



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

June 19, 2017

Mr. Jayant Bondre
Vice President, Chief Technical Officer
TN Americas LLC
7135 Minstrel Way, Suite 300
Columbia, MD 21045

SUBJECT: ACCEPTANCE REVIEW OF TN AMERICAS LLC APPLICATION FOR AMENDMENT NO. 15 TO STANDARDIZED NUHOMS® CERTIFICATE OF COMPLIANCE NO. 1004 FOR SPENT FUEL STORAGE CASKS, REVISION 0 (DOCKET NO. 72-1004, CAC NO. L25214) – REQUEST FOR SUPPLEMENTAL INFORMATION

Dear Mr. Bondre:

By letter dated March 28, 2017, TN Americas LLC (TN) submitted to the U.S. Nuclear Regulatory Commission (NRC) an application for Amendment No. 15 to the Standardized NUHOMS® Certificate of Compliance No. 1004 for Spent Fuel Storage Casks, Revision 0, pursuant to the requirements of Part 72 of Title 10 of the *Code of Federal Regulations*.

The staff has performed an acceptance review of your application to determine if the application contained sufficient technical information to begin a detailed technical review. The staff has determined that the application does not provide sufficient technical information to begin a detailed review and that supplemental information is needed. The information needed to continue our review is described in the enclosed request for supplemental information (RSI).

In order to schedule our technical review, responses to the enclosed RSIs should be provided within 30 days from the date of this letter. If TN is unable to meet this response date, please notify us at least two weeks in advance of your new submittal date and the reasons for the delay. If TN is not able to respond within this timeframe or RSI responses provided to the NRC do not provide sufficient information, the application may not be accepted for review.

J. Bondre

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Please reference Docket No. 72-1004 and CAC No. L25214 in future correspondence related to the acceptance review for this licensing action. If you have any questions, please contact me at (301) 415-6825.

Sincerely,

/RA/

Christian Jacobs, Senior Project Manager
Spent Fuel Licensing Branch
Division of Spent Fuel Management
Office of Nuclear Material Safety
and Safeguards

Docket No.: 72-1004
CAC No.: L25214

Enclosure:
RSI (non-proprietary)

Request for Supplemental Information (non-proprietary)

By letter dated March 28, 2017, TN Americas LLC (TN) submitted to the U.S. Nuclear Regulatory Commission (NRC) an application for Amendment No. 15 to the Standardized NUHOMS® Certificate of Compliance No. 1004 for Spent Fuel Storage Casks, Revision 0, pursuant to the requirements of Part 72 of Title 10 of the *Code of Federal Regulations* (10 CFR 72).

The staff has performed an acceptance review of your application to determine if the application contained sufficient technical information to begin a detailed technical review. The staff has determined that the application does not provide sufficient technical information to begin a detailed review and that supplemental information is needed. The information needed to continue our review is described in the request for supplemental information (RSI) below.

RSI 7-1 Revise the application to provide a criticality computer code validation analysis that includes the silver-indium-cadmium (AIC) neutron absorber material credited for criticality safety in some 32PT canister loading configurations.

Requested Amendment No. 15 to the TN Standardized NUHOMS storage system designs include loading configurations which credit AIC neutron absorber material for criticality safety. However, the applicant did not provide a revised computer code validation analysis which includes experiments containing this material, or which otherwise demonstrates that these new configurations are within the range of applicability of the original validation analysis. NUREG/CR-6361, "Criticality Benchmark Guide for Light-Water-Reactor Fuel in Transportation and Storage Packages," states that: "The non-fissionable species (e.g., lead, stainless steel, boron, cadmium, phenolic foam, depleted uranium, water, etc.) used in the benchmark experiments should be as similar as possible, including relative masses and volumes, as those materials in the package [storage system] design under normal and hypothetical accident conditions." Although silver is not specifically mentioned in this guidance document, it is a non-fissionable species credited for its neutron absorbing properties, and should be reflected in the code validation.

This information is needed to ensure that the cask design remains subcritical under all conditions, per the requirements of 10 CFR 72.124.

RSI 7-2 Revise the application to clarify whether the AIC neutron absorber material used for criticality control in some 32PT canister configurations is irradiated or not. If it is irradiated, provide a validated isotopic depletion analysis confirming the post-irradiation silver content. In either case, revise the application to clarify the AIC neutron absorber acceptance testing criteria.

It is not clear if the applicant intends to manufacture new AIC poison rod assemblies (PRAs) or to use irradiated rod control cluster assemblies (RCCAs) from previous reactor operation. Section M.6 of the safety analysis report (SAR) states that "only 40% of the actual silver content is specified with 75% credit taken in the criticality analysis or 30% of the silver content." It is not clear if this means 40% of the newly constructed AIC PRA silver content, 40% of the initial silver content for irradiated RCCAs, or 40% of the

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post-irradiation silver content for irradiated RCCAs. If the applicant intends to use irradiated RCCAs as AIC PRAs, then the applicant should provide a validated isotopic depletion analysis to ensure that the post-irradiation silver content is determined appropriately. In either case, the applicant should update Section M.9.1.7.11 of the SAR to provide additional details of the acceptance testing for AIC PRAs, including: 1) what criteria are included in “acceptance testing associated with the qualification of AIC PRAs for reactor use,” 2) whether the density and diameter testing referred to in this section is pre- or post-irradiation, and 3) how the density and diameter testing is to be performed. The AIC acceptance criteria should be consistent with the material properties used in the criticality analysis.

This information is needed to ensure that the cask design remains subcritical under all conditions, per the requirements of 10 CFR 72.124.

RSI 8-1 Identify and/or provide Technical Specification (TS) and Appendix M change pages associated with Change No. 5.

Change No. 5 addresses the inclusion of other zirconium alloy cladding materials such as ZIRLO and M5 for the 32PT System. Enclosure 2 to E-46881, Section 2.0 Description of the Changes includes a table of the TS change pages, the TS number, Description, and Scope Item (Change No.). This table does not contain a listing for Change No 5. In addition, no description consistent with Change No. 5 was identified in a review of all TS changes associated with the 32 PT system.

This information is necessary to determine compliance with 10 CFR 72.236(a) and 72.236(b).

ACCEPTANCE REVIEW OF TN AMERICAS LLC APPLICATION FOR AMENDMENT NO. 15 TO STANDARDIZED NUHOMS® CERTIFICATE OF COMPLIANCE NO. 1004 FOR SPENT FUEL STORAGE CASKS, REVISION 0 (DOCKET NO. 72-1004, CAC NO. L25214) – REQUEST FOR SUPPLEMENTAL INFORMATION, DOCUMENT DATE: JUNE 19, 2017

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