Request for Additional Information
Docket No. 72-1031
Certificate of Compliance No. 1031
Model No. MAGNASTOR Storage System

By application dated December 19, 2013, NAC International submitted an application in accordance with 10 CFR Part 72 for an amendment to Certificate of Compliance No. 1031 for the Model No. MAGNASTOR storage system. This request for additional information identifies information needed by the U.S. Nuclear Regulatory Commission staff in connection with its review of the application. The requested information is listed by chapter number and title in the applicant's safety analysis report (SAR). NUREG-1536, "Standard Review Plan for Spent Fuel Dry Storage Systems at a General License Facility — Final Report," was used by the staff in its review of the application.

Each question describes information needed by the staff for it to complete its review of the application and to determine whether the applicant has demonstrated compliance with regulatory requirements.

Chapter 5 – Shielding Evaluation

1. Justify the following statement in Section 5.9.9.2.4, "Preferential Loading Lower End Fitting Scenario – CC4," of the SAR: "Inlet dose rates are increased for the preferentially loaded CC4 damaged fuel but are bounded by the uniformly loaded CC4 damaged fuel dose rates."

   Table 1-14, "Comparison of Damaged CC4 Combined Dose Rates" from Calculation 71160-5019, Rev. 0, has no results (nor are the results shown elsewhere) for uniformly loaded CC4 damaged fuel dose rates for the proposed contents changes.

   This information is needed to determine compliance with Title 10, *Code of Federal Regulations* (10 CFR) 72.104, 72.126, 72.128, and 72.236(d).

2. Explain the following:
   a. SAR Section 5.9.3.3, "Stainless Steel Transfer Cask Dose Rates," which states: "Reducing the minimum cool time to 2.5 years has no impact on the bounding source terms for the stainless steel MTC."

   b. Table 1-1, MTC Maximum Fuel Dose Rates, from Calculation 71160-5019, Rev. 0, where the text states: "The reduction in minimum cool time from 4 years to 2.5 years has no impact on the bounding dose rates of the uniformly loaded MTC. Maximum system dose rates listed are those determined in Calculation 71160-5013 for the ng14b hybrid fuel assembly." This statement appears to be inconsistent with the radial dose rate in Table 1-12 from calculation package 71160-5019 for uniform dose rates with cooling time of 2.5 years, which is higher than the dose rate provided for the design basis fuel in calculation package 71160-5018.

      The applicant did not provide information that supports these statements, such as bounding source terms or dose rates for 2.5 years, so it is not apparent that the assertions made above are correct. Also, the staff does not have a copy of Calculation 71160-5013 to help explain the applicant's reasoning.

This information is needed to determine compliance with 10 CFR 72.104, 72.126, 72.128, and 72.236(d).

3. Explain why SAR Table 5.9.3-1, "Maximum CC4 Surface Dose Rates – Reduced Cool Time," lists 2.6 years as the cool time and no calculations were provided for a 2.5 year cool time in the application.

   The applicant requests reducing the cool time to 2.5 years for the Westinghouse 14x14 PWR fuel and Westinghouse CEA/RCCAs, but has not provided any calculations for that reduced cool time. In addition, the applicant has not listed the maximum surface dose rates for 2.5 years as part of this amendment, as shown in Table 5.9.3-1.

   This information is needed to determine compliance with 10 CFR 72.104, 72.126, 72.128, and 72.236(d).

Chapter 6 – Criticality Evaluation

1. Provide criticality safety analysis results for 86-assembly and alternate 82-assembly basket configurations in order to compare to the 87-assembly basket configuration.

   The applicant specified in Section 6.7.6.1 of the SAR that the 86 and alternate 82-assembly basket configurations would be used for those assembly types and configurations exceeding the upper subcritical limit at the 4.0 wt.% ^{235}U for the 87-assembly basket configuration. The applicant specifies, in Section 6.7.4 of the SAR that the 86 and alternate 82-assembly basket configurations remove a significant quantity of fissile material from the basket center in addition to providing flux traps for neutrons to be absorbed by the absorber sheets. Given the fact that, as specified in Section 6.7.5 of the SAR, the assemblies in the basket are already significantly undermoderated, this may have a positive effect on system reactivity. Staff identified results provided in Table 6.4.3-4 corresponding to maximum allowable enrichment limits for the 87 and alternate 82-assembly basket configurations, but not for the 86-assembly basket configuration. Although these results provide the limiting enrichments, they do not provide comparative reactivity results to show that the 86 and alternate 82-assembly basket configurations would allow higher enrichments.

   This information is needed to determine compliance with 10 CFR 72.124.

2. Provide justification to support the proposed storage of 4.55 wt.% enriched GE14 fuel and 3.85 wt.% enriched GE13 fuel in the 86-assembly and 82-assembly baskets, respectively .

   As part of this current revision, the applicant specified that loading profile for the 82-assembly basket configuration would be altered to include 4.55 wt.% enriched GE14 fuel, and a new loading profile would be added to include 3.85 wt.% enriched GE13 fuel. However staff did not identify any discussion pertaining to the two fuels in the information provided.

   This information is needed to determine compliance with 10 CFR 72.124.