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Dr. Charles Hofmayer
Environmental & Systems Engineering Division
Brookhaven National Lab
Building 130, 32 Lewis Road
Upton, NY 11973-5000

Subject: Additional Comments Concerning Seismic Screening and Seismic Risk of Spent Fuel Pools For Decommissioning Plants

Dear Dr. Hofmayer:

I have reviewed the December 3, 1999 memorandum from W. Huffman to S. Richards entitled *Screening Criteria for Assessing Potential Seismic Vulnerabilities of Spent Fuel Pools at Decommissioning Plants*. I have also reviewed the "Industry Comments" on the material presented in this memorandum. Lastly, I reviewed Revision 1 of the *Industry Seismic Screening Criteria* dated December 13, 1999.

I concur with the adequacy of the *Industry Seismic Screening Criteria* presented in Revision 1 for the vast majority of Central and Eastern US (CEUS) sites. So long as Screening Items 1 through 9 are satisfied, the seismic risk of spent fuel pool failure to contain water for these sites should be so low as to not warrant further assessment. The addition of Screening Item 4 in Revision 1 removes my concern about the previous draft. For spent fuel pool walls and floor slab not supported by soil, Screening Item 4 requires a structural assessment of the pool walls and floor slab out-of-plane shear and flexural capabilities be performed and compared to the realistic demands expected to be generated by seismic input equal to approximately three times the site SSE input. In order to demonstrate a HCLPF capacity in excess of approximately 3SSE, this assessment should be performed with the degree of conservatism defined for the Conservative Deterministic Failure Margin (CDFM) method in EPRI 6041.

Spent fuel pools at a few higher seismic hazard sites in the CEUS and all Western US sites should be further evaluated beyond this screening criteria. I concur with the approach presented on page 4 of the "Industry Comments" for defining these few higher seismic hazard CEUS sites. Based on Figure 4 of the

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"Industry Comments", it appears that no more than 4 CEUS sites (excluding Shoreham) would fall into this higher seismic hazard category.

Either Seismic Margin or Seismic Fragility HCLPF capacity estimates should be made for spent fuel pools at decommissioning plants in each of the following cases:

1. Out-of-plane flexural and shear capacity of aboveground spent fuel pool walls and floors not supported by soil.
2. Spent fuel pools which do not pass the Revision 1 *Industry Seismic Screening Criteria*.
3. A few higher seismic hazard CEUS sites and all Western sites.

For the above situations where HCLPF capacity assessments should be made, I understand that Goutam Bagchi and Bob Rothman of the NRC have recommended that a plant coming in for decommissioning which can show that their spent fuel pool structural resistance has a HCLPF value of $3 \times \text{SSE}$ for CEUS sites and $2 \times \text{SSE}$ for West Coast sites has demonstrated an adequately low seismic risk for their spent fuel pool. This recommended approach represents a reasonable engineering approach with which I concur.

I believe the approach outlined above is a practical approach for demonstrating the seismic risk of spent fuel pools at decommissioning plants is very low. Please contact me if you desire further discussion.

Sincerely,


Robert P. Kennedy

cc. Mr. Goutam Bagchi
Dr. Nilesh Chokshi