November 14, 2013

MEMORANDUM TO: James Danna, Chief
Rulemaking Branch
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. 2 TO THE TRANSNUCLEAR NUHOMS® HD-32PTH STORAGE SYSTEM

The following information is being provided to request rulemaking support for the following SFST certification activity to amend Title 10, *Code of Federal Regulations* (10 CFR) Part 72:

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

Certificate Number: 1030
Initial Certificate Effective Date: January 10, 2007
Amendment No. 2 Effective Date: [insert 75 days from date of FR publication]
SAR Submitted by: Transnuclear, Inc.
SAR Title: Safety Analysis Report for the NUHOMS® HD Horizontal Modular Storage System for Irradiated Nuclear Fuel
Docket Number: 72-1030
Certificate Expiration Date: January 10, 2027
Model Number: NUHOMS® HD-32PTH.

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

On September 28, 2012, as supplemented, Transnuclear, Inc. (TN) submitted an application to amend the NUHOMS® HD Horizontal Modular Storage System for Irradiated Nuclear Fuel (NUHOMS® HD). TN requested the following changes:

- increase the soluble boron concentration to 2800 ppm for criticality safety analyses and add maximum enrichments for Combustion Engineering (CE) 14x14 fuel assemblies that were previously unauthorized for storage,
- improve clarity of certain technical specifications (TS), such as heat load zoning configuration, fuel qualification table, fuel class, intact fuel/damaged fuel definitions, etc.,
- allow for increased fuel assembly weight by 25 pounds,
- revise the definition of control components,
- include blended low enriched uranium (BLEU) fuel material,
- increase shielding effectiveness of the horizontal storage module (HSM-H) by adding optional dose reduction hardware,
- update licensing basis documents based on recent experience with ongoing licensing actions involving other NUHOMS® systems, and
- re-analysis to accommodate installation practices for a limiting gap size that was evaluated based on dose rates.

Specific changes to the TS are listed below:

- Page 1-1 – Added the definition of BLEU fuel and noted that the combined definition of damaged and undamaged fuel is now located in Section 2-1.
- Page 1-2 – Changed Zirconium to zirconium.
- Page 2-1 – Moved revised definition of damaged fuel from page 1-1 and added that fuel assemblies should be unconsolidated.
- Page 2-2 – Revised the definition of control components; increased the maximum weight of a fuel assembly; and changed No. to Number.
- Page 2-3 – Moved part of table from page 2-2 to page 2-3 due to having added the definition of damaged and undamaged fuel to page 2-1; clarified that maximum average enrichment is the maximum planar average enrichment; and added maximum boron loading limit.
- Page 4-1 – Changed the abbreviation for final safety analysis report (FSAR) to updated final safety analysis report (UFSAR).
- Page 4-2 – Revised the neutron absorber tests and moved requirement for coastal marine environments to page 4-8.
- Page 4-4 –- Changed FSAR to UFSAR and added exception for American Society for Mechanical Engineers Boiler and Pressure Vessel Code Section III, Division I, Subsection NB, Article 5520.
- Page 4-5 – Various editorial changes such as changed FSAR to UFSAR and revised 10 CFR 71 to read 10 CFR Part 71.
- Page 4-6 – Various editorial changes such as changed FSAR to UFSAR; changed 10 CFR 71 and 10 CFR 72 to 10 CFR Part 71 and 10 CFR Part 72, respectively; changed the abbreviation for certified material test reports (CMTR's) to CMTRs; and revised 10CFR to 10 CFR.
- Page 4-7 – Changed FSAR to UFSAR.
- Page 4-8 – Various editorial changes (adding spaces, deleting periods, etc); clarified seismic response spectra requirement; and added coastal marine environment requirement that was moved from page 4-2.
- Page 5-2 – Various editorial changes such as changed 10CFR to 10 CFR and Changed FSAR to UFSAR.
- Page 5-3 – Various editorial changes such as 10CFR to 10 CFR, FSAR to UFSAR, and 10 CFR 71 to 10 CFR Part 71.
- Page 5-4 – Added liquid neutron shield requirements and moved these requirements to item d; and clarified the leak test requirements; changed 10CFR to 10 CFR; and changed 10 CFR 20 to 10 CFR Part 20.
- Page 5-5 – Moved previous item d to item e and continued onto page 5-5.
- Page 5-6 – Moved thermal requirement to page 5-6; and various editorial changes such as changed FSAR to UFSAR, added space between temperature value and degree symbol, deleted comma after HSM-H and changed Bird Screens to Birdscreens.
- Page 5-7 – Changed FSAR to UFSAR and added the ® symbol after the word NUHOMS.
- Page 5-8 – Added space between temperature value and degree symbol.
- Page 5-9 – Changed 10CFR to 10 CFR and changed 10 CFR 50 and 10 CFR 72 to 10 CFR Part 50 and 10 CFR Part 72, respectively.

- Page 5-11 – Changed HSMs to HSM-Hs; changed bird screen to birdscreen; increased maximum dose rate on the door centerline and the end shield wall exterior from 2 to 5 mrem/hr; and clarified the number and locations of the dose rate measurements.
- Page 5-12 – Continued the clarification of the number and locations of the dose rate measurements and changed 10 CFR Part 20 and 72 to 10 CFR Part 20 and Part 72.
- Page 5-13 – Revised the concrete testing requirements.
- Page T-2 – Added footnote 3 stating that all zirconium based alloys are acceptable; various editorial changes such as changing Max. to Maximum, Zircalloy to Zircaloy, and revising the footnote numbering from (1) to "2."
- Page T-3 – Added footnote about neutron source assemblies and neutron sources; revised the gamma source and decay heat heading to maximum gamma source and maximum decay heat, respectively; revised column header from "Control Component Source Term" to "Limit"; and changed the units in the last item in the first column from "Watts/assy" to "Watts/Control Component."
- Page T-4 – Revised Table 4 introductory paragraph to from "… enrichment (wt. % U-235) greater than or equal to 1.50…" to "…enrichment greater than or equal to 1.50 wt. % U-235…"; clarified the description of some terms in the equation for calculating decay heat; revised previous footnote and added footnotes to the table about fuel assembly characteristics and BLEU fuel.
- Page T-5 – Added footnotes for fuel assembly characteristics for Table 4; clarified headings of first two columns in Table 4C; added numbers to footnotes of Table 4; clarified footnotes 1 through 3 to state that "… fuel with an assembly average burnup …" instead of "… fuel with a burnup below… "; and added footnote 4 for BLEU fuel.
- Page T-7 – Added maximum enrichments for intact CE14x14 fuel that were previously not authorized for shipment; and added a column for 2800 ppm boron concentration and associated maximum enrichments.
- Page T-8 – Clarified the table title is Maximum Planar Average Initial Enrichment, instead of Maximum Average Initial Enrichment; added maximum enrichments for damaged CE14x14 fuel that were previously not authorized for shipment; added a column for 2800 ppm boron concentration and associated maximum enrichments; and added three footnotes.
- Page F-2 – Clarified the orientation of the figure and revised the descriptions of the fuel assembly requirements from "For CE14x4 Assemblies" to "For CE14x4 Class Fuel Assemblies" and "For Other Assemblies" to For Other Class Fuel Assemblies."

3. The proposed 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 Fuel Storage and Transportation will designate these documents as Official Agency Records after the Executive Director for Operations has approved the package (ADAMS Package No. ML13322B445).

Docket No. 72-1030

ADAMS References: 1. Proposed CoC No. 1030, Amendment No. 2 (ML13325B117)
2. Proposed TS (ML13325B119)
3. Preliminary SER (ML13325B118)

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