCRA, which allows the Atomic Energy Act to "take precedence in the event provisions or requirements of the two acts are found to be inconsistent." Inquiry by the Committee indicates that the definition of "inconsistent" is subject to considerable controversy and hence exercise of this option would be difficult.
- c. During its review, the Committee learned that most of the mixed wastes present or being produced in the United States result from DOE activities. Although the capability of DOE or its contractors to treat, store, and dispose of such wastes is still limited, the Department is developing plans to manage them. It has been suggested that problems associated with disposal of mixed

wastes generated commercially could be resolved if Congress were to assign DOE the responsibility for managing these wastes, similar to the responsibility assigned DOE for managing greater-than-Class-C wastes. Even though this approach may be difficult, we believe it should be explored.

4. Summary and Recommendations

The Committee concludes that at present neither set of regulations alone satisfies the requirements of the other agency. We make the following comments and recommendations that we believe represent possible steps for resolving the problems of regulating mixed waste disposal and also address the question posed by Commissioner Curtiss.


- a. One action that could lead to a useful result would be for NRC to establish, in accordance with its recently announced policy, a category of mixed waste that is below regulatory concern (BRC). Mixed wastes that are so designated could then be reclassified as hazardous wastes and regulated only by EPA. Information provided to the Committee indicates that more than 90 percent of biomedical wastes would meet the BRC criteria.
- b. In a concurrent action, EPA should be encouraged to develop and implement de minimis criteria for hazardous wastes and for mixed wastes. Further, EPA should reconsider and revise the analysis and sampling requirements for mixed wastes to reduce the risk in such operations due to the presence of radioactivity. Also, EPA should be encouraged to modify its regulations to permit interim storage of mixed wastes awaiting disposal and to develop standards for the treatment of such wastes.
- c. The Committee is convinced that a method for disposal of low-level waste that incorporates enhanced confinement (e.g., concrete bunker disposal for Class B or Class C waste) and adds provisions for groundwater protection (e.g., a leachate collection system in place for at least as long as would be required by EPA regulations) can meet the combination of disposal requirements for mixed wastes specified by NRC and EPA. Such enhanced confinement methodology appears to be within the scope of the currently proposed designs for low-level radioactive waste disposal facilities.

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The Committee concludes also that disposal of mixed wastes can be accomplished under the umbrella of NRC requirements for low-level wastes if these requirements are modified to provide for enhanced groundwater protection. Further, if Items 4a and 4b, above, are implemented, the volumes of wastes classified as "mixed" will be significantly reduced and the cost for the disposal of the exempted wastes could be similarly affected. Another benefit of cost reduction and regulatory simplification could be the reversal of debilitating trends by scientists to avoid the use of radioactive and hazardous materials in important research.

We trust these comments are helpful. We plan to continue to review developments in this field as they arise and will keep the Commission informed about the relevance and consequences of these developments.

Sincerely,



Dade W. Moeller
Chairman

References:

[DOE, 1987]. U.S. Department of Energy, "Conceptual Design Report - Alternative Concepts for Low-Level Radioactive Waste Disposal," Report DOE/LLW-60T, Washington, DC, June 1987.

[LLRWF, 1988]. Low-Level Radioactive Waste Forum, "An Assessment of Mixed Waste Management Issues and Federal Guidance," Washington, DC, September 1988.

[NRC, 1989]. U.S. Nuclear Regulatory Commission, Enclosure in letter from Robert M. Bernero, Director, Office of Nuclear Material Safety and Safeguards, to Alan Pasternak, Technical Director, California Radioactive Materials Management Forum, March 8, 1989.

[NUMARC, 1990]. Nuclear Management and Resources Council, Inc., Report on "The Management of Mixed Low-Level Radioactive Waste in the Nuclear Power Industry," 1776 Eye Street, N.W., Washington, DC, January 1990.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON NUCLEAR WASTE
WASHINGTON, D.C. 20555

March 1, 1991

The Honorable Kenneth M. Carr
Chairman
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Chairman Carr:

SUBJECT: COMMENTS ON 10 CFR PART 60.113, SUBSYSTEM REQUIREMENTS

In response to a request from Commissioner James R. Curtiss, the Advisory Committee on Nuclear Waste has for the past several months examined the subsystem performance requirements of 10 CFR Part 60, with specific attention being directed to the following two questions:

1. If a site meets the standards for a high-level radioactive waste repository as promulgated by the U.S. Environmental Protection Agency (EPA, 1985), does that ensure that the site will meet the subsystem performance requirements of the U.S. Nuclear Regulatory Commission (NRC, 1983a) in 10 CFR Part 60?
2. If a site meets the NRC subsystem performance requirements, does that ensure that the EPA standards will be met?

The answer to both of these questions is "No." In the course of our deliberations we examined a range of issues on this subject. Through this letter, we share with you our observations and recommendations.

Subsystem Performance Requirements

According to the NRC regulations, a mined geologic repository will limit the rate of waste (radionuclide) release to the accessible environment by means of an engineered barrier system (EBS) and the geologic setting (natural system). The two systems differ in their contribution to isolation and in the associated degree of confidence. The EBS is expected to be the main barrier during the times or conditions when the response of the system is most uncertain, and the geologic setting will provide the major barrier to releases over the long term. This approach conforms with the long-established NRC policy of providing for defense in depth.

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Of the three subsystem performance requirements specified in 10 CFR Part 60.113, the first two relate to the EBS, the third relates to the geologic setting, as follows:

1. "Containment of HLW within the waste packages will be substantially complete for a period to be determined by the Commission ... provided that such period shall be not less than 300 years nor more than 1,000 years after permanent closure of the geologic repository"
2. "The release rate of any radionuclide from the engineered barrier system following the containment period shall not exceed one part in 100,000 per year of the inventory of that radionuclide calculated to be present at 1,000 years following permanent closure"
3. "... pre-waste-emplacement groundwater travel time along the fastest path of likely radionuclide travel from the disturbed zone to the accessible environment shall be at least 1,000 years"

In addition to these requirements there is a statement (10 CFR Part 60.112) that the overall system performance objective is to have the repository "conform to ... environmental standards for radioactivity as may have been established by the Environmental Protection Agency with respect to both anticipated processes and events and unanticipated processes and events." The NRC regulations also include language that permits the Commission to allow flexibility in the application of each of its subsystem requirements, "... provided that the overall system performance objective, as it relates to anticipated processes and events, is satisfied."

Relation Between Subsystem Requirements and the EPA Standards

Interaction with the NRC staff has revealed that no deliberate attempt was made to relate the NRC subsystem requirements to the EPA standards.

1. Information developed by the NRC staff clearly tends to confirm the lack of a nexus. For example, Table 1, Appendix A, of the EPA standards provides maximum release limits for a range of radionuclides anticipated to be present in an HLW repository. Calculations show that, if radionuclides are annually released at a rate of one part in 100,000 of the inventory at 1,000 years (as specified in the NRC subsystem requirements), the quantities of certain isotopes of plutonium and americium released could be much larger than the limits specified in the EPA standards (NRC, 1983b).

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2. It is also probable that compliance with the EPA standards might be accomplished without conforming to one or more of the NRC subsystem requirements. For example, a repository that meets the EPA standards might very well have a groundwater travel time of less than 1,000 years.
3. Commissioner Curtiss inquired also about the stringency of the NRC subsystem requirements. The necessity of complying with two sets of regulations would appear to place an added burden on the licensee. The stringency of the NRC requirements, however, cannot readily be evaluated against the EPA standards because (a) the NRC subsystem requirements were not based on the EPA standards and (b) a comparison of the NRC and EPA requirements needs to be site specific.

Summary Comments

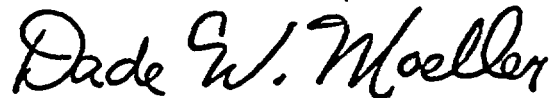
In summary, our conclusions and observations are as follows:

1. There is no nexus between the EPA standards and the NRC subsystem requirements. This is not an oversight; apparently no nexus was intended. As long as the NRC regulations include 10 CFR Part 60.112, this situation is primarily a regulatory issue, not a technical issue. It is not a matter that will compromise the protection of public health and safety.
2. Meeting the subsystem requirements specified in the NRC regulations does not ensure compliance with the EPA standards; the converse is also true. The NRC staff should be encouraged to continue to issue statements clarifying the subsystem requirements so that they are less subject to misinterpretation.
3. Both the EPA standards and the NRC regulations include statements that are designed to permit flexibility in their application. Implementing the flexibility, however, may be difficult particularly (as pointed out by Commissioner Curtiss, 1990) under the intense public scrutiny anticipated at the time the licensing process will be underway.
4. It appears likely that the applicant for an HLW repository license will need to address the NRC and the EPA requirements separately. This appears to be true not only because there seems to be no technical relation between the two sets of regulations, but also because demonstration that the facility can meet both sets of requirements appears as an inherent part of the regulations. In our opinion, the health and safety of the public is not likely to be impaired by this situation. We are not able to comment on the purely regulatory or legal aspects of the dual regulatory impacts of the subsystem requirements.

March 1, 1991

We trust these comments will be helpful.

Sincerely,



Dade W. Moeller
Chairman

References:

[Curtiss, 1990]. Curtiss, James R., "Repository Performance -- The Regulatory Challenge," Paper presented at Symposium on Radioactive Waste Repository Licensing, National Academy of Sciences, National Research Council, Washington, DC, September 17, 1990.

[EPA, 1985]. U.S. Environmental Protection Agency, "Environmental Radiation Protection Standards for Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes," Title 40, Part 191, Code of Federal Regulations, Washington, DC, 1985.

[NRC, 1983a]. U.S. Nuclear Regulatory Commission, "Disposal of High-Level Radioactive Wastes in Geologic Repositories," Title 10, Part 60, Code of Federal Regulations, Washington, DC, 1983.

[NRC, 1983b]. U.S. Nuclear Regulatory Commission, "Staff Analysis of Public Comments on Proposed Rule 10 CFR Part 60, 'Disposal of High-Level Radioactive Wastes in Geologic Repositories,'" Report NUREG-0804, Washington, DC, December 1983.