



UNITED STATES
NUCLEAR REGULATORY COMMISSION
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February 11, 2000

MEMORANDUM TO: Michael E. Mayfield, Acting Director
Division of Engineering Technology, RES

Thomas L. King, Director
Division of Risk Analysis and Applications, RES

FROM: M. Wayne Hodges, Deputy Director *M. Wayne Hodges*
Technical Review Directorate, SFPO

SUBJECT: REQUEST FOR TECHNICAL ASSISTANCE FOR PROBABILISTIC RISK
ASSESSMENT OF DRY STORAGE OF SPENT FUEL

In a follow-on to our February 1, 2000, meeting, Spent Fuel Project Office (SFPO) staff met February 3 to discuss (1) technical issues related to our user need letter for the risk assessment of dry storage of spent fuel and (2) short-term support for upcoming hearings related to Private Fuel Storage (PFS) licensing activities. It is our understanding that the PFS hearing will begin June 15, 2000, therefore, your final input is needed by end of May. The Dry Spent Fuel Storage Probabilistic Risk Assessment (PRA) Review Team agreed that the final product be peer reviewed. I support that recommendation. A draft of your results would be appreciated prior to that date.

Regarding the June 2000 needs, we request your assistance in the following areas:

1. Quantify the probability of experiencing a leak in the multi purpose cask (MPC) under normal conditions for three ambient temperatures (e.g., 77°F, 100°F, and 125°F). Include the uncertainty distribution for the probability. The MPC temperature profiles will be provided by Holtec. Please identify the level of detail you need for your analyses. For example, do you need the peak temperature or the temperature gradient across the stainless steel shell?

We appreciate that you cannot define the exact hole size once a crack propagates through the MPC. An explanation of the assumption and implications is acceptable.

2. Quantify the probability of experiencing a leak in the HI-STORM spent fuel storage system under the worst Accident Condition Loading Combinations analyzed in the Safety Analysis Report (include uncertainty distribution).

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3. For a postulated welding defect resulting in a leak below the technical specification limit, quantify the probability of the welding defect growing to a larger size, thereby exceeding the technical specification leak rate.

4. Provide a best estimate quantification, with uncertainty bounds, of the source terms that can escape a postulated hole size of 6.4E-4 cm (applicant's assumption) and resulting dosage for a person 100 meters away from the MPC. Assume 1 percent, 10 percent, and 100 percent of the fuel rods are breached. Account, among other conditions, for the potential plating of radionuclides on internal surfaces of the MPC and settling of particulates that cannot be suspended by natural circulation of gases within the MPC. You may want to review the methods used in Draft NUREG-0170. Any method used should be fully supported by RES (e.g., may be used in the hearings). A copy of SFPO's interim staff guidance on performing confinement calculations and selected sections from NUREG-0170 is attached for your information. The method for your calculation is of your choosing. The licensing basis source terms for the HI-STORM system are attached for your information.

Both the short and long term issues that support the PRA will be coordinated through the review team consisting of the following individuals:

- PRAB: Alan Rubin, Ed Rodrick, Chris Ryder
- MEB: Ed Hackett, others.
- SMSAB: Charles Tinkler, others
- SFPO: Eric Leeds, Earl Easton, Chris Regan, Ron Parkhill, Henry Lee, Jack Guttman, others (SFPO will provide issue specific experts, as needed).

Your assistance in this matter is greatly appreciated.

Attachments:

1. ISG-5, Rev. 1
2. NUREG-0170, Sect. 7
3. Licensing Basis Source Terms

DISTRIBUTION:

Docket 72-22	NRC File Center	PUBLIC	SFPO r/f	NMSS r/f
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