

72-1008, 72-1014,  
71-9261, 72-1023,  
71-9268



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

November 19, 1998

Dr. Marvin Resnikoff, Senior Associate  
Radioactive Waste Management Associates  
526 West 26<sup>th</sup> Street, Room 517  
New York, NY 10001

Dear Dr. Resnikoff:

I am responding to your February 27, 1998, letter regarding your concerns related to the structural integrity of spent fuel cladding under hypothetical accident conditions in spent fuel casks. In his March 11, 1998, letter, Charles J. Haughney, at the time, Acting Director, Spent Fuel Project Office, indicated the Nuclear Regulatory Commission (NRC) staff was reviewing your concerns and would report their findings to him to report directly to you. I apologize for the delay in responding to you; however, Mr. Haughney is currently serving in another office and several licensing actions took precedence in allocation of limited staff resources for completing the review. The staff has now completed its review of your concerns regarding the Lawrence Livermore National Laboratory (LLNL) Report UCID-21246, "Dynamic Impact Effects on Spent Fuel Assemblies," dated October 20, 1987, and determined that the LLNL report appeared to use sufficiently conservative data in the characterization of spent fuel cladding properties. The staff also found that the LLNL report conclusions appeared to be based on acceptable analysis and assumptions.

In particular, you stated that the LLNL report does not address irradiated fuel cladding, only unirradiated fuel cladding. In actuality, Table 3 of the report delineates irradiated cladding longitudinal tensile strength values. This table indicates that irradiated cladding has a greater strength value than unirradiated cladding. The LLNL report analysis used the values of unirradiated cladding strength, which is acceptable.

In your letter, you also stated that the LLNL report did not take into account the weight of the fuel assembly in the side drop orientation evaluation. In actuality, the fuel weight was delineated in Table 4 of the report and used appropriately in the analysis in Appendix A of the report. Thus, the LLNL report used the proper weight value in the analysis of the side drop orientation.

The NRC is committed to ensuring the safe operation of dry spent fuel storage and transport casks. The NRC staff will continue to evaluate industry data and analysis on spent fuel cladding properties in hypothetical accident conditions for these casks.

Please note that your letter has been placed in all applicable dockets (i.e., 72-1008, 72-1014, 71-9261, 72-1023, and 71-9268) and your questions and concerns will certainly be considered in the staff's safety evaluations of the pertinent cask designs. You will also have an opportunity to comment on the draft safety evaluation report for each cask design during the public comment period of federal rulemaking to incorporate that cask into Part 72 to Title 10 of the Code of Federal Regulations.

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M. Resnikoff

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I trust this responds to your concerns. If you have additional questions or wish to discuss this matter further, please contact me at (301) 415-8518.

Sincerely,

ORIGINAL SIGNED BY /s/

Mark S. Delligatti, Senior Project Manager  
Spent Fuel Licensing Section  
Spent Fuel Project Office  
Office of Nuclear Material Safety  
and Safeguards

Docket Nos.: 72-1008, 72-1014, 71-9261,  
72-1023, 71-9268

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