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

AUG 17 1988

MEMORANDUM FOR: John J. Linehan, Acting Chief
Operations Branch
Division of High-Level Waste Management

FROM: Seth Coplan, Section Leader
Compliance Demonstration Section
Operations Branch
Division of High-Level Waste Management

SUBJECT: RESPONSE TO THE ACNW LETTER OF JULY 1, 1988

This memorandum is to advise you of the actions we have taken to date to follow-up on several of the recommendations made by the Advisory Committee on Nuclear Waste (ACNW) in their letter of July 1, 1988 to the Chairman of the NRC (Enclosed). This letter provides the ACNW comments on the DOE briefing of the ACNW on June 29, 1988 regarding the draft rulemaking petition to establish an accident dose guideline in 10 CFR 60. The memorandum also requested that we make appropriate members of the DOE aware of the comments to DOE in the ACNW letter.

Since the June 29 ACNW meeting we have taken the following steps with respect to the ACNW recommendations:

1. A copy of the ACNW letter was sent to Mr. R. Stein, Acting Director, Office of Systems Integration and Regulations, Office of Civilian Radioactive Waste Management, DOE.

2. Following up on the recommendation by the ACNW that the NRC staff evaluate existing information on the nature, type, and frequency of fuel handling mishaps, Faith Brenneman (NRR) and Kathleen Black (AEOD, NAS) searched several databases and identified a number of recent reports that discuss fuel-handling mishaps. The results of these searches may be summarized as follows:

   - NRER - No events involving spent-fuel handling; a few events involving the transportation of fresh fuel were identified;
   - ARGONNE - one fuel-handling event identified at the NFS West Valley facility;
   - LERs - 64 fuel-handling events at reactor sites were identified, categorized and provided for our review.

Future work may require statistical support from the Probabilistic Risk Assessment Branch in the Office of Research to examine these reports and to see what help they may provide in the evaluation of the frequency of occurrence of fuel-handling mishaps at a high-level repository. Assistance may also be needed from the Radiation Protection and Health Effects Branch

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(RPHEB, RES) to provide: 1) the preferred methods for dose calculations (such as committed dose versus annual dose, dose equivalent versus effective dose equivalent, etc.) taking into consideration both the present requirements in 10 CFR 60 and the proposed revisions of 10 CFR 20; 2) appropriate values for the dose conversion factors (adults, other age groups) to be used in the calculation of doses due to penetrating and non-penetrating radiation; and 3) the most current and appropriate risk coefficients for the calculation of health effects. We are currently taking steps to get this assistance.

With regards to the ACNW recommendations about establishing a probability cutoff for accidents and about the compatibility of the "accident dose guidelines" to related NRC guidelines (including the reactor safety goals), we will need to coordinate with the Fuel Cycle Safety Branch, Division of Industrial and Medical Nuclear Safety, NMSS to assure consistency in the approach to be taken under 10 CFR Part 60 for a repository and under Part 72 for an MRS. To date we have contacted the RES staff responsible for implementation of the reactor safety goals and are reviewing those documents that may be applicable to a high level waste repository.

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Seth Coplan, Section Leader
Compliance Demonstration
Operations Branch
Division of High-Level Waste Management, NMSS

Enclosure: As stated

cc: M. Cunningham, RES
R. Cunningham, NMSS
G. Arlotto, RES
A. Rocklein, RES
M. Silberberg, RES
L. Rouse, NMSS

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

July 1, 1988

The Honorable Lando W. Zech, Jr.
Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Chairman Zech:

SUBJECT: RULEMAKING PETITION TO ESTABLISH AN ACCIDENT DOSE GUIDELINE IN 10 CFR PART 60

During the first meeting of the Advisory Committee on Nuclear Waste (ACNW), June 27-29, 1988, we met with representatives of the U.S. Department of Energy (DOE) to discuss a Petition, being developed by DOE, for Rulemaking to Establish an Accident Dose Guideline for the High-Level Radioactive Waste (HLW) Repository (referenced). We also had the benefit of discussions with the NRC Staff.

During the meeting, DOE representatives described their proposed petition, which had previously been discussed during meetings of the ACRS Subcommittee on Waste Management. Both the DOE representatives and the NRC Staff requested that the ACNW consider and comment on certain key controversial issues. In response to these requests, we offer the following comments:

1. Although NRC regulations (10 CFR 60) applied to the design and construction of an HLW repository specify a dose limit for determining systems and components "important to safety," there is no accident dose limit for specifying systems and components whose failure must be compensated by engineered safety features. The purpose of the DOE petition is to develop such a limit. We support this action by DOE.

2. The DOE draft petition contains a number of useful concepts and approaches. Among these are the use of the "effective dose equivalent" for expressing the proposed dose guidelines, the application of the 50-year dose commitment for assessing the risks of long-lived radionuclides, and the incorporation into the supporting technical arguments of the latest findings of the National Research Council's Committee on the Biological Effects of Ionizing Radiations. The use of these guides and standards will enhance the utility of the proposed rule.

3. The draft petition also raises a number of issues that have yet to be addressed. These include:

   a. The dose guidelines as currently proposed would apply to any accident, regardless of its probability. We believe a lower probability limit (cutoff) should be established for the range of accidents to be considered under the guidelines.

   b. The draft petition does not include technical information in support of the proposed rulemaking. We believe that the DOE Staff should include such information in the formal petition. We also believe that it would be helpful to include a description of the full range of pertinent accident scenarios together with estimates of their associated probabilities for occurrence.

   c. As part of the petition, the DOE Staff has proposed that an "accident dose area" be defined around the repository site. The technical information provided in support of the proposed rulemaking should include a rational and obvious process for defining this area.

Consideration should be given by the NRC Staff to the following:

1. To assure compatibility of the proposed "accident dose guidelines" with related NRC policies and numerical guidelines, the values proposed by DOE should be compared, for example, to the Safety Goals that have been developed for nuclear power plants.

2. The NRC Staff should evaluate existing information, such as the Licensee Event Reports, as an additional contribution to the data bank on the nature, type, and frequency of occurrence of fuel handling mishaps.

We hope you will find these comments useful.

Sincerely,

Dade W. Moeller

Dade W. Moeller
Chairman

Reference:
Petition for Rulemaking to Establish An Accident Dose Guideline for a High-Level Radioactive Waste Repository, Draft dated 5/31/88.