



Entergy Nuclear Operations, Inc.
Vermont Yankee
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Coley C. Chappell
Regulatory Assurance Manager

BVY 14-082

December 19, 2014

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

SUBJECT: Update to Decommissioning Funding Status Report
Vermont Yankee Nuclear Power Station
Docket No. 50-271
License No. DPR-28

- REFERENCES:
1. Letter, Entergy Nuclear Operations, Inc. to USNRC, "Decommissioning Funding Status Report per 10 CFR §50.75(f)(1) and 10 CFR 50.82(a)(8)(v)," ENOC-14-00009, dated March 28, 2014 (ML 14092A362)
 2. Letter, Entergy Nuclear Operations, Inc. to USNRC, "Post Shutdown Decommissioning Activities Report," BVY 14-078, dated December 19, 2014
 3. Letter, Entergy Nuclear Operations, Inc. to USNRC NRC, "Update to Irradiated Fuel Management Program Pursuant to 10 CFR 50.54(bb)," BVY 14-085, dated December 19, 2014

Dear Sir or Madam:

In a letter dated March 28, 2014 (Reference 1), Entergy Nuclear Operations, Inc. (ENO) provided the Vermont Yankee Nuclear Power Station (VYNPS) Decommissioning Funding Status Report for the year ending December 31, 2013. ENO plans to permanently shut down the VYNPS at the end of the current operating cycle, which is expected to occur later this month. To support this transition, ENO is updating the status of the VYNPS Decommissioning Trust Fund.

Attachment 1 provides the status of decommissioning funding for VYNPS as of October 31, 2014. Attachment 2 provides an updated calculation of the minimum decommissioning funding required by 10 CFR 50.75.

The VYNPS decommissioning trust fund balance is approximately \$655 million as of October 31, 2014. Tables 3.4 and 3.5 of the Decommissioning Cost Estimate (DCE) (Reference 2, Attachment 1) set forth the estimated annual expenditures for license termination and spent fuel management, respectively. The Irradiated Fuel Management Program Update (Reference 3)

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utilizes this annual expenditure information in a cash flow analysis. The cash flow analysis is duplicated in Attachment 3.

The cash flow analysis demonstrates that the VYNPS trust fund is sufficiently funded for all license termination activities and certain spent fuel management activities (i.e., operational costs). As discussed in the Irradiated Fuel Management Program Update (Reference 3) 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 \$225 million) will be funded from the decommissioning trust fund, assuming that ENO obtains an exemption that allows the use of trust funds for spent fuel management activities.

Thus, considering the current fund balance of \$655 million (as of October 31, 2014) and projected fund earnings during the SAFSTOR period (assuming an annual 2% growth rate), the trust fund is expected to have an excess of \$175.9 million after completion of license termination and the operational spent fuel management activities that will be funded by the trust fund.

This information is provided for the NRC's information and to support ENO correspondence regarding VYNPS that will be submitted in the near future. It is not the decommissioning funding status report required to comply with 10 CFR 50.75(f)(1) and 10 CFR 50.82(a)(8)(v) for the year ending December 31, 2014. ENO will submit that required report by March 31, 2015.

This letter contains no new regulatory commitments.

Should you have any questions concerning this letter or require additional information, please contact me at 802-451-3374.

Sincerely,



CCC/plc

- Attachments:
1. Status of Decommissioning Funding as of October 31, 2014 - 10 CFR 50.75(f)(1) and 10 CFR 50.82(a)(8)(v)
 2. Calculation of Required Minimum Amount of Decommissioning Funding
 3. Annual Cash Flow Analysis

cc: Mr. Daniel H. Dorman
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Mr. James S. Kim, Project Manager
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USNRC Resident Inspector
Entergy Nuclear Vermont Yankee, LLC
320 Governor Hunt Road
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Mr. Christopher Recchia, Commissioner
Vermont Department of Public Service
112 State Street – Drawer 20
Montpelier, Vermont 05620-2601

Attachment 1

Vermont Yankee Nuclear Power Station

Status of Decommissioning Funding
as of October 31, 2014 - 10 CFR 50.75(f)(1) and 10 CFR 50.82(a)(8)(v)

Entergy Nuclear Operations, Inc.
Status of Decommissioning Funding for Vermont Yankee Nuclear Power Station
as of October 31, 2014 - 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) estimated per 10 CFR 50.75(b) and (c) (2014\$)	\$ 817.22 million ^[Note]
2. Decommissioning Trust Fund Total as of 10/31/14	\$ 654.96 million
3. A schedule of the annual amounts remaining to be collected	None
4. 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)
5. Any contracts upon which the licensee is relying pursuant to 10 CFR 50.75(e)(1)(v)	None
6. Modifications occurring to a licensee's current method of providing financial assurance since the last submitted report	None
7. Any material changes to trust agreements	None

Note: This amount is based upon planned total SAFSTOR expenditures for license termination set forth in the annual cash flow analysis that is provided in Attachment 3. Calculation of the NRC Minimum Amount is provided in Attachment 2.

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

- | | |
|---|---------------------------------------|
| 1. Cumulative decommissioning spending | \$ 0.00 ^[Note1] |
| 2. 2014 decommissioning spending | \$ 0.00 ^[Note1] |
| 3. Fund Balance | See above in 10 CFR 50.75 information |
| 4. No other financial assurance mechanism is being relied upon, but costs to date have been funded by operations. | |
| 5. Estimated costs to complete from latest estimate | \$ 817.22 million ^[Note 2] |
| 6. Estimate is based on SAFSTOR and 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: Entergy Nuclear Vermont Yankee, LLC has incurred decommissioning planning costs, but no trust disbursements from the decommissioning trust fund have been made to date.

Note 2: This amount is based upon the site-specific decommissioning cost estimate (DCE). The DCE was provided as Attachment 1 to the Post Shutdown Decommissioning Activities Report (Reference 1).

REFERENCE:

1. Letter, Entergy Nuclear Operations, Inc. to USNRC, "Post Shutdown Decommissioning Activities Report," BVY 14-078, dated December 19, 2014

Attachment 2

Vermont Yankee Nuclear Power Station

Calculation of Required Minimum Amount of Decommissioning Funding

Calculation of Required Minimum Amount of Decommissioning Funding

Entergy Nuclear Vermont Yankee LLC.: 100% ownership interest

Plant Location: Vernon, Vermont

Reactor Type: Boiling Water Reactor ("BWR")

Power Level: <3,400 MWt (1912 MWt)

BWR Base Year 1986\$: \$121,208,000

Labor Region: North

Waste Burial Facility: Generic Disposal Site

10CFR50.75(c)(2) Escalation Factor Formula:

$$0.65(L) + 0.13(E) + 0.22(B)$$

	<u>Factor</u>
L=Labor (North)	2.65 ¹
E=Energy (BWR)	2.56 ²
B=Waste Burial-Vendor (BWR)	14.160 ³

BWR Escalation Factor:

$$0.65(L) + 0.13(E) + 0.22(B) = 5.17026$$

1986 BWR Base Year \$ Escalated:

$$\$121,208,000 * \text{Factor} = \$626,676,406$$

¹ Bureau of Labor Statistics, Series Report ID: CIU201000000210i (3rd Quarter 2014)
² Bureau of Labor Statistics, Series Report ID: wpu0543 and wpu0573 (October 2014, Prelim.)
³ Nuclear Regulatory Commission: NUREG-1307 Revision 15, Table 2.1 (2012)

Attachment 3

Vermont Yankee Nuclear Power Station

Annual Cash Flow Analysis

Table 1 - Annual Cash Flow Analysis

Vermont Yankee Nuclear Power Station - SAFSTOR Methodology		
Annual Cash Flow Analysis - Total License Termination, Spent Fuel Management less Transfer to Dry Fuel Storage Costs		
(In Thousands, 2014 Dollars)		
	Date	Amount
Current Value of Qualified Trust Fund	10/31/2014	\$ 654,925
Current Value of Non-Qualified Trust Fund	10/31/2014	\$ 38
Total Trust Fund Balance as of	10/31/2014	\$ 654,963
Start of Decommissioning	12/29/2014	
Decommissioning Funds value at Calculation Date	10/31/2014	\$ 654,963
Total Estimated Costs at Calculation Date (includes license termination and spent fuel management costs)	10/31/2014	\$ 1,042,748

0.000%	Cost Escalation Rate	Start of Decom to end of Decom - Assumes 0.0% Decom cost escalation rate
2.000%	Fund Earnings Rate	Start of Decom to end of Decom - Assumes 2.0% Earnings Rate

Vermont Yankee Nuclear Power Station - SAFSTOR Methodology									
Annual Cash Flow Analysis - Total License Termination, Spent Fuel Management less Transfer to Dry Fuel Storage Costs									
(In Thousands in 2014 Dollars)									
Year	Column 1 50.75 License Termination Cost	Column 2 50.54 (bb) Spent Fuel Management Cost	Column 3 Exclude Transfer to Dry Fuel Storage Cost	Column 4 License Termination Cost plus Spent Fuel Management Cost less Transfer to Dry Fuel Storage Cost	Column 5 Beginning of Year Trust Fund Balance	Column 6 Withdraw	Column 7 Contribute	Column 8 Trust Fund Earnings	Column 9 Year Ending Trust Fund Balance
2014	15,165	4,753	4,753	15,165	654,963	15,165	0	2,183	641,981
2015	81,198	14,319	10,001	85,515	641,981	85,515	0	11,984	568,450
2016	36,126	29,506	7,613	58,018	568,450	58,018	0	10,789	521,221
2017	10,823	49,049	28,873	31,000	521,221	31,000	0	10,114	500,335
2018	9,548	62,330	41,644	30,235	500,335	30,235	0	9,704	479,805
2019	8,173	59,684	39,516	28,342	479,805	28,342	0	9,313	460,776
2020	17,763	20,745	10,420	28,088	460,776	28,088	0	8,935	441,622
2021	5,241	3,996		9,237	441,622	9,237	0	8,740	441,125
2022	5,191	3,996		9,187	441,125	9,187	0	8,731	440,669
2023	5,191	3,996		9,187	440,669	9,187	0	8,722	440,204
2024	3,650	4,007		7,657	440,204	7,657	0	8,728	441,274
2025	3,591	3,996		7,587	441,274	7,587	0	8,750	442,437
2026	3,733	3,996		7,729	442,437	7,729	0	8,771	443,480
2027	3,783	3,996		7,779	443,480	7,779	0	8,792	444,493
2028	3,742	4,007		7,749	444,493	7,749	0	8,812	445,557
2029	3,733	3,996		7,729	445,557	7,729	0	8,834	446,662
2030	3,783	3,996		7,779	446,662	7,779	0	8,855	447,738

Vermont Yankee Nuclear Power Station - SAFSTOR Methodology									
Annual Cash Flow Analysis - Total License Termination, Spent Fuel Management less Transfer to Dry Fuel Storage Costs (In Thousands in 2014 Dollars)									
Year	Column 1 50.75 License Termination Cost	Column 2 50.54 (bb) Spent Fuel Management Cost	Column 3 Exclude Transfer to Dry Fuel Storage Cost	Column 4 License Termination Cost plus Spent Fuel Management Cost less Transfer to Dry Fuel Storage Cost	Column 5 Beginning of Year Trust Fund Balance	Column 6 Withdraw	Column 7 Contribute	Column 8 Trust Fund Earnings	Column 9 Year Ending Trust Fund Balance
2031	3,733	3,996		7,729	447,738	7,729	0	8,877	448,887
2032	3,742	4,007		7,749	448,887	7,749	0	8,900	450,039
2033	3,783	3,996		7,779	450,039	7,779	0	8,923	451,183
2034	3,733	3,996		7,729	451,183	7,729	0	8,946	452,400
2035	3,733	3,996		7,729	452,400	7,729	0	8,971	453,642
2036	3,792	4,007		7,799	453,642	7,799	0	8,995	454,839
2037	3,733	3,996		7,729	454,839	7,729	0	9,019	456,129
2038	3,733	3,996		7,729	456,129	7,729	0	9,045	457,446
2039	3,783	3,996		7,779	457,446	7,779	0	9,071	458,738
2040	3,742	4,007		7,749	458,738	7,749	0	9,097	460,087
2041	3,733	3,996		7,729	460,087	7,729	0	9,124	461,482
2042	3,783	3,996		7,779	461,482	7,779	0	9,152	462,855
2043	3,733	3,996		7,729	462,855	7,729	0	9,180	464,306
2044	3,742	4,007		7,749	464,306	7,749	0	9,209	465,767
2045	3,783	3,996		7,779	465,767	7,779	0	9,238	467,225
2046	3,733	3,996		7,729	467,225	7,729	0	9,267	468,764
2047	3,733	3,996		7,729	468,764	7,729	0	9,298	470,333
2048	3,792	4,007		7,799	470,333	7,799	0	9,329	471,863
2049	3,733	3,996		7,729	471,863	7,729	0	9,360	473,494
2050	3,733	3,996		7,729	473,494	7,729	0	9,393	475,158
2051	3,783	3,996		7,779	475,158	7,779	0	9,425	476,804
2052	3,742	4,007		7,749	476,804	7,749	0	9,459	478,514
2053	3,583	0		3,583	478,514	3,583	0	9,534	484,466
2054	3,633	0		3,633	484,466	3,633	0	9,653	490,487
2055	3,583	0		3,583	490,487	3,583	0	9,774	496,678
2056	3,591	0		3,591	496,678	3,591	0	9,898	502,984
2057	3,633	0		3,633	502,984	3,633	0	10,023	509,375
2058	3,583	0		3,583	509,375	3,583	0	10,152	515,944
2059	3,583	0		3,583	515,944	3,583	0	10,283	522,644
2060	3,641	0		3,641	522,644	3,641	0	10,416	529,419
2061	3,583	0		3,583	529,419	3,583	0	10,553	536,389
2062	3,583	0		3,583	536,389	3,583	0	10,692	543,499
2063	3,633	0		3,633	543,499	3,633	0	10,834	550,700
2064	3,591	0		3,591	550,700	3,591	0	10,978	558,086

Vermont Yankee Nuclear Power Station - SAFSTOR Methodology									
Annual Cash Flow Analysis - Total License Termination, Spent Fuel Management less Transfer to Dry Fuel Storage Costs (In Thousands in 2014 Dollars)									
Year	Column 1 50.75 License Termination Cost	Column 2 50.54 (bb) Spent Fuel Management Cost	Column 3 Exclude Transfer to Dry Fuel Storage Cost	Column 4 License Termination Cost plus Spent Fuel Management Cost less Transfer to Dry Fuel Storage Cost	Column 5 Beginning of Year Trust Fund Balance	Column 6 Withdraw	Column 7 Contribute	Column 8 Trust Fund Earnings	Column 9 Year Ending Trust Fund Balance
2065	3,583	0		3,583	558,086	3,583	0	11,126	565,630
2066	3,633	0		3,633	565,630	3,633	0	11,276	573,273
2067	3,583	0		3,583	573,273	3,583	0	11,430	581,120
2068	43,277	0		43,277	581,120	43,277	0	11,190	549,033
2069	92,030	0		92,030	549,033	92,030	0	10,060	467,064
2070	104,519	0		104,519	467,064	104,519	0	8,296	370,841
2071	84,524	0		84,524	370,841	84,524	0	6,572	292,889
2072	84,953	0		84,953	292,889	84,953	0	5,008	212,944
2073	50,139	0		50,139	212,944	50,139	0	3,757	166,563
2074	512	0		512	166,563	512	0	3,326	169,377
2075	295	0		295	169,377	295	0	3,385	172,466
2076	0	0		0	172,466	0	0	3,449	175,915
	817,219	368,347	142,819	1,042,748		1,042,748	0	563,701	

Table 1 Definitions:

Column 1: 50.75 License Termination Cost

Reflects the Total Annual License Termination Plan cost in 2014 dollars at a 0.0% escalation rate

Column 2: 50.54 (bb) Spent Fuel Management Cost

Reflects the Total Annual Irradiated Fuel Management Plan cost in 2014 dollars at a 0.0% escalation rate

Column 3: Exclude Transfer to Dry Fuel Storage Cost

Reflects the Transfer to Dry Fuel Storage Cost included in Column 2 that is planned to be funded by external credit facilities, in 2014 dollars at a 0.0% escalation rate

Column 4: License Termination Cost plus Spent Fuel Management Cost less Transfer to Dry Fuel Storage Cost

Reflects the Total Annual License Termination Plan cost plus Total Spent Fuel Management Plan cost less Transfer to Dry Fuel Storage cost all in 2014 dollars at a 0.0% escalation rate (Column 1 + Column 2 - Column 3)

Column 5: Beginning of Year Trust Fund Balance

Reflects the beginning of year Trust Fund balance in 2014 dollars at a 0.0% escalation rate and 2.0% Fund Earnings

Column 6: Withdraw

Reflects the annual expenditures from the Trust Fund in 2014 dollars at a 0.0% escalation rate (equals Column 4)

Column 7: Contribute

Reflects the annual contributions to the Trust Fund in 2014 dollars at a 0.0% escalation rate

Column 8: Trust Fund Earnings

Reflects earnings on funds remaining in the trust. A 2.0% earnings rate is used over a 0.0% cost escalation rate. The annual 2.0% earnings are calculated on the beginning balance less 50% of the projected annual expenditure for each year. (Column 5 - 50% of Column 6 * 2.0%)

Column 9: Year Ending Trust Fund Balance

Reflects the end of year Trust Fund balance after all projected earnings are added and all projected expenditures are deducted for year end specified at a 0.0% escalation rate and 2.0% Fund Earnings in 2014 dollars. (Column 5 - Column 6 + Column 7 + Column 8)