



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

April 14, 2021

Mrs. Mandy Halter
Vice President, Regulatory Assurance
Entergy Services, LLC
M-ECH-29
1340 Echelon Parkway
Jackson, MS 39213

**SUBJECT: U.S. NUCLEAR REGULATORY COMMISSION ANALYSIS OF ENTERGY
NUCLEAR OPERATIONS, INC'S INITIAL AND UPDATED DECOMMISSIONING
FUNDING PLANS FOR THE BIG ROCK POINT, INDIAN POINT, PILGRIM,
PALISADES, FITZPATRICK, AND VERMONT YANKEE INDEPENDENT SPENT
FUEL STORAGE INSTALLATIONS**

Dear Mrs. Halter:

By letter dated December 13, 2012, Entergy Nuclear Operations, Inc. (Entergy) submitted, for U.S. Nuclear Regulatory Commission (NRC) staff review and approval, initial decommissioning funding plans (DFPs) for the independent spent fuel storage installations (ISFSIs) at Big Rock Point Nuclear Power Plant (Big Rock Point); Indian Point Nuclear Generating Stations, Units 1, 2, and 3 (Indian Point); Pilgrim Nuclear Power Station (Pilgrim); Palisades Nuclear Plant (Palisades); James A. FitzPatrick Nuclear Power Plant (FitzPatrick); and Vermont Yankee Nuclear Power Station (Vermont Yankee) (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12352A126). On January 8, 2013, Entergy supplemented its submittal via a letter to correct an administrative error in its initial DFPS (ADAMS Accession No. ML13010A042).

By letter dated December 17, 2015, Entergy submitted, for NRC staff review and approval, updated decommissioning funding plans (updated DFPS) for the ISFSIs at Big Rock Point,

Indian Point,¹ Pilgrim,² Palisades, FitzPatrick,³ and Vermont Yankee⁴ (ADAMS Accession No. ML15351A524).

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR), Sections 72.30(b) and (c), and using NUREG-1757, Vol. 3, Rev. 1, "Consolidated Decommissioning Guidance," the NRC staff reviewed Entergy's initial and updated DFPs, including the initial and updated decommissioning cost estimates (DCEs) and the method of assuring funds for decommissioning.

Pursuant to 10 CFR 72.30(b), each holder of, or applicant for, a license under Part 72 must submit for NRC review and approval a DFP containing information on how reasonable assurance will be provided that funds will be available to decommission its ISFSIs. The DFP must contain a detailed DCE, in an amount reflecting: (1) the cost of an independent contractor to perform all decommissioning activities, (2) an adequate contingency factor, and (3) the cost of meeting the 10 CFR 20.1402 unrestricted use criteria (or the cost of meeting the 10 CFR 20.1403 restricted use criteria, provided the licensee can demonstrate its ability to meet these criteria). The licensee's DFP must also identify and justify using the key assumptions contained in the DCE. Further, the DFP must describe the method of assuring funds for ISFSI decommissioning, including means for adjusting cost estimates and associated funding levels periodically over the life of the ISFSI. Additionally, the DFP must specify the volume of onsite subsurface material containing residual radioactivity that will require remediation to meet the criteria for license termination, and contain a certification that financial assurance for ISFSI decommissioning has been provided in the amount of the DCE.

¹ Subsequent to Entergy's submittal of the Indian Point's updated DFP, by order dated November 23, 2020 (ADAMS Accession No. ML20297A325) the NRC approved the direct transfer of Entergy's licensed authority to operate Indian Point Generating Station Units 1, 2, and 3 and the Indian Point ISFSI to Holtec subsidiaries (to be known as Holtec Indian Point 2, LLC, Holtec Indian Point 3, LLC, and Holtec Decommissioning International). Under the license transfer order a wholly-owned subsidiary of Holtec, Nuclear Asset Management Company, LLC, would acquire all equity interests in the parent companies owning the three units and would be the direct parent company owner of both LLCs mentioned in the previous sentence. While this order was immediately effective, the license transfer is not yet finalized.

² Subsequent to Entergy's submittal of the Pilgrim's updated DFP, by order dated August 22, 2019 (ADAMS Accession No. ML19170A265) and effected in the license transfer amendment on August 27, 2019 (ADAMS Accession No. ML19235A050), the NRC approved the direct transfer of Entergy's licensed authority to operate Pilgrim Nuclear Power Station and the Pilgrim ISFSI to Holtec Decommissioning International, LLC and the indirect transfer of Entergy Nuclear Generation Company's (to be known as Holtec Pilgrim, LLC) ownership interests in the facility licenses to Holtec International (Holtec).

³ Subsequent to Entergy's submittal of the FitzPatrick's updated DFP, by order dated March 1, 2017 (ADAMS Accession No. ML17041A196), the NRC authorized the direct transfer of the James A. FitzPatrick Nuclear Power Plant Operating License and the generally licensed FitzPatrick ISFSI from Entergy Nuclear Operations, Inc. to Exelon Generation Company, LLC. By order dated November 7, 2017 (ADAMS Accession No. ML17240A069) and effected in the license transfer amendment on November 30, 2017 (ADAMS Accession No. ML17313A077), the NRC authorized the direct transfer of James A. FitzPatrick Nuclear Power Plant Operating License and the generally licensed FitzPatrick ISFSI from Exelon Generation Company, LLC. to Exelon FitzPatrick, LLC (Exelon).

⁴ Subsequent to Entergy's submittal of Vermont Yankee's updated DFP, by order dated October 11, 2018 (ADAMS Accession No. ML18248A096) and effected in the license transfer amendment on January 11, 2019 (ADAMS Accession No. ML18347B360), the NRC approved the direct transfer of the Vermont Yankee Nuclear Power Station license and the general license for the Vermont Yankee ISFSI from Entergy Nuclear Operations, Inc. to NorthStar Decommissioning Company, LLC (NorthStar), and the indirect transfer of the relevant licenses to NorthStar's parents NorthStar Group Services, Inc., LVI Parent Corp., and NorthStar Group Holdings, LLC.

The NRC staff reviewed and analyzed the information submitted by Entergy on how reasonable assurance will be provided that funds will be available to decommission the ISFSIs, including the amount of the DCE and the method of assuring funds for decommissioning.

In its 2012 initial DFPs, Entergy estimated the total costs to decommission the ISFSIs to unrestricted use, in 2012 dollars. The DCEs were provided for Big Rock Point (\$1.6 million), Indian Point (\$4.0 million for Units 1, 2, and 3 collectively),⁵ Pilgrim (\$2.7 million), Palisades (\$3.8 million), FitzPatrick (\$2.9 million), and Vermont Yankee (\$2.7 million).

Based on its financial analysis of Entergy's submittals, the NRC staff finds that the DCEs submitted for 2012: (1) are based on reasonable costs of a third-party contractor, (2) include an adequate contingency factor, (3) reflect the cost of meeting the 10 CFR 20.1402 criteria for unrestricted use, and (4) are based on reasonable and documented assumptions. Therefore, the NRC finds that the 2012 DCEs adequately estimate the cost, to carry out required ISFSI decommissioning activities prior to license termination, and that the 2012 DCEs are acceptable.

In the initial DFPs, Entergy relied on excess funding from the decommissioning trust fund designated for each facility as financial assurance for ISFSI decommissioning a method authorized by 10 CFR 50.75(e) which is allowed under 72.30(e)(5) for all the sites, except for Big Rock Point. With regard to the sites other than Big Rock Point, this is allowed because those ISFSIs belong to licensees with a power reactor license under part 50. The trust fund balances account for the 10 CFR Part 50 license expiration dates and the ISFSI DCEs assume all costs incurred following the year in which spent fuel has been fully removed from the ISFSI. With regard to Big Rock Point, since the Big Rock Point reactor facility has been decommissioned, the 10 CFR 50.75 decommissioning trust fund is no longer applicable. Therefore, Entergy relies solely on a parent company guarantee established in the amount of \$5 million, a method authorized by 72.30(e)(2). The NRC staff confirmed that the parent company guarantee, and the financial test meet the criteria of 10 CFR Part 30, Appendix A. The NRC staff finds that the aggregate dollar amount of the licensee's financial instruments provides adequate financial assurance to cover its cost estimates, and therefore, that these financial instruments are acceptable.

Based on its financial analyses, the NRC staff finds that the initial DFPs contain the information required by 10 CFR 72.30(b) and that Entergy has provided reasonable assurance that funds will be available to decommission the ISFSIs at Big Rock Point, Indian Point, Pilgrim, Palisades, FitzPatrick, and Vermont Yankee.

Pursuant to 10 CFR 72.30(c), at the time of license renewal and at intervals not to exceed 3 years, the DFP required to be submitted by 10 CFR 72.30(b) must be resubmitted with adjustments as necessary to account for changes in costs and the extent of contamination in an updated DFP. The updated DFP must update the information submitted with the original or prior approved plan. In addition, the updated DFP must also specifically consider the effect of the following events on decommissioning costs, as required by 10 CFR 72.30(c)(1)–(4): (1) spills of radioactive material producing additional residual radioactivity in onsite subsurface material, (2) facility modifications, (3) changes in authorized possession limits, and (4) actual remediation costs that exceed the previous cost estimate.

⁵ Entergy's initial DFPs for Indian Point broke down this estimate as follows: \$1.975 million for Units 1 and 2 combined and an additional \$1.975 million for Unit 3.

In its 2015 updated DFPs, Entergy provided estimates of the total cost to decommission its ISFSIs for unrestricted use in 2015 dollars. Entergy estimated that the total costs to decommission the ISFSIs at Big Rock Point (\$2.4 million), Indian Point (\$13.6 million for Units 1, 2, and 3 collectively),⁶ Pilgrim (\$9.0 million), Palisades (\$7.6 million), FitzPatrick (\$8.2 million), and Vermont Yankee (\$5.0 million).

Entergy's updated DCEs and its June 4, 2018, RAI response (ADAMS Accession No. ML18155A576) provided narratives on each of the requirements of 10 CFR 72.30(c)(1)–(4).⁷ Specifically, the licensee explained there were no changes in the factors listed in 10 CFR 72.30(c)(1)–(4). Based on its review of Entergy's 2015 submittals and the 2018 supplement, the NRC staff finds that the updated DCEs: are based on reasonable costs of a third-party contractor; include an adequate contingency factor; reflect the cost of meeting the 10 CFR 20.1402 criteria for unrestricted use; and are based on reasonable and documented assumptions. Therefore, the NRC staff finds that the 2015 updated DCEs adequately estimate the cost, at this time, to carry out required ISFSI decommissioning activities prior to license termination, and that the DCEs are reasonable.

In the updated DFP for the Big Rock Point ISFSI, Entergy relied on a parent company guarantee established in the amount of \$5 million as financial assurance for ISFSI decommissioning, in accordance with 10 CFR 72.30(e)(2). The NRC staff confirmed that the parent company guarantee, and the financial test meet the criteria of 10 CFR Part 30, Appendix A. For the ISFSIs at Indian Point, Pilgrim, Palisades, FitzPatrick, and Vermont Yankee, Entergy relies on the surplus funds from the decommissioning trust funds as financial assurance for ISFSI decommissioning. This is allowed because those ISFSIs belong to power reactor licensees under part 50. The trust fund balances account for the 10 CFR Part 50 license expiration dates and the ISFSI DCEs assume all costs incurred following the year in which spent fuel has been fully removed from the ISFSI. The NRC staff reviewed the licensee's updated DFPs and finds that the aggregate dollar amount of the licensee's financial instruments provides adequate financial assurance to cover its cost estimates. Therefore, the NRC staff finds these financial instruments are acceptable.

The NRC staff reviewed Entergy's updated DFP submissions, including the updated DCEs and the method of assuring funds for decommissioning, in accordance with 10 CFR 72.30(c) and NUREG-1757, Vol. 3, Rev. 1, "Consolidated Decommissioning Guidance." Based on its review, the NRC staff finds that the updated DFPs contain the information required by 10 CFR 72.30(c). The NRC staff finds that Entergy provided reasonable assurance that funds will be available to decommission the ISFSIs at Big Rock Point, Indian Point, Pilgrim, Palisades, FitzPatrick, and Vermont Yankee.

In addition to the NRC staff's review of Entergy's initial and updated DFPs, the NRC staff completed an environmental review. The NRC staff published a summary of the results of the environmental review in the *Federal Register* in April 2021 for the ISFSIs at Big Rock Point, Indian Point, Pilgrim, Palisades, FitzPatrick, and Vermont Yankee. The environmental assessments and findings of no significant impact for these ISFSIs are available in

⁶ Entergy's updated DFPs for Indian Point broke down this estimate as follows: \$6.790 million for Units 1 and 2 combined and an additional \$6.790 million for Unit 3.

⁷ The NRC staff issued these RAIs after authorizing the FitzPatrick ISFSI's license transfer, detailed above. As noted in the cover letter accompanying its RAI responses, Entergy responded to the RAI because the revised DFP submitted in response were as of December 31, 2015, when Entergy still operated the ISFSI.

<https://www.regulations.gov> under the Docket ID: NRC-2021-0076. The NRC staff determined there were no environmental impacts from the NRC staff's review and approval of Entergy's initial and updated DFPs.

If you have any questions regarding this matter, please contact me at (301) 415-5722 or John.McKirgan@nrc.gov.

Sincerely,

John McKirgan, Chief
Storage and Transportation Licensing Branch
Division of Fuel Management
Office of Nuclear Material Safety
and Safeguards

Docket Nos.: 72-43, 72-51, 72-1044, 72-7,
72-12, and 72-59

License Nos.: SFGL-16, SFGL-33, SFGL-57,
SFGL-01, SFGL-12, and SFGL-36

CAC No.: 001028

EPID Nos: L-2017-FPR-0007, L-2017-FPR-0035,
L-2017-FPR-0054, L-2017-FPR-0050,
L-2017-FPR-0026, and L-2017-FPR-0071

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ADAMS Accession No.: ML21054A132

*** concurrence via email**

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