October 8, 2013

MEMORANDUM TO: James G. Danna, Chief
Rulemaking Branch B
Division of Intergovernmental Liaison and Rulemaking, FSME

FROM: Michele Sampson, Chief **/RA/**
Licensing Branch
Division of Spent Fuel Storage and Transportation, NMSS

SUBJECT: USER NEED FOR RULEMAKING FOR AMENDMENT NO. 3 TO THE TRANSNUCLEAR (TN) STANDARDIZED ADVANCED NUHOMS® CASK SYSTEM

The following information is being provided to request rulemaking support for the following Division of Spent Fuel Storage and Transportation (SFST) 10 CFR Part 72 licensing activity:

1. Changes to 10 CFR 72.214 rule text (changes appear in bold):

Certificate Number: 1029
Initial Certificate Effective Date: February 5, 2003
Amendment No. 3 Effective Date: [insert 75 days from date of FR publication]
SAR Submitted by: Transnuclear, Inc.
SAR Title: Final Safety Analysis Report for the Standardized Advanced NUHOMS® Horizontal Modular Storage System for Irradiated Nuclear Fuel
Docket Number: 72-1029
Certificate Expiration Date: February 5, 2023
Model Number: Standardized Advanced NUHOMS®-24PT1, 24PT4, and **32PTH2**

2. Use the following text for the purpose and scope of the amendment:

On December 15, 2011, as supplemented, Transnuclear, Inc. (TN) submitted an application to amend the Standardized Advanced NUHOMS® Horizontal Modular Storage System for Irradiated Nuclear Fuel. The amendment includes changes to: (1) Add a new canister to the Standardized Advanced NUHOMS® System. The NUHOMS® 32PTH2 System consists of a new transportable dry shielded canister (DSC) designated the 32PTH2. The NUHOMS® 32PTH2 system is designed to accommodate up to 32 pressurized water reactor (PWR) intact (or up to 16 damaged and the balance intact) Combustion Engineering (CE) 16 x 16 class spent fuel assemblies with or without control components, (2) The NUHOMS® 32PTH2 System consists of a modified version of the Standardized Advanced NUHOMS® AHSM storage module, designated the AHSM-HS (high burnup and high seismic). Specific changes to the TS are listed below:

- Editorial changes to nomenclature and spelling made for clarity and consistency. (e.g., “B-10,” “transfer,” “U-235,” “FSAR,” “Zircaloy,” “wt. %,” “inches,” etc.).

- For clarity, discussions of fuel assembly enrichment limits are made consistent regarding the use of the terms “maximum planar” and “assembly average,” as they relate to criticality and to shielding, respectively.

- Added “Standardized” to be consistent with the CoC language.

- Updated Table of Contents, List of Tables, List of Figures.
- Definition of ADVANCED HORIZONTAL STORAGE MODULE updated to add the AHSM-HS.
- Existing DAMAGED FUEL ASSEMBLY definition applies to the 24PT1-DSC and 24PT4-DSC only. Added a separate DAMAGED FUEL ASSEMBLY definition for the 32PTH2 DSC only.
- Definition of DRY SHIELDED CANISTER (DSC) updated to include the 32PTH2 DSC.
- Definition of INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI) updated to add the AHSM-HS.
- Definition of RECONSTITUTED FUEL ASSEMBLY updated to be clear that the fuel assembly could, or could not, be further irradiated.
- Definition of STORAGE OPERATIONS updated to add the AHSM-HS.
- Definition of TRANSFER CASK (TC) updated to include the OS200FC onsite transfer cask and the AHSM-HS.
- Definition of TRANSFER OPERATIONS updated to remove the stipulation that a DSC only contains INTACT or DAMAGED fuel assemblies, and to include AHSM-HS.
- Definition of UNLOADING OPERATIONS updated to remove the stipulation that a DSC only contains INTACT or DAMAGED fuel assemblies, and to include AHSM-HS.
- Numbering in Section 1.4 which is in the format “12.3”, “12.3.0.x” etc., which refers to original SAR locations, is changed to “3”, “3.0.x” etc. to be consistent with the TS numbering scheme.
- Added a new section, for fuel to be stored in the 32PTH2 DSC.
- Editorial change to update numbering from “2.3” to “2.4”.
- Corrected “2.1” to “2.0” because Section 2.1 is specific to the 24PT1 DSC, whereas this specification is intended to apply to all DSCs.
- Changed “Maximum Fuel Enrichment” to “Maximum Planar Average Fuel Enrichment” to improve clarity and consistency with FSAR analyses.
- Added a top row to the table to specify the zones, for consistency and clarity.
- Added new table providing PWR fuel specification for the fuel to be stored in the 32PTH2 DSC. (Reference FSAR Appendix B, Table B.2.1-1.)
- Added new table providing thermal and radiological characteristics for control components stored in the 32PTH2 DSC. (Reference FSAR Appendix B, Table B.2.1-2.)

- Added new table providing PWR fuel assembly design characteristics for the 32PTH2 DSC. (Reference FSAR Appendix B, Table B.2.1-3.)

- Added new table providing maximum planar average initial enrichment versus neutron poison requirements for the 32PTH2 DSC (intact fuel assembly). (Reference FSAR Appendix B, Table B.2.1-4.)

- Added new table providing maximum planar average initial enrichment versus neutron poison requirements for the 32PTH2 DSC (damaged fuel assembly). (Reference FSAR Appendix B, Table B.2.1-5.)

- Added new table providing allowable fuel burnup and enrichment combinations for the 32PTH2 DSC. (Reference FSAR Appendix B, Table B.2.1-6.)

- Added new table providing fuel assembly decay heat determination specifications for the 32PTH2 DSC. (Reference FSAR Appendix B, Table B.2.1-7.)

- Added new table providing additional cooling times (ΔT) in years for fuel assemblies with up to 7 fuel rods reconstituted with irradiated stainless steel. (Reference FSAR Appendix B, Table B.2.1-8.)

- Added new table providing B-10 specification for the 32PTH2 poison plates. (Reference FSAR Appendix B, Table B.2.1-9)

- Added new figure providing heat load zoning configurations for the 32PTH2 DSC. (Reference FSAR Appendix B, Figure B.2.1-1.)

- Added 32PTH2 DSC to the LCO.

- Based on NUREG-1745, LCO 3.0.5 is changed to “not applicable to a spent fuel storage cask” and LCOs 3.0.6 and 3.0.7 are removed.

- Added new LCO section providing requirements for 32PTH2 DSC bulkwater removal medium and vacuum drying pressure.

- Added new LCO section providing requirements for 32PTH2 DSC helium backfill pressure.

- Added new LCO providing requirements for the time limit for completion of DSC transfer for the 32PTH2 DSC.

- Added new LCO providing requirements for 32PTH2 DSC criticality control.

- The wording “this FSAR is” is changed to “these specifications are” because the section applies to the TS.

- Clarified section 4.2.2 to distinguish between the FSAR tables associated with the 24PT1 and 24PT4 DSCs, and discussion is added associated with the 32PTH2 DSC and the AHSM-HS.

- Added discussion regarding 32PTH2 DSC basket types and requirements for neutron absorbers.

- Added information regarding the 32PTH2 DSC not requiring fuel spacers.

- Added an explanatory note to Figure 4-1 regarding ligament width dimensions, and expanded the figure title to indicate applicability to the 24PT1 and 24PT4-DSCs.

- Added AHSM-HS requirements to the Codes and Standards section for the horizontal storage modules.

- Added 32PTH2 requirements to the Codes and Standards section dry shielded canisters.

- Added OS200FC requirements to the Codes and Standards section on transfer casks.

- Clarified the current ASME code alternatives to specify that they apply to the 24PT1 and 24PT4-DSCs. Added 32PTH2 ASME code alternatives tables to section 4.3.4. Also revised item No. 2 following the code alternatives tables to make it applicable to the previously licensed DSCs and the new 32PTH2 DSC.

- Added storage configuration requirements for the AHSM-HS, specifying 8 feet for the minimum distance between the AHSM-HS and the ISFSI pad edge.

- Added a 10th requirement to section 4.4.3, involving requirements for DSC support structure material composition for certain AHSM-HS components when the ISFSI is located in a coastal saltwater marine atmosphere.

- Added requirements for the minimum information content of the fuel removal procedure.

- Added AHSM-HS to the Thermal Monitoring Program.

- Add pertinent new FSAR Appendix B references to the training program requirements.

- Specification 5.2.3(c), is removed, based on 1) the specification cites 10 CFR 72.212(b)(2), but the words are associated with 10 CFR 72.44(d)(3); 2) per 10 CFR 72.13, 10 CFR 72.44(d)(3) is applicable to specific licenses, but not general licenses or certificates of compliance.

- For the radiation protection program section 5.2.4: added Item c. to establish controls for draining when using a TC with a liquid neutron shield; added Item d. revised to add the AHSM-HS to the basis for DSC contamination limits; added Item f. for TC/32PTH2 DSC dose rate limits, configurations, and measurement requirements; added Item g. for 32PTH DSC inner top cover plate weld leak testing.

- Section 5.2.5, Subsections “a)” and “b)” are reversed. By reversing TS Section 5.2.5 Subsections a) and b) and therefore putting the conditional requirements for AHSM/AHSM-HS Air Temperature Difference verification first, followed by the AHSM/AHSM-HS Concrete Temperature monitoring, and then the visual inspection of AHSM/AHSM-HS Air Vents, this change creates a more logical sequencing of these subsections. This subsection (now 5.2.5 b) is clarified as to when the requirements become effective, thereby providing specificity that is necessary to avoid false alarms during initial AHSM/AHSM-HS heatup, when (renumbered) 5.2.5 (a) is in effect and

(renumbered) 5.2.5 (b) is not yet in effect. Added 32PTH2 DSC and AHSM-HS requirements to this specification.

- Renamed Specification 5.2.5 b) to Specification 5.2.5 a). This subsection is renamed "AHSM Air Temperature Difference Verification." The title change makes the title more indicative of the purpose of the subsection. Added 32PTH2 DSC and AHSM-HS requirements to this specification.

- Added 32PTH2 DSC and AHSM-HS requirements to 5.2.5(c) specification.

- Added new 5.2.6 section providing requirements for hydrogen gas monitoring for the 32PTH2 DSC.

- Clarified section 5.3.1 and 5.3.2 to indicate that the "cask" is the "transfer cask" and that the "transporter" is the "transfer trailer."

- Added a new section 5.4 providing requirements for an AHSM-HS dose rate evaluation program.

- Added new section 5.5 providing requirements for concrete testing of the AHSM-HS.

- Added new section 5.6 providing requirements for AHSM-HS configuration changes.

3. The proposed Certificate of Compliance (CoC) and TS, and preliminary safety evaluation report (SER) have been placed in ADAMS (see references below) and are available for your use in the rulemaking package. The Division of Spent Storage and Transportation will designate these documents as Official Agency Records after the Executive Director for Operations has approved the package (ADAMS Package No. ML13290A167).

Docket No. 72-1029

ADAMS References: 1. Proposed CoC No. 1029, Amendment No. 3 (ML13290A176)
2. Proposed TS (ML13290A182)
3. Preliminary SER (ML13290A205)

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(renumbered) 5.2.5 (b) is not yet in effect. Added 32PTH2 DSC and AHSM-HS requirements to this specification.

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