



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

September 13, 2018

MEMORANDUM TO: Kimyata Morgan-Butler, Chief
Materials Rulemaking and Project Management Branch
Division of Rulemaking
Office of Nuclear Material Safety
and Safeguards

FROM: John McKirgan, Chief /RA/
Spent Fuel Licensing Branch
Division of Spent Fuel Management
Office of Nuclear Material Safety
and Safeguards

SUBJECT: USER NEED FOR RULEMAKING FOR THE STANDARDIZED
NUHOMS® SYSTEM, COC NO. 1004, AMENDMENT NO. 15

The purpose of this communication is to request support for rulemaking activities in the Division of Spent Fuel Management (DSFM) for the following DSFM's 10 CFR Part 72 licensing action:

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

Certificate Number: 1004.

Initial Certificate Effective Date: January 23, 1995, superseded by Initial Certificate, Revision 1, ~~effective on~~ April 25, 2017, superseded by Renewed Initial Certificate, Revision 1, on December 11, 2017.

~~Initial Certificate, Revision 1, Effective Date: April 25, 2017.~~

Renewed Initial Certificate, Revision 1, Effective Date: December 11, 2017.

Amendment Number 1 Effective Date: April 27, 2000, superseded by Amendment Number 1, Revision 1, ~~effective on~~ April 25, 2017, superseded by Renewed Amendment Number 1, Revision 1, on December 11, 2017.

~~Amendment Number 1, Revision 1, Effective Date: April 25, 2017.~~

Renewed Amendment Number 1, Revision 1, Effective Date: December 11, 2017.

Amendment Number 2 Effective Date: September 5, 2000, superseded by Amendment Number 2, Revision 1, ~~effective on~~ April 25, 2017, superseded by Renewed Amendment Number 2, Revision 1, on December 11, 2017.

~~Amendment Number 2, Revision 1, Effective Date: April 25, 2017.~~

Renewed Amendment Number 2, Revision 1, Effective Date: December 11, 2017.

Amendment Number 3 Effective Date: September 12, 2001, superseded by Amendment Number 3, Revision 1, ~~effective on~~ April 25, 2017, superseded by Renewed Amendment Number 3, Revision 1, on December 11, 2017.

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~~Amendment Number 3, Revision 1, Effective Date: April 25, 2017.~~

Renewed Amendment Number 3, Revision 1, Effective Date: December 11, 2017.
Amendment Number 4 Effective Date: February 12, 2002, superseded by Amendment Number 4, Revision 1, **effective on** April 25, 2017, superseded by Renewed Amendment Number 4, Revision 1, on December 11, 2017.

~~Amendment Number 4, Revision 1, Effective Date: April 25, 2017.~~

Renewed Amendment Number 4, Revision 1, Effective Date: December 11, 2017.
Amendment Number 5 Effective Date: January 7, 2004, superseded by Amendment Number 5, Revision 1, **effective on** April 25, 2017, superseded by Renewed Amendment Number 5, Revision 1, on December 11, 2017.

~~Amendment Number 5, Revision 1, Effective Date: April 25, 2017.~~

Renewed Amendment Number 5, Revision 1, Effective Date: December 11, 2017.
Amendment Number 6 Effective Date: December 22, 2003, superseded by Amendment Number 6, Revision 1, **effective on** April 25, 2017, superseded by Renewed Amendment Number 6, Revision 1, on December 11, 2017.

~~Amendment Number 6, Revision 1, Effective Date: April 25, 2017.~~

Renewed Amendment Number 6, Revision 1, Effective Date: December 11, 2017.
Amendment Number 7 Effective Date: March 2, 2004, superseded by Amendment Number 7, Revision 1, **effective on** April 25, 2017, superseded by Renewed Amendment Number 7, Revision 1, on December 11, 2017.

~~Amendment Number 7, Revision 1, Effective Date: April 25, 2017.~~

Renewed Amendment Number 7, Revision 1, Effective Date: December 11, 2017.
Amendment Number 8 Effective Date: December 5, 2005, superseded by Amendment Number 8, Revision 1, **effective on** April 25, 2017, superseded by Renewed Amendment Number 8, Revision 1, on December 11, 2017.

~~Amendment Number 8, Revision 1, Effective Date: April 25, 2017.~~

Renewed Amendment Number 8, Revision 1, Effective Date: December 11, 2017.
Amendment Number 9 Effective Date: April 17, 2007, superseded by Amendment Number 9, Revision 1, **effective on** April 25, 2017, superseded by Renewed Amendment Number 9, Revision 1, on December 11, 2017.

~~Amendment Number 9, Revision 1, Effective Date: April 25, 2017.~~

Renewed Amendment Number 9, Revision 1, Effective Date: December 11, 2017.
Amendment Number 10 Effective Date: August 24, 2009, superseded by Amendment Number 10, Revision 1, **effective on** April 25, 2017, superseded by Renewed Amendment Number 10, Revision 1, on December 11, 2017.

~~Amendment Number 10, Revision 1, Effective Date: April 25, 2017.~~

Renewed Amendment Number 10, Revision 1, Effective Date: December 11, 2017.
Amendment Number 11 Effective Date: January 7, 2014, superseded by Amendment Number 11, Revision 1, **effective on** April 25, 2017, superseded by Renewed Amendment Number 11, Revision 1, on December 11, 2017.

~~Amendment Number 11, Revision 1, Effective Date: April 25, 2017.~~

Renewed Amendment Number 11, Revision 1, Effective Date: December 11, 2017, as corrected (ADAMS Accession No. ML18018A043).

Amendment Number 12 Effective Date: Amendment not issued by the NRC.
Amendment Number 13 Effective Date: May 24, 2014, superseded by Amendment Number 13, Revision 1, **effective on** April 25, 2017, superseded by Renewed Amendment Number 13, Revision 1, on December 11, 2017.

~~Amendment Number 13, Revision 1, Effective Date: April 25, 2017.~~

Renewed Amendment Number 13, Revision 1, Effective Date: December 11, 2017, as corrected (ADAMS Accession No. ML18018A100).

Amendment Number 14 Effective Date: April 25, 2017, superseded by Renewed

Amendment Number 14, on December 11, 2017.

Renewed Amendment Number 14 Effective Date: December 11, 2017.

Renewed Amendment Number 15 [insert 75 days from date of *Federal Register* publication]

SAR Submitted by: Transnuclear, Inc.

SAR Title: Final Safety Analysis Report for the Standardized NUHOMS® Horizontal Modular Storage System for Irradiated Nuclear Fuel.

Docket Number: 72–1004.

Certificate Expiration Date: January 23, 2015.

Renewed Certificate Expiration Date: January 23, 2055.

Model Number: NUHOMS®–24P, –24PHB, –24PTH, –32PT, –32PTH1, –37PTH, –52B, –61BT, –61BTH, and –69BTH.

2. On March 28, 2017, as supplemented on July 18, 2017, December 14, 2017, and March 22, 2018, TN Americas LLC (TN) submitted an amendment request to the U.S. Nuclear Regulatory Commission (NRC) for the Standardized NUHOMS® System Certificate of Compliance (CoC) No. 1004. The proposed changes include the following:
 1. Unify and standardize the fuel qualification tables for four pressurized water reactor (PWR) systems (32PT, 24PTH, 32PTH1 and 37PTH) in order to simplify the technical specifications (TS). The standardized fuel qualification tables (FQTs) provide for minimum required cooling times, as low as two years, as a function of enrichment and burnup (BU) for all the heat loads described in the various heat load zoning configurations (HLZCs) for these four PWR systems. Further, the FQTs are generated for three different metric tons of uranium (MTU) loadings per fuel assembly (FA) and allow for interpolation between MTU loadings and to establish cooling times for FAs that fall into the unanalyzed regions of the FQTs. For this purpose, the source term, dose rate, occupational exposure and site dose analyses have been revised for the four PWR systems described above. The TS and Updated Final Safety Analysis (UFSAR) Appendices M, P, U and Z have been revised accordingly.
 2. For the 32PT System, add a new HLZC #4 to allow for the loading of FAs with decay heat up to 2.2 kW corresponding to a 2-year cooled fuel. The TS and UFSAR Appendix M have been revised to incorporate this new HLZC.
 3. For the 32PT System, increase the maximum assembly average BU from 55 gigawatt-days per metric ton of uranium (GWd/MTU) to 62 GWd/MTU. The TS and UFSAR Appendix M have been revised to incorporate this change.
 4. For the 32PT System, allow for the loading of damaged fuel assemblies confined within top and bottom end caps and failed fuel assemblies loaded within individual failed fuel canisters. Provide for a basket option to increase the number of poison plates from 24 to 32 resulting in an increase in the allowable enrichment of the authorized contents. Expand the definition of the poison rod assemblies to include rod cluster control assembly materials, specifically silver neutron absorber. A clarification of the definition for damaged fuel for all DSCs was also made in the UFSAR sections and TS tables. Additionally, the TS now has a separate definition for intact fuel. The TS and UFSAR Appendix M have been revised to incorporate this change.
 5. For the 32PT System, include other zirconium alloy cladding materials such as ZIRLO and M5. The TS and UFSAR Appendix M have been revised to incorporate this change.
 6. For the 24PTH System, add a new HLZC #6 to allow for the loading of FAs with decay heat up to 2.5 kW corresponding to a 2-year cooled fuel, and a total heat load of 35 kW per basket. The TS and UFSAR Appendix P have been revised to incorporate this new HLZC and editorial changes are made to the TS for the descriptions of basket types.

7. For the 24PTH System, the OS197 is added as an authorized transfer cask (TC) for the transfer of the 24PTH-S-LC dry shielded canister in addition to the standardized TC. UFSAR Chapters P.1, P.2 and P.4 have been revised to incorporate this change.
 8. For the 61 BTH System, revise the existing HLZC #10 to allow loading FAs with decay heat up to 1.2 kW corresponding to a 2-year cooling time. GNF-2 and ATRIUM-11 FA designs are also added as authorized contents. Additionally, the FQTs with minimum cooling times of two years are generated for MTU loadings of 0.180 and 0.198 per fuel assembly at a decay heat of 1.2 kW and to establish cooling times for FAs that fall into the unanalyzed regions of all the FQTs. The TS and UFSAR Appendix T have been revised to incorporate these changes.
 9. For the 32PTH1 System, add new HLZC #5 to allow for the loading of FAs with decay heat up to 1.1 kW for a total heat load of 35.2 kW per basket and HLZC #6 to allow for loading of FAs with decay heat up to 1.3 kW for a total heat load of 37.6 kW per basket. This is applicable for Type 1 DSCs using solid aluminum rails only. The TS and UFSAR Appendix U have been revised to incorporate these changes.
 10. Provide a description in the UFSAR for the solar shield currently described in the TS for the TC during transfer operations. UFSAR Chapter 10 has been revised to incorporate this change.
 11. Update TS 4.3.3 Item 11 to add flexibility to general licensees in verifying compliance regarding the storage pad location and the soil-structure interaction, which may affect the response of loaded horizontal storage modules.
3. The proposed CoC, 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. DSFM will designate these documents as Official Agency Records after the Executive Director for Operations has approved the package (ADAMS Package No. ML18228A529).

The Office of the General Counsel has reviewed this memorandum with its referenced documents and has no legal objection to its contents.

CAC No. 001028
Docket No. 72-1004
EPID: L-2017-LLA-0012

ADAMS References:

1. Proposed CoC No. 1004 Amendment No. 15 CoC (ML18228A531)
2. Proposed CoC No. 1004 Amendment No. 15 TS (ML18228A530)
3. Preliminary CoC No. 1004 Amendment No. 15 SER (ML18234A012)
4. Routing sheet for SER, CoC and TS (ML18228A532)

SUBJECT: USER NEED FOR RULEMAKING FOR THE STANDARDIZED NUHOMS®
SYSTEM, COC NO. 1004, AMENDMENT NO. 15, DOCUMENT DATE:
September 13, 2018

ADAMS Package Accession No.: ML18228A529

Memo: ML18228A533

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