



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

February 2, 2018

Mr. Coley C. Chappell  
Manager, Design and Programs  
Entergy Nuclear Operations, Inc.  
Vermont Yankee  
320 Governor Hunt Road  
Vernon, VT 05354

SUBJECT: VERMONT YANKEE NUCLEAR POWER STATION INDEPENDENT SPENT  
FUEL STORAGE INSTALLATION, ISSUANCE OF EXEMPTION (CAC NO.  
001028; DOCKET NOS.: 50-271, 72-59, and 72-1014; EPID: L-2017-LLE-0005)

Dear Mr. Chappell:

This is in response to your letter dated May 16, 2017<sup>1</sup> (BVY 17-006), and supplemented on September 7, 2017<sup>2</sup> and December 7, 2017<sup>3</sup>, requesting an exemption under Title 10 of the *Code of Federal Regulations* (10 CFR) 72.7 to use the new regionalized quarter-symmetric head load (QSHL) pattern, load fuel that has been cooled for at least 2 years, and establish a per-cell maximum average burnup limit at 65,000 megawatt days per metric ton of uranium (MWD/MTU) for using HI-STORM 100 multipurpose canister (MPC)-68M at the Vermont Yankee Nuclear Power Station (VYNPS). Specifically, you requested an exemption from the requirements of 10 CFR 72.212(a)(2), 10 CFR 72.212(b)(3), 10 CFR 72.212(b)(5)(i), 10 CFR 72.214, and the portion of 10 CFR 72.212(b)(11), which require storage of spent nuclear fuel under a general license in dry storage casks approved under the provisions of 10 CFR Part 72, and compliance with the terms and conditions set forth in the certificate of compliance (CoC) for each dry storage spent fuel cask used by an independent spent fuel storage installation (ISFSI) general licensee.

Entergy plans to use Holtec's HI-STORM 100 cask system under CoC No. 1014, Amendment No. 10 for dry storage of spent nuclear fuel in MPC-68M canisters at VYNPS ISFSI. CoC No. 1014, Amendment No. 10, Appendix B, Figure 2.1-4 provides a regionalized loading pattern for MPC-68M; Section 2.4.3 and Table 2.4-4 identify that fuel must be cooled for at least 3 years before loading into storage canisters; and Appendix B, Section 2.4.3 provides an equation to calculate maximum allowable fuel assembly average burnup based on fuel decay heat, enrichment, and cooling time (for 3 years and longer). Entergy requested an exemption to allow the use of the new QSHL pattern described in Figure 2.4-1 in BVY 17-006 Attachment 1; the QSHL pattern allows VYNPS to load hotter fuel from its final operating cycle with cooler fuel, as well as damaged fuel or fuel debris, in an optimized manner. The exemption would also allow VYNPS to load fuel cooled for at least 2 years into the MPC-68M as described in BVY 17-006 Attachment 3, Appendix B, Table 2.1-1, Section VI; this change would allow VYNPS to load fuel

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<sup>1</sup> Agency-wide Documents Access and Management System (ADAMS) Accession Number No. ML17142A354.

<sup>2</sup> ADAMS Accession No. ML17255A236.

<sup>3</sup> ADAMS Accession No. ML17346A685.

assemblies from its final operating cycle, which has minimum cooling times ranging from 2.83 to 2.99 years as of October 2017. In addition, VYNPS would be allowed to use a per-cell maximum average burnup limit at 65,000 MWD/MTU as described in BVY 17-006 Attachment 3, Appendix B, Table 2.1-1, Section VI.

The NRC staff reviewed Entergy's exemption request for the VYNPS ISFSI, and the details of the review are included in the enclosed safety evaluation report. Based upon the staff's evaluation, the NRC has determined that, pursuant to 10 CFR 72.7, the exemption is authorized by law, will not endanger life or property or the common defense and security, and is otherwise in the public interest. Therefore, the NRC is granting Entergy an exemption from the requirements in 10 CFR 72.212(a)(2), 10 CFR 72.212(b)(3), 10 CFR 72.212(b)(5)(i), 10 CFR 72.214, and the portion of 10 CFR 72.212(b)(11) that requires compliance with terms, conditions, and specifications of the CoC. This exemption allows VYNPS to use the new QSHL pattern, to load fuel that has been cooled for at least 2 years, and to establish a per-cell maximum average burnup limit at 65,000 MWD/MTU for using a MPC-68M canister.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the publicly available records component of the NRC's document system, ADAMS. ADAMS is accessible from the NRC Website at <http://www.nrc.gov/reading-rm/adams.html>.

If you have any questions, please contact me at (301) 415-6802, or Yen-Ju Chen of my staff, at (301) 415-1018.

Sincerely,

**/RA/**

Meraj Rahimi, Acting Chief  
Spent Fuel Licensing Branch  
Division of Spent Fuel Management  
Office of Nuclear Material Safety  
and Safeguards

CAC NO. 001028  
DOCKET NOS.: 50-271, 72-59, and 72-1014  
EPID: L-2017-LLE-0005

Enclosure:  
Safety Evaluation Report

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DOCUMENT DATE: FEBRUARY 2, 2018

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<b>OFC</b>	NMSS	NMSS	NMSS
<b>NAME</b>	YChen	WWheatley	MRahimi
<b>DATE</b>	10/25/2017	2/1/2018	2/2/2018

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