

December 14, 2016

Mr. Glenn Mathues  
TN Americas LLC  
7135 Minstrel Way, Suite 300  
Columbia, MD 21045

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR REVIEW OF THE  
MODEL NO. NUHOMS MP-197 PACKAGE

Dear Mr. Mathues:

By letter dated August 16, 2016, you submitted an amendment request for the Model No. NUHOMS MP-197 package and requested an increase of the maximum allowable assembly average fuel burnup from 62 GWd/MTU to 70 GWd/MTU for the NUHOMS 69 BTH Dry Shielded Canister. By letter dated August 31, 2016, you submitted a consolidated copy of the Safety Analysis Report, Revision 17A, further to staff's request.

The staff has determined that additional information is needed to complete its technical review. The information requested is listed in the enclosure to this letter. We request that you provide this information by February 1, 2017. If you are unable to meet this deadline, you must notify us in writing no later than January 17, 2017, of your new submittal date and the reasons for the delay. The staff will then assess the impact of the new submittal date and notify you of a revised schedule.

Please reference Docket No. 71-9302 and CAC No. L25139 in future correspondence related to this licensing action. If you have any questions regarding this matter, I may be contacted at (301) 415-7505.

Sincerely,

**/RA/**

Pierre Saverot, Project Manager  
Spent Fuel Licensing Branch  
Division of Spent Fuel Management  
Office of Nuclear Material Safety  
and Safeguards

Docket No. 71-9302  
CAC No. L25139

Enclosure: Request for Additional Information

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Request for Additional Information  
TN Americas LLC  
Docket No. 71-9302  
Certificate of Compliance No. 9302  
Model No. NUHOMS MP-197 Package

By letter dated August 16, 2016, TN Americas LLC submitted an amendment request for the Model No. NUHOMS MP-197 package and requested an increase of the maximum allowable assembly average fuel burnup from 62 GWd/MTU to 70 GWd/MTU for the NUHOMS 69 BTH Dry Shielded Canister. By letter dated August 31, 2016, a consolidated copy of the Safety Analysis Report, Revision 17A, was provided further to staff's request.

This request for additional information (RAI) identifies information needed by the U.S. Nuclear Regulatory Commission (NRC) staff in connection with its review of the Safety Analysis Report, Revision 17A. The requested information is listed by chapter number and title in the applicant's Safety Analysis Report (SAR).

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

## **Chapter 5    Shielding Evaluation**

5-1    Justify the adequacy of the TRITON/ORIGEN-ARP code for calculating the source terms and decay heat for spent fuel with a burnup of 70 GWd/MTU or use additional safety margins to account for the uncertainty of the fuel depletion beyond the burnup range that the code has been benchmarked for.

The applicant used the TRITON/ORIGEN-ARP code for calculating the source terms and decay heat for the spent fuel to be shipped in the Model No. NUHOMS MP-197 package. The applicant provided benchmark analyses for the code with some RCA measurement data.

However, the staff notes that there is limited RCA data in the 70 GWd/MTU burn up range and that these isotopes are mostly important to burnup credit. Although benchmarking the code using these isotopes may produce a general sense on how good the code is for performing depletion analyses, these isotopes are not ideal for benchmarking a code for source term and decay heat calculations.

Source term and decay heat calculations focus on different set of isotopes. NUREG/CR-6700 provides a clear delineation on those spent fuel isotopes that are important to criticality, shielding, and decay heat. As such, the benchmarking analysis may not be adequate for source term calculations for fuel at this burnup.

The applicant needs to provide a justification for the adequacy of the TRITON/ORIGEN-ARP code for calculating both the source terms and decay heat for spent fuel at a burnup of 70 GWd/MTU or, alternatively, use additional safety margins to account for the uncertainty of the depletion calculation beyond the burnup range that the code has been benchmarked for.

The staff needs this information to determine if the Model No. NUHOMS MP-197 package, containing 70 GWd/MTU burnup fuel, meets the regulatory requirements of 10 CFR 71.47(b) and 71.51(a).

## **Chapter 7    Operating Procedures**

- 7-1    Revise the operating procedures to clearly instruct the user that the loading pattern, specified in Figures A.1.4.9-5a and A.5-24a, for aluminum dummy fuel assemblies and low burnup fuel assemblies, is required for loading the NUHOMS 69BTH Type F Dry Shielded Canister (DSC).

The applicant indicates in the SAR that the NUHOMS 69BTH Type F DSC requires a special loading pattern, as depicted in Figures A.1.4.9-5a and A.5-24a. Figure A.5-24a of the SAR also indicates that (i) some of the fuel cells must be loaded with dummy aluminum fuel assemblies, and (ii) some of the cells must be loaded with low burnup fuel. Therefore, it is imperative that the user of the package be aware of such requirements. The staff notes also that these special requirements are not clearly stated in the operating procedures.

The applicant needs to revise the operating procedures to clearly instruct the user that the loading pattern, as specified in Figures A.1.4.9-5a and A.5-24a for aluminum dummy fuel assemblies and low burnup fuel assemblies, is required for loading the NUHOMS 69BTH Type F DSC.

The staff needs this information to determine if the Model No. NUHOMS MP-197 package, containing 70 GWd/MTU burnup fuel, meets the regulatory requirements of 10 CFR 71.47(b) and 71.51(a).