



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

December 20, 2023

MEMORANDUM TO: Jill Shepherd, Chief
Materials Rulemaking and
Project Management Branch
Division of Rulemaking, Environmental, and
Financial Support
Office of Nuclear Material Safety
and Safeguards

FROM: Yoira K. Diaz-Sanabria, Chief
Storage and Transportation Licensing Branch
Division of Fuel Management
Office of Nuclear Material Safety
and Safeguards

Handwritten signature of Yoira K. Diaz-Sanabria in black ink.

Signed by Diaz-Sanabria, Yoira
on 12/20/23

SUBJECT: USER NEED FOR RULEMAKING FOR THE HOLTEC HI-STORM
100 CASK SYSTEM, CERTIFICATE OF COMPLIANCE NO. 1014,
RENEWED AMENDMENT NO. 16

The purpose of this communication is to request support for rulemaking activities in the Division of Fuel Management (DFM) for the following Title 10 of the *Code of Federal Regulations* (10 CFR) Part 72 licensing action:

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

Certificate Number: 1014.

Initial Certificate Effective Date: May 31, 2000, superseded by Renewed Initial Certificate, on August 2, 2023.

* * *

***Renewed Amendment Number 16 Effective Date:* [insert 75 days from date of Federal Register publication].**

Renewed Amendment Number 17 Effective Date: [TBD – Estimated January 2024]

Safety Analysis Report (SAR) Submitted by: Holtec International.

SAR Title: Final Safety Analysis Report for the HI-STORM 100 System.

Docket Number: 72-1014.

CONTACT: Yen-Ju Chen, NMSS/DFM
301-415-1018

Certificate Expiration Date: May 31, 2060.

Model Number: HI-STORM 100.

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

On March 9, 2021 (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML21068A360), as supplemented on August 11, 2021 (ML21223A045), August 31, 2022 (ML22243A269), September 9, 2022 (ML22249A347), October 3, 2022 (ML22276A286), January 4, 2023 (ML23005A000), January 5, 2023 (ML23005A273), January 13, 2023 (ML23013A337), March 17, 2023 (ML23076A271), and September 20, 2023 (ML23263B122), Holtec International submitted an application to amend the HI-STORM 100 Cask System. On February 17, 2022 (ML22048C222), Holtec International requested to separate the RIRP-I-16-01 certificate of compliance (CoC) reorganization, also known as graded approach (ML19353D337), from this amendment. The amendment includes the following changes:

1. Add a new unventilated high density (UVH) overpack, HI-STORM 100 UVH, which includes high density concrete for shielding. The UVH is to be used with the MPC-32M (standard) and MPC-68M (standard).
 2. Include the ability to use the computational fluid dynamics (CFD) analysis to evaluate site-specific fire accident scenario.
 3. Modify the vent and drain penetrations to include the option of a second port cover plate.
 4. Include the ability to use CFD analysis to evaluate site-specific burial under debris accident scenario.
 5. Include the ability to use water without glycol in the HI-TRAC water jacket during transfer operations below 32°F based on the site-specific MPC total heat loads.
 6. Change the hydrostatic pressure test of the MPC acceptance criteria to be examination for leakage only. Remove post hydrostatic test liquid penetrant and magnetic particle examination.
 7. Replace the fuel qualification tables in final safety analysis report (FSAR) chapter 2 and the CoC, including the equation for calculation of the maximum allowable burnup as a function of the cooling time and cooling time dependent coefficients, with simpler sets of burnup and cooling time limits. Reduce the minimum cooling time for pressurized water reactor fuel is reduced from 2 years to 1 year.
 8. Revise FSAR appendix 1.D, Specification for Plain Concrete in the HI-STORM Family of Overpacks, to enhance certain requirements, to add certain revised shielding assumptions following a significant thermal event, and to add critical characteristics for concrete employed in the HI-STORM 100 UVH System.
3. The proposed CoC, technical specifications (TS), and preliminary safety evaluation report (PSER) have been placed in ADAMS (see ADAMS references below) and are available for your use in the rulemaking package. DFM will designate these

documents as Official Agency Records after the Executive Director for Operations has approved the package (ML23123A102).

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

Docket No.: 72-1014

CAC No.: 001208

EPID: L-2021-LLA-0039

ADAMS References:

1. Proposed CoC No. 1014, Amendment 16 (ML23123A104)
2. Proposed TS, Appendix A, CoC No. 1014, Amendment 16 (ML23123A105)
3. Proposed TS, Appendix B, CoC No. 1014, Amendment 16 (ML23123A106)
4. Proposed TS, Appendix C, CoC No. 1014, Amendment 16 (ML23123A107)
5. Proposed TS, Appendix D, CoC No. 1014, Amendment 16 (ML23123A108)
6. Proposed TS, Appendix A-100U, CoC No. 1014, Amendment 16 (ML23123A109)
7. Proposed TS, Appendix B-100U, CoC No. 1014, Amendment 16 (ML23123A110)
8. PSER (ML23123A112)

SUBJECT: USER NEED FOR RULEMAKING FOR THE HOLTEC HI-STORM 100 CASK SYSTEM, CERTIFICATE OF COMPLIANCE NO. 1014, AMENDMENT NO. 16, DOCUMENT DATE: December 20, 2023

DISTRIBUTION:

NMSS/DFM r/f

ADAMS Accession Nos.: ML23123A102(Pkg), ML23123A103(Memo), ML23123A104(CoC), ML23123A105(Appx A), ML23123A106(Appx B), ML23123A107(Appx C), ML23123A108(Appx D), ML23123A109(Appx A-100U), ML23123A110(Appx B-100U), ML23123A112(PSER)

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