

Request for Additional Information

August 4, 2022, Exemption Request for Deviating from the Conditions of

Certificate Of Compliance No. 1032, Amendment No. 3

Sequoyah Nuclear Plant

Independent Spent Fuel Storage Installation

EPID No.: L-2022-LLE-0027

Docket No. 72-34

Structural Evaluation

RAI 1 [validation of resultant stresses]

Describe the methodology that was used to determine the new stress values and justify how the relevant stress intensity plots correspond to the affected weld region in terms of its actual location in the model, and relative to the stresses and location of the plots from the original analysis.

As illustrated in Figure 1.5 of calculation no. HI 2094418, revision 20, "Structural Calculation Package for HI-Storm FW System," the section of the weld missing radiograph test results is in a transitional stress zone, where stresses can vary significantly with minor changes in location. Although the analysis provided in the exemption request (RRTI-3087-0007, Revision 3) states that the presented maximum stress results are for the multipurpose cask (MPC) shell at the affected weld region between 10"-30" from the bottom of the baseplate, the information provided was not sufficient to clearly correlate and validate the maximum stress results provided for the exemption request.

Additional information is necessary to help verify the computed results and to better understand the methodology followed to select and analyze the affected location to correlate the new stress values with those of the original certificate of compliance (CoC).

This information is necessary to demonstrate compliance with the regulatory requirements in Title 10 of the *Code of Federal Regulations* (10 CFR) 72.24(c) and 10 CFR 72.24(d) with respect to the technical information necessary to support the exemption request. Sections 4.5.2 and 4.5.4 of NUREG-2215 "Standard Review Plan for Spent Fuel Dry Storage Systems and Facilities" provides guidance on the design criteria and analytical approach that is acceptable to the U.S. Nuclear Regulatory Commission staff that the applicant can follow to qualify the structural performance of each of the structures, systems, and components.

RAI 2 [analysis of postulated accidents]

Provide additional information to demonstrate that the package design is capable of withstanding the postulated accidents in the CoC after considering the weld strength reduction factor proposed for the exemption request.

Enclosure

For CoC No. 1032, a cask drop and tipover analysis was considered as part of the evaluation. The results of the LS-DYNA analysis demonstrated, in part, that the MPC confinement boundary was not breached after a tipover event. Since the analysis assumed full-strength capacity for the welds at the MPC shell and the exemption request considers a reduction factor to account for potential imperfections in the weld at the shell, additional information is necessary to demonstrate that the stresses at MPC shell remains within the code allowable limits for the postulated accidents conditions and to demonstrate that confinement boundary is maintained after these events.

This information is necessary to demonstrate compliance with the regulatory requirements in 10 CFR 72.122(b) and 10 CFR 72.122 (c) with respect to the design of structures, systems and components important to safety being capable to withstand postulated accidents in support of the exemption request. Sections 4.5.2 and 4.5.4 of NUREG 2215 provides guidance on the design criteria and analytical approach that is acceptable to the staff that the applicant can follow to qualify the structural performance of each of the structures, systems, and components.