



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

December 10, 1998

Dr. Narasi Sridhar, Manager  
Center for Nuclear Waste Regulatory Analyses  
Southwest Research Institute  
6220 Culebra Road, Building 189  
San Antonio, Texas 78238-5166

**SUBJECT: SRSASF INTERMEDIATE MILESTONE 20-1407-001-905: REVIEW OF CRITICALITY EVALUATION OF DIRECT CO-DISPOSAL AND MELT-DILUTE FUELS; NRC CONTRACT NO. NRC-02-97-009**

Reference: Letter of November 20, 1998, from N. Sridhar of Center for Nuclear Waste Regulatory Analysis to R. A. Weller of NRC, Transmitting the IM Deliverable

Dear Dr. Sridhar:

The subject report on "Evaluation of the U.S. Department of Energy Aluminum-Based Spent Fuel Criticality Analysis," submitted as a deliverable for Intermediate Milestone (IM) 20-1407-001-905, has been reviewed. The title of the report is different from the IM Deliverable Description mentioned in the Center for Nuclear Waste Regulatory Analyses (CNWRA) Operations Plan. The scope of work presented in the report and the submittal date are in accordance with the provisions in the CNWRA FY99 Operations Plan. The submittal date was 7 days ahead of schedule.

Although the programmatic review has been completed, the technical review is in progress. The depth of the technical issues addressed in the report are quite extensive and require my careful attention. The report will continue to be under staff review, and any comments resulting from the review will be transmitted to you either formally in writing or informally, as appropriate. At this time, I have the following observation:

As indicated in the report, while DOE has not considered Alloy C-22 in its criticality calculations, the low corrosion rate of  $8.12 \times 10^{-6}$   $\mu\text{m}/\text{y}$  quoted in Table 4.1.6-1, Page 13, of its report, "Evaluation of Codisposal Viability for Aluminum-Clad DOE-Owned Spent Fuel: Phase II Degraded Codisposal Waste Package Internal Criticality," may be nonconservative in future calculations. Examining the text in Section 4.1.1 and the document referred to in this U.S. Department of Energy (DOE) report, the low corrosion rate for C-22 is obviously the result of an error in units. Please modify the second paragraph of Section 2.6.2 (p. 2-5) in your report to clarify this error for DOE.

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N. Shridhar

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Based on the programmatic review, the report is accepted as a deliverable for IM 20-1407-001-905. The decision on placing this report in the Public Document Room will be made after the technical review is completed. The action taken by this letter is within the scope of the current contract.

Please contact me at (301) 415-6177, if you have any questions regarding this matter.

Sincerely,

Orig. signed by:

Charles A. Greene  
Program Element Manager  
Engineering and Geosciences Branch  
Division of Waste Management  
Office of Nuclear Material Safety  
and Safeguards

cc: J. Linehan  
B. Meehan

TICKET #: C-9800114.WPD

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