

Docket 72-11
PDR/LPDR

Victor Anderson
9964 Parklake Way
Elk Grove, CA 95624

May 17, 1994

Michael Raddatz
Office of Nuclear Materials Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Raddatz:

I am writing in reference to the Rancho Seco Independent Spent Fuel Storage Installation (Docket No. 72-11). During a recent briefing on the activities planned for the Rancho Seco Nuclear Generating Station, I had the opportunity to ask members of the Rancho Seco Health Physics staff some questions concerning the proposed dry fuel storage area (ISFSI). Much to my surprise, they did not have the answers to what I thought of as relatively simple questions. Mr. Dennis Gardener was kind enough to give me a copy of the SAR for the ISFSI project to review. As a result of that review and not with standing the provisions of 10 CFR 72, I am asking the NRC to please review and answer the following issues:

1. The encapsulation process for the Dry Storage Casks (DSC) is very similar to the manner in which some sealed sources are made. As you may recall, some sealed sources are made by placing the radioactive material in a stainless steel container and double welding the opening for the container. There is a requirement to leak test sealed sources. Why is there no requirement to leak test the Dry Storage Casks while they are in storage?
2. With respect to question 1 and concerns about leakage, what analysis has been done to assure that the welds for a DSC will maintain their integrity over the 40 year design life of the installation?
3. What quality assurance and quality control measures will be taken during the welding process for sealing a DSC to assure that a correct weld has been made?
4. What kind of radiation damage studies have been made for the DSC?

With respect to the above question, please consider the following:

- a. Assuming that the majority of the gamma dose rate is due to Cs-137 photons and an initial dose rate of 5×10^3 rad/hour for the inner walls of the DSC, one obtains a total integrated dose of about:

$$D \sim (5 \times 10^3)(1 - e^{-(\ln 2 * 40/30)})(30 * 365.25 * 24) / \ln 2 \sim 1 \times 10^9 \text{ rad}$$

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Question 4 Continued:

- b. According to Table 7.6, page 7-12 of revision one to the SAR, the neutron source term for a typical spent fuel bundle is 1.631×10^8 n/s/assy. Assuming that only about 10% of these neutrons cause a radiation absorbed dose in the DSC cask walls, this steel will be subjected to about:

$$\begin{aligned} \text{Total integrated neutrons} &\sim (1.631 \times 10^7 \text{ n/s})(40\text{yr})(365.25 \text{ dy/yr})(24 \text{ hr/dy})(3600 \text{ s/hr}) \\ &\sim 2 \times 10^{16} \text{ neutrons} \end{aligned}$$

- c. Unlike, a typical reactor pressure vessel, the DSC will not be brought to a high temperature (595 F°) and thus will not have the benefit of being annealed.
5. With respect to question 4, how will radiation damage to the DSC affect its ability to be used as a class B shipping package after 40 years of storage?
6. A detailed analysis was presented in the SAR for tornado events and the resultant missiles from the tornado striking the ISFSI. However, no analysis was done for a plane crash. Why is this? (Citing 10 CFR 72 is not sufficient!).
7. What provisions has SMUD made for assuring that adequate funding is available to secure and take care of the ISFSI site over the next 40 years?

Thank you for taking the time to consider the above issues. As a certified health physicist, with some 13 years of power reactor experience, I am mostly concerned about the lack of leak testing on the Dry Storage Casks when loaded and during the storage period for the spent fuel in the ISFSI. It appears that questions of radiation damage, QA/QC on the welding process and seal integrity have not been adequately addressed. Nor does there appear to have been any kind of probabilistic failure analysis which addresses the probability of a cask failure due to radiation damage, environmental factors and/or poor welding process. Please call me at (916) 734-7322 at work or at my home (916) 686-6811 if have any questions about my comments and concerns with respect to the Rancho Seco Independent Spent Fuel Storage Installation .

Sincerely,



Victor E. Anderson, C.H.P.