

## **Request for Additional Information**

By letter dated February 15, 2018, as supplemented on June 14, 2018, and August 30, 2018, TN Americas LLC (TN) submitted to the U.S. Nuclear Regulatory Commission (NRC) an application for Certificate of Compliance (CoC) No. 1042, Amendment No. 1 to the NUHOMS® EOS System, pursuant to the requirements of Part 72 of Title 10 of the *Code of Federal Regulations* (10 CFR Part 72).

This request for additional information (RAI) identifies additional information needed by the NRC staff in connection with its review of this amendment application. Each RAI below describes information needed by the staff to complete its review of the subject application.

### **Shielding RAIs:**

**RAI 6-7.** Provide the burnup, initial enrichment, and cooling time (BECT) combination for the proposed spent fuel contents that represent the bounding source terms used to determine radiation dose rates. Alternatively, provide a list of BECTs to demonstrate that the source terms from these new contents to be authorized under Amendment 1 result in radiation dose rates that are within the design limits.

Paragraph 234(a) of 10 CFR Part 72 requires that the design of a spent fuel storage system meets the regulatory requirements of 10 CFR 72.236. For radiation protection, 72.236(d) states: "Radiation shielding and confinement features must be provided sufficient to meet the requirements in §§ 72.104 and 72.106." The applicant performed a shielding analyses based on source terms listed in Tables 6-14 to 6-19 of Amendment 1, Revision 1 of the Safety Analysis Report (SAR) for selected BECT combinations. In Section 6.2 of the SAR, the applicant states: "The bounding HLZCs are used for dose rate analysis" and that the source terms are developed to be "reasonably bounding consistent with the limits on fuel qualification." However, the maximum burnup and minimum cooling time parameters provided in the proposed Technical Specifications (TS) Table 2.1 does not include an associated minimal enrichment value and does not mirror the fuel parameters used in the calculation of the design basis radiation sources as shown in Tables 6-14 to 6-19 of Amendment 1, Revision 1 of the SAR. Without the associated minimal enrichment, the source terms for a fuel assembly with a given burnup and cooling time are not defined. Although the applicant provides the decay heat limits for the various loading patterns in the TS, there is no information provided on the specific relationship between the decay heat and the radiological source terms. A fuel assembly with a given decay heat can produce a wide variation of radiological source terms.

It is important to note that the recommendations published in NUREG/CR-6716, "Recommendations on Fuel Parameters for Standard Technical Specifications for Spent Fuel Storage Casks" are based on a balanced evaluation of parameters important to safety while alleviating limitations in the TS to provide the certificate of compliance holders flexibility to make design changes under the provisions in 10 CFR 72.48. The staff requests this information to determine if the NUHOMS® EOS spent fuel dry cask storage system design with the requested new contents meets the regulatory requirements of 10 CFR 72.236(d).

Enclosure