



NorthStar Vermont Yankee, LLC

Vermont Yankee Nuclear Power Station
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The World's Most Comprehensive Facility & Environmental Solutions Company - **We Bring Answers.**

Scott E. State, P.E.

Chief Nuclear Officer

10 CFR 50.75(f)(1)

10 CFR 50.82(a)(8)(v)

10 CFR 50.82 82(a)(8)(vii)

BVY 20-012

March 31, 2020

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: Status of Decommissioning and Spent Fuel Management Fund for Year
Ending 2019
Vermont Yankee Nuclear Power Station
Docket No. 50-271
License No. DPR-28

Dear Sir or Madam:

10 CFR 50.75(f)(1) requires each shutdown power reactor licensee to annually report to the NRC the status of their decommissioning financial assurance by March 31.

10 CFR 50.82(a)(8)(v) & (vii) require that after submitting its site-specific decommissioning cost estimate pursuant to 10 CFR 50.82(a)(4)(i), a licensee must annually submit to the NRC, by March 31, a report on the status of its decommissioning expenditures, remaining costs and funding assurance levels, as well as a report on the status of its funding for managing irradiated fuel.

Accordingly, NorthStar Vermont Yankee, LLC, hereby submits the status of its decommissioning financial assurance (Attachment 1) and the status of the funding for managing irradiated fuel (Attachment 2) for Vermont Yankee Nuclear Power Station. All or most of the spent fuel management costs are a liability of the U.S. Government as a result of its breach of the spent fuel disposal contract.

This letter contains no new regulatory commitments.

ADD
NRR

Should you have any questions concerning this letter, or require additional information, please contact me at 212.951.3660.

Best Regards,
NorthStar Vermont Yankee, LLC

By: 
Scott E. State, P.E.
Chief Nuclear Officer

Attachment 1: Status of Decommissioning Funding
Attachment 2: Irradiated Fuel Management Funding Analysis
Attachment 3: Annual Cash Flow Analysis

cc:

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Attachment 1

Vermont Yankee Nuclear Power Station

Status of Decommissioning Funding
(2 pages)

NorthStar Vermont Yankee, LLC
Status of Decommissioning Funding Vermont Yankee Nuclear Power Station
As of December 31, 2019 - 10 CFR 50.75(f)(1) and 10 CFR 50.82(a)(8)(v)

10 CFR 50.75(f)(1)

1. Minimum Financial Assurance (MFA)	\$420.537 million [Note 1]
2. ISFSI Obligation as of 12/31/2019	\$3.454 million [Note 2]
3. Decommissioning Trust Fund & Escrow Account Total as of 12/31/2019	\$443.967 million [Note 3]
4. A schedule of the annual amounts remaining to be collected (for spent fuel management)	\$307.236 million [Note 4]
5. Assumptions used in determining rates of escalation in decommissioning costs, rates of earnings on decommissioning funds, and rates of other factors used in funding projections	2% annual real rate of return per 10 CFR 50.75(e)(1)(i)
6. Any contracts upon which the licensee is relying pursuant to 10 CFR 50.75(e)(1)(v)	None
7. Modifications occurring to a licensee's current method of providing financial assurance since the last submitted report	No
8. Any material changes to trust agreements	No

Note 1: This amount is based upon total DECON expenditures for radiological remediation and license termination set forth in the updated Decommissioning Funding Assurance Plan and PROMPT DECON analysis provided in Attachment 3. This is the amount of decommissioning funds estimated to be required for remaining License Termination Costs.

Note 2: From "Notification of Revised Post-Shutdown Decommissioning Activities Report (Revised PSDAR)," dated April 6, 2017 (ML17096A394) – reference Table 2, 'License Termination' column.

Note 3: NDT Balance - \$413.422 million plus Financial Assurance Escrow Balance \$30.544 million.

Note 4: Cost Recovery from DOE for breach of Standard Contract - \$272.236 million plus \$10 million DOE Round 3 Cost Recovery (2023) payment via Entergy plus Contributions to Financial Assurance Escrow - \$25 million.

NorthStar Vermont Yankee, LLC
Status of Decommissioning Funding Vermont Yankee Nuclear Power Station
As of December 31, 2019 - 10 CFR 50.75(f)(1) and 10 CFR 50.82(a)(8)(v)

10 CFR 50.82(a)(8)(v) & (vi)

1. Cumulative decommissioning spending through 12/31/2019	\$125.072 million ^[Note1]
2. 2019 decommissioning spending	\$95.408 million ^[Note2]
3. Decommissioning Trust Fund & Escrow Account Total as of 12/31/2019	\$443.967 million
4. Additional planned contributions to the Financial Assurance Escrow Account	\$25 million
5. Estimated costs to complete from latest estimate	N/A – Initial Report
6. Estimate is based on unrestricted release of the site per 10 CFR 20.1402	
7. Modifications to financial assurance since last report	See above in 10 CFR 50.75 information
8. Any material changes to trust agreements	See above in 10 CFR 50.75 information

Note 1: Cumulative spending by NorthStar thru December 31, 2019 was \$125.072 million (\$29.663 million Pre-Closing Work; \$84.267 million License Termination; \$11.141 million for Spent Fuel Management).

Note 2: 2019 spending by NorthStar was \$95.408 million (\$29.663 million Pre-Closing Work; \$84.267 million License Termination; \$11.141 million for Spent Fuel Management).

Attachment 2

Vermont Yankee Nuclear Power Station
Irradiated Fuel Management Funding Analysis
(1 page)

NorthStar Vermont Yankee, LLC
Irradiated Fuel Management Funding Analysis
As of December 31, 2019 - 10 CFR 50.82(a)(8)(vii)

10 CFR 50.82(a)(8)(vii)

1. Funds available to cover the cost of managing irradiated fuel, estimate of future recoveries as of December 31, 2019	\$313.154 million ^[Note1]
2. Projected costs to manage fuel until DOE Removal (See Table 3.1 – Column 2)	\$272.236 million
3. Plan as Required	See Note 2

Note 1: Funds available to cover the cost of managing irradiated fuel as of December 31, 2019 include (\$313.154 million): (a) The anticipated ending balance in the decommissioning fund at the end of decommissioning in 2053 (\$40.918 million) plus (b) Spent Fuel Management cost reimbursement from the Department of Energy (DOE) from 2020 through 2053 (\$272.236 million).

Note 2: The above table demonstrates that the Vermont Yankee decommissioning fund is adequately funded for all license termination activities and spent fuel management activities.

Attachment 3

Vermont Yankee Nuclear Power Station

Annual Cash Flow Analysis
(4 pages)

On October 11, 2018, the NRC issued an order approving the transfer of the Vermont Yankee Nuclear Power Station Renewed Facility Operating License No. DPR-28 and the transfer of the generally licensed Vermont Yankee Independent Spent Fuel Storage Installation from Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. to NorthStar Nuclear Decommissioning Company, LLC (NNDC) and NorthStar Vermont Yankee, LLC (NVY) (Reference 1). On January 11, 2019, the NRC issued the conforming license amendment to reflect the direct transfer of these licenses for Vermont Yankee (Reference 2).

Total funding available for the Vermont Yankee decommissioning as of December 31, 2019 was \$443.967 million, which includes the decommissioning trust fund balance of \$413.423 million plus the Financial Assurance Escrow balance of \$30.544 million. Table 3 of the site-specific decommissioning cost estimate (Reference 3, Attachment) set forth the estimated annual expenditures for license termination and spent fuel management, respectively. A cash flow analysis utilizing this annual expenditure and significant schedule change information is included in Table 3 of this attachment.

The cash flow analysis demonstrates that the Vermont Yankee decommissioning trust fund was sufficiently funded for all license termination activities and certain spent fuel management activities (i.e., operational costs) as of January 11, 2019. Costs related to spent fuel management operations (e.g., operations and maintenance costs for the spent fuel pool and Independent Spent Fuel Storage Installation, totaling approximately \$262.236 million, Table 3 Column 2) are planned to be funded from the decommissioning trust fund and recoveries from the U.S. Department of Energy.

NVY has determined that use of a DECON analysis shows that as of December 31, 2019 there was reasonable assurance that adequate funds will be available for the decommissioning process in compliance with NRC decommissioning funding assurance rules.

Pursuant to 10 CFR 50.75(e)(1)(i), "A licensee that has prepaid funds based on a site-specific estimate under § 50.75(b)(1) of this section may take credit for projected earnings on the prepaid decommissioning trust funds, using up to a 2 percent annual real rate of return from the time of future funds' collection through the projected decommissioning period, provided that the site-specific estimate is based on a period of safe storage that is specifically described in the estimate." NVY understands that a facility-specific analysis may be used for demonstrating the adequacy of decommissioning funds, provided that "the NRC-required cost estimate for decommissioning costs as defined in 10 CFR 50.2 is equal to or greater than the amount stated in the formulas in 10 CFR 50.75(c)(1) and (2) as the basis for justifying a higher than minimum funding level" (Regulatory Guide 1.159 Rev. 2, Section 1.1.1.).

NVY also understands that NRC should be provided the analysis, and that the analysis should include data for each year of the analysis. An updated decommissioning estimate was provided with the licensee's Post Shutdown Decommissioning Activities Report on April 6, 2017 (Reference 3).

The updated Vermont Yankee site-specific decommissioning cost estimate is based on initiating DECON on January 11, 2019 and completing DECON by December 31, 2026. Table 3 below provides the annual license termination and spent fuel management costs computed in the updated estimate. The decommissioning trust fund (DTF) ending balance is escalated each year by the 2% real growth figure allowed pursuant to 10 CFR 50.75(e)(1)(i).

Thus, considering the fund balance of \$443.967 million, as of December 31, 2019, and projected fund contributions and earnings during the DECON period (assuming an annual 2% growth rate), the trust fund is expected to have adequate funds for completion of license termination and the operational spent fuel management activities that will be funded by the trust fund.

References:

1. Letter, USNRC to Entergy Nuclear Operations, Inc., "Order Approving Transfer of the License for the Vermont Yankee Nuclear Power Station and Conforming License Amendment (EPID# L-2017-LLM-0002)," dated October 11, 2018, NVCY 18-021 (ML18242A638)
2. Letter, USNRC to Vermont Yankee Nuclear Power Station, "Issuance of Amendment Re: Application for Order Approving Direct and Indirect Transfer of Renewed Operating License and Independent Spent Fuel Storage Installation General License and Conforming Amendment (EPID# L-2017-LLM-0002)," dated January 11, 2019, NVCY 19-001 (ML18347B360)
3. Letter, NorthStar Group Services, Inc. to USNRC, "Post Shutdown Decommissioning Activities Report," dated April 6, 2017 (ML17096A394).

Table 3

Vermont Yankee Nuclear Power Station - PROMPT DECON Methodology									
Annual Cash Flow Analysis - Total License Termination, Spent Fuel Management									
(Thousands of 2019 Dollars) - See column definitions below									
	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9
Year	License Termination Cost	Spent Fuel Cost	Total Expenses	Beginning of Year Fund Balance	Withdrawals	Contributions DOE Recovery	Contributions NorthStar Escrow Deposits / Distributions	Annual Earnings on Fund	End-Of-Year Fund Balance
2020	\$60,826	\$4,241	\$65,067	\$443,967	\$65,067	\$0	\$6,225	\$7,578	\$392,703
2021	\$81,868	\$4,241	\$86,109	\$392,703	\$86,109	\$0	\$8,905	\$6,132	\$321,631
2022	\$78,110	\$4,241	\$82,351	\$321,631	\$82,351	\$0	\$8,235	\$4,786	\$252,301
2023	\$80,981	\$4,241	\$85,222	\$252,301	\$85,222	\$10,000	\$1,635	\$3,542	\$182,255
2024	\$71,014	\$4,241	\$75,255	\$182,255	\$75,255	\$16,964	\$0	\$2,479	\$126,443
2025	\$33,647	\$4,241	\$37,888	\$126,443	\$37,888	\$4,241	\$0	\$1,856	\$94,652
2026	\$10,637	\$4,241	\$14,878	\$94,652	\$14,878	\$4,241	\$2,078	\$1,680	\$87,772
2027		\$8,944	\$8,944	\$87,772	\$8,944	\$4,241	-\$59,354	\$1,661	\$25,377
2028		\$8,944	\$8,944	\$25,377	\$8,944	\$8,944	\$0	\$508	\$25,884
2029		\$8,944	\$8,944	\$25,884	\$8,944	\$8,944	\$0	\$518	\$26,402
2030		\$8,944	\$8,944	\$26,402	\$8,944	\$8,944	\$0	\$528	\$26,930
2031		\$8,944	\$8,944	\$26,930	\$8,944	\$8,944	\$0	\$539	\$27,468
2032		\$8,944	\$8,944	\$27,468	\$8,944	\$8,944	\$0	\$549	\$28,018
2033		\$8,944	\$8,944	\$28,018	\$8,944	\$8,944	\$0	\$560	\$28,578
2034		\$8,944	\$8,944	\$28,578	\$8,944	\$8,944	\$0	\$572	\$29,150
2035		\$8,944	\$8,944	\$29,150	\$8,944	\$8,944	\$0	\$583	\$29,733
2036		\$8,944	\$8,944	\$29,733	\$8,944	\$8,944	\$0	\$595	\$30,327
2037		\$8,944	\$8,944	\$30,327	\$8,944	\$8,944	\$0	\$607	\$30,934
2038		\$8,944	\$8,944	\$30,934	\$8,944	\$8,944	\$0	\$619	\$31,553
2039		\$8,944	\$8,944	\$31,553	\$8,944	\$8,944	\$0	\$631	\$32,184
2040		\$8,944	\$8,944	\$32,184	\$8,944	\$8,944	\$0	\$644	\$32,827
2041		\$8,944	\$8,944	\$32,827	\$8,944	\$8,944	\$0	\$657	\$33,484
2042		\$8,944	\$8,944	\$33,484	\$8,944	\$8,944	\$0	\$670	\$34,154
2043		\$8,944	\$8,944	\$34,154	\$8,944	\$8,944	\$0	\$683	\$34,837
2044		\$8,944	\$8,944	\$34,837	\$8,944	\$8,944	\$0	\$697	\$35,533
2045		\$8,944	\$8,944	\$35,533	\$8,944	\$8,944	\$0	\$711	\$36,244
2046		\$8,944	\$8,944	\$36,244	\$8,944	\$8,944	\$0	\$725	\$36,969
2047		\$8,944	\$8,944	\$36,969	\$8,944	\$8,944	\$0	\$739	\$37,708
2048		\$8,944	\$8,944	\$37,708	\$8,944	\$8,944	\$0	\$754	\$38,462
2049		\$8,944	\$8,944	\$38,462	\$8,944	\$8,944	\$0	\$769	\$39,232
2050		\$8,944	\$8,944	\$39,232	\$8,944	\$8,944	\$0	\$785	\$40,016
2051		\$8,944	\$8,944	\$40,016	\$8,944	\$8,944	\$0	\$800	\$40,817
2052	\$3,454	\$8,944	\$12,398	\$40,817	\$12,398	\$8,944	\$0	\$747	\$38,110
2053			\$0	\$38,110	\$0	\$8,944	\$0	\$941	\$47,995
TOTAL	\$420,537	\$262,236	\$682,773	\$443,967	\$682,773	\$272,236	-\$32,276	\$46,842	\$47,995

Table 3 Definitions:

<u>Column 1:</u>	License Termination Cost Reflects the Total Annual License Termination Plan cost in 2019 dollars at a 2% escalation rate.
<u>Column 2:</u>	Spent Fuel Costs Reflects the Total Annual Irradiated Fuel Management Plan Cost, less Fuel Loading, in 2019 dollars at a 2% escalation rate.
<u>Column 3:</u>	Total Expenses Reflects Total Expenses (Column 1 plus Column 2).
<u>Column 4:</u>	Beginning of Year Fund Balance Reflects the Fund Balance on January 1 of each year (NDT (excludes Site Restoration subaccount) plus Financial Assurance Escrow): <ul style="list-style-type: none"> January 1, 2020 Beginning of Year Fund Balance equals \$443,967 NDT (\$413,423) plus Financial Assurance Escrow (\$30,544).
<u>Column 5:</u>	Withdrawals Reflects the annual expenditures from the Trust Fund in 2019 dollars at a 2% escalation rate.
<u>Column 6:</u>	Contributions DOE Recovery Reflects Cost Recovery from DOE for breach of the Standard Contract in 2019 dollars at a 2% escalation rate: <ul style="list-style-type: none"> Year 2023: \$10,000 recovery reflects NorthStar net proceeds from Entergy DOE Litigation (Round 3). Year 2024: \$28,105 recovery reflects initial NorthStar DOE settlement for cost incurred beginning 2019 thru 2023.
<u>Column 7:</u>	Contributions NorthStar Escrow Deposits / Distributions Reflects NorthStar contributions as required by Section 2(c) of the Memorandum of Understanding (MOU) dated March 2, 2018 and approved by the State of Vermont Public Utility Commission. Distribution on January 1, 2027 of \$59,354 made pursuant to Section 2(c)(2) of the MOU.
<u>Column 8:</u>	Annual Earnings on Fund Reflects earnings on funds remaining in the trust. A 2% Earnings rate is used over a 0% cost escalation rate. The annual 2% earnings are calculated on the Beginning Balance (Column 4) minus 100% of withdrawals (Column 5) plus 100% of contributions (Columns 6 and 7) multiplied by the 2% annual earnings rate.
<u>Column 9:</u>	End-of-Year Fund Balance Reflects the End-of-Year Trust Fund Balance.

As can be seen from the information provided in Table 3, the required funding for DECON decommissioning, is \$420.537 million. The foregoing DECON analysis shows that when the December 31, 2019 DTF balance is escalated at the allowable rate and compared against the annual figures for the DECON period adequate funds exist at the end of the decommissioning project. ISFSI decommissioning costs are planned to be paid for out of the aforementioned adequate funds if not paid for by spent fuel litigation proceeds. Accordingly, NVY concludes that as of December 31, 2019 adequate funding assurance for decommissioning Vermont Yankee has been demonstrated.