

RSI 4-1

Provide thermal model input files, analyses, and results to support the air vent blockage event described in the Final Safety Analysis Report (FSAR).

The thermal models, input files, analyses, and results are not provided in the application to support the description and analysis of the air vent blockage event.

The information is needed to ensure compliance with 10 CFR 72.236(f).

Sub-section 4.6.2.4 of the HI-STORM FW FSAR describes the analyses and results from a thermal evaluation of the air vent blockage accident event. The calculations presented therein were not modified since the previously approved HI-STORM FW FSAR, therefore, there are no changes to the previously provided vent blockage event calculations submitted with the original HI-STORM FW licensing application.

However, in the application for Amendment 2, additional clarification has been added to this sub-section consistent with what was previously communicated to NRC via Letter 5018032 in March 2015 (ADAMS ML# ML15071A472). In that letter, an evaluation of the blockage of outlet vents was made and added to the FSAR supporting Amendment 0, Revision 1. No new CFD calculations were performed in this evaluation. Those exact same changes, previously submitted to the NRC staff, have now been carried into this proposed FSAR supporting Amendment 2 of the CoC.

RSI 6-1

Provide shielding calculation for HI-STORM UMAX for adding the 16x16 fuel assemblies. In the proposed Amendment No. 2 for HI-STORM FW, the applicant has requested to "Add new 16x16 fuel types to approved contents, in CoC No. 1032, Appendix B, named 16x16B and 16x16C. These are the same fuel types added to the HI-STORM 100 System with amendment request 1014-10." The applicant states that "Shielding evaluations are performed on a site-specific basis; therefore, no change to the UMAX FSAR Chapter 5 is required." Each Amendment relies on a new CoC for the general licensee and these amendments are not for a site specific licensee. The applicant needs to provide a shielding evaluation for this amendment that is adequate for staff to evaluate that the shielding design is sufficient and reasonably capable of meeting the operational dose requirements of 10 CFR 72.104 and 72.106.

This information is needed by the staff to determine compliance with 10CFR72.236(d)

Holtec apologizes for the statement that narrowly focused on shielding evaluations on a site specific basis. The write-up below will hopefully clarify this issue, provide the requested evaluation, but also demonstrate that a formal calculation is not needed in this case.

We agree that the purpose of the shielding evaluations and calculations in Chapter 5 is to demonstrate that the shielding design is sufficient and reasonably capable of meeting the operational dose requirements of 10 CFR 72.104 and 72.106. To this extent, representative and conservative evaluations and calculations are presented in Chapter 5. The main aspects of the calculation are the design of the

cask system, and the selection, modeling and characterization of the fuel to be stored in the system. The cask design is modeled in a highly detailed three-dimensional fashion, which avoids any significant simplifications. For the fuel, reasonable, representative and/or conservative assumptions are made. Section 5.1 discusses the selection of those fuel characteristics and the rationale behind the approach. Only one design basis fuel assembly type each is used for the PWR and BWR basket. This approach is consistent with many previous FSARs. To some degree this is based on the fact that the main impact of the operational dose rates is first from the cask design, then from the burnup and cooling times of the fuel that is loaded, and that the fuel type itself has only a minor effect compared to this; and furthermore, the fact that ultimate compliance with the regulatory dose limits will be shown in the site specific dose evaluations. This latter aspect is specifically recognized in the original SER for the HI-STORM FW system that states:

“The design basis zircaloy clad fuel assemblies used for calculating the dose rates presented in this chapter are Westinghouse 17x17 and the General Electric 10x10, for PWR and BWR fuel types, respectively. The acceptable fuel characteristics, including the acceptable maximum burnup levels and minimum cooling times for storage of fuel in the HI-STORM FW MPCs are specify in Subsection 2.1 of the SAR. Required site specific shielding evaluations will verify whether those assemblies and assembly parameters are appropriate for the site-specific analyses.”

The current license amendment does not make any modification to the cask system that would negatively affect the dose rates or the ability of the cask system to meet the dose requirements. Also, no changes are proposed to the burnup and cooling times or their limits. Changes are only proposed in the form of additional assembly geometries to the existing class of assemblies with a 16x16 fuel rod array, having different fuel rod dimensions and a different layout of the guide tubes. Those will not have a significant effect on dose rates, so the general ability of the system to meet the regulatory requirements will not be affected in any way. This, together with the need for a site specific dose evaluations, was the basis for not presenting any new dose rates in the shielding chapter. The text in the “Justification for Proposed Change #1” should therefore be replaced with

“The amendment only proposes some minor changes to one of the existing fuel assembly class specifications, in the form of dimensional changes. There are no changes proposed to the burnup and cooling time limits, and no changes proposed to the shielding design of the storage system. Hence the effect on any dose rates would be very small. Consequently the ability of the system to be able to meet the operational dose requirements of 10 CFR 72.104 and 72.106 is unaffected by this proposed change. For this reason, no additional dose rate calculations were performed. This is also consistent with the current approach in Chapter 5, where only selected and representative fuel assembly types are analyzed, since this also sufficient to demonstrate the capability of the system. The required site specific shielding evaluations will assess which assembly parameters need to be considered for the site-specific analyses.

In summary, due to the representative nature of the shielding evaluation previously approved in the HI-STORM FW, the fact that the proposed changes only involve minor changes to the fuel parameters that would have only a minor effect on dose rate, and the demonstration of the compliance with regulatory dose limits in site specific evaluations; no additional shielding evaluations were performed and presented for the proposed change.”