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SMUD
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AN ELECTRIC SYSTEM SERVING THE HEART OF CALIFORNIA

MPC&D 01-024

February 14, 2001

U.S. Nuclear Regulatory Commission
Attn.: Document Control Desk
Washington, DC 20555

Docket No. 72-11
Rancho Seco Independent Spent Fuel Storage Installation
License No. SNM-2510
REQUEST FOR ASME CODE EXCEPTION

Attention: Randy Hall

Rancho Seco ISFSI FSAR, Appendix A "ASME Code Exception List" documents and justifies deviations from the ASME Code Section III, Division 1 requirements for the NUHOMS MP187 Cask and the FO, FC, and FF Dry Shielded Canisters (DSCs). In accordance with Rancho Seco ISFSI Technical Specification Section 4.3.4, we are requesting authorization for an additional exception to the ASME Code regarding pressure testing of the DSC shell.

Requested Exception

The exception would be added to ISFSI FSAR, Appendix A, Table 2, in the fourth block down, as follows:

- Add a reference to ASME Code Section NB-6112.1(a).
- ASME Code requirement NB-6112.1(a) states:

  A pneumatic test may be used in lieu of a hydrostatic test only when any of the following conditions exists:

  1) when components, appurtenances, or systems are so designed or supported that they cannot safely be filled with liquid,

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2) when components, appurtenances, or systems which are not readily dried are to be used in services where traces of the testing medium cannot be tolerated.

- The "Exception" column of Table 2 would add a sentence, after the first sentence, which states: "For convenience, this may be accomplished as a pneumatic test concurrent with the helium leak test."

Technical Specifications Requirement

Rancho Seco ISFSI Technical Specification Section 4.3.4 "Fabrication Exceptions to Codes and Standards" states:

> *The ISFSI SAR, Appendix A, lists the ASME Code exceptions found acceptable by the NRC staff for the MP187 Cask and the DSCs. Proposed alternatives to the ASME code, including additional exceptions listed in Appendix A of the SAR, and deviations from ACI 349-85, may be used when authorized by the Director, Office of Nuclear Material Safety and Safeguards or designee. The licensee should demonstrate that:*
>
> 1. *The proposed alternative provides an acceptable level of quality and safety, or*
> 2. *Compliance with the specified requirements of the following ASME Code Sections, 1992 Edition with 1993 Addenda, or with ACI 349-85, would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.*
>
> *Requests for relief specified in this section will be submitted in accordance with 10 CFR 72.4.*

Justification for the Exception

ASME Code Section III, primarily addresses the design and manufacture of relatively large, high-pressure vessels. The purpose behind limiting pneumatic testing is for personnel safety since compressible fluids retain significant potential energy at high pressures. For this reason, it is generally not prudent to perform pneumatic testing of large cylinders at high pressures because the failure of the vessel could present a personnel hazard.

In addition to the pressure testing requirements in NB-6000, the DSCs must be pressurized with helium to demonstrate compliance with helium leak rate requirements. Because the calculated Service Level A design pressure is essentially the same as the test

pressure required for the helium leak test, it was determined that the canister leak test and the pressure testing requirements could be performed concurrently without additional risk to personnel.

As communicated to the NRC in VECTRA letter VF-95-047, dated September 22, 1995, pneumatic testing of the NUHOMS DSCs has been the preferred method of pressure testing the DSC shell. As part of their response to NRC Corrective Action Letter (CAL), dated July 7, 1995, Docket No. 72-1004, VECTRA justified that both leak testing and pressure testing could be performed concurrently during fabrication. The basis for their position is that the internal pressurization of the DSC that occurs during the helium leak testing performed on the shell hoop and longitudinal welds conservatively meets the requirements of NB-6000.

Conclusions

Pneumatic testing of the NUHOMS DSCs provides an acceptable level of quality and safety because the results of a pneumatic test are equivalent to those of a hydrostatic test. Further, the resultant stresses in the DSC shell during testing are significantly below the allowable stresses; hence, there are no safety issues associated with using a pneumatic test instead of a hydrostatic test.

In addition, requiring the performance of hydrostatic pressure testing, in addition to pneumatic testing (i.e., helium leak testing), would impose unnecessary burdens without benefit.

If you, or members of your staff, have questions requiring additional information or clarification, please contact Bob Jones at (916) 732-4843.

Sincerely,

J J Fiala for SJR

Steve Redeker
Manager, Plant Closure & Decommissioning