



Entergy Nuclear Operations, Inc
1340 Echelon Parkway
Jackson, MS 39213
Tel: 601-368-5516

Bryan S. Ford
Senior Manager, Fleet Regulatory
Assurance

ENOC-17-00006
March 30, 2017

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

SUBJECT: Status of Funding for Managing Irradiated Fuel For Year Ending December 31,
2016 – 10 CFR 50.82(a)(8)(vii)

Entergy Nuclear Operations, Inc.

Indian Point Nuclear Generating Station 1
Docket No. 50-003
License No. DPR-5

Big Rock Point
Docket No. 50-155
License No. DPR-6

Vermont Yankee
Docket No. 50-271
License No. DPR-28

Dear Sir or Madam:

10 CFR 50.82(a)(8)(vii) requires 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 funding for managing irradiated fuel. On behalf of Entergy Nuclear Indian Point 2, LLC, and Entergy Nuclear Palisades, LLC, and Entergy Nuclear Vermont Yankee, LLC, Entergy Nuclear Operations, Inc. hereby submits the information requested for Indian Point 1, Big Rock Point, and Vermont Yankee. 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. However, this report takes no credit for recoveries on that liability.

There are no new commitments made in this letter. If you have any questions, please contact the undersigned at 601-368-5516.

Sincerely,

A handwritten signature in blue ink that reads "Bryan S. Ford".

BSF/ljs/aye

- Attachments:
1. Entergy Nuclear Operations, Inc. Status of Funding for Managing Irradiated Fuel - Indian Point 1, for Year Ending December 31, 2016 – 10 CFR 50.82(a)(8)(vii)
 2. Entergy Nuclear Operations, Inc. Status of Funding for Managing Irradiated Fuel - Big Rock Point, for Year Ending December 31, 2016 – 10 CFR 50.82(a)(8)(vii)
 3. Entergy Nuclear Operations, Inc. Status of Funding for Managing Irradiated Fuel - Vermont Yankee, for Year Ending December 31, 2016 – 10 CFR 50.82(a)(8)(vii)

cc:

Mr. A. C. Bakken (ECH)
Mr. J. R. Davis (ECH)
Mr. B. E. Green (TMBR)
Mr. L. M. Coyle (ECH)
Mr. C. F. Arnone (PAL)
Mr. J. A. Ventosa (ECH)
Mr. L. J. Smith (ECH)
Mr. A. J. Vitale (IPEC)
Mr. J. W. Boyle (VTY)

USNRC Regional Administrator, Region I
USNRC Regional Administrator, Region III
USNRC Project Manager, Indian Point 1
USNRC Project Manager, Indian Point 2
USNRC Project Manager, Indian Point 3
USNRC Project Manager, Big Rock Point
USNRC Project Manager, Palisades
USNRC Project Manager, Vermont Yankee
USNRC Resident Inspector, Indian Point 2
USNRC Resident Inspector, Indian Point 3
USNRC Resident Inspector, Palisades

Michigan Department of Environmental Quality
Michigan Public Service Commission

Ms. Bridget Frymire
NYS Department of Public Service
3 Empire State Plaza
Albany, NY 12223

Ms. June E. Tierney, Commissioner
Vermont Department of Public Service
112 State Street – Drawer 20
Montpelier, Vermont 05602-2601

Attachment 1
ENOC-17-00006
(Page 1 of 1)
Entergy Nuclear Operations, Inc.
Status of Funding for Managing Irradiated Fuel – Indian Point 1
For Year Ending December 31, 2016 - 10 CFR 50.82(a)(8)(vii)

Plant Name: **Indian Point Nuclear Generating Unit No. 1**

- | | |
|---|-------------------------------|
| 1. Funds accumulated to cover the cost of managing irradiated fuel as of 12/31/2016 | \$ 193.77 million
[Note 1] |
| 2. Projected costs to manage fuel until DOE removal (2016\$) | \$ 54.55 million |
| 3. Plan as required | See Note 2 |

Note 1: This amount represents the excess funds available in the Unit 1 decommissioning trust fund less an amount necessary to decommission the Independent Spent Fuel Storage Installation (ISFSI). Per Unit 1's updated decommissioning cost analysis, the present value (2016\$) of excess funds in Unit 1's decommissioning trust at the end of decommissioning in 2073, after considering license termination expenses, is \$194.89 million ($\$590.76 \text{ million} / (1.02)^{(2073-2017)}$). See Ending DTF Balance for 2073, Table 14-1, Decommissioning Funding Status Report per 10 CFR §50.75(f)(1) and 10 CFR 50.82(a)(8)(v) -- Entergy Nuclear Operations, Inc., filed March 2017. The estimated cost for decommissioning Indian Point 1 and 2's share of the site ISFSI is \$6.79 million. Of the 31 casks from Indian Point 1 and 2 on the ISFSI, 5 are attributable to Unit 1, or 16.1%. Unit 1's share of ISFSI decommissioning cost is calculated as 16.1% x \$6.79 million, or \$1.09 million. Thus, the present value of Unit 1 trust funds available for spent fuel management is \$194.89 million minus \$1.09 million, or \$193.80 million. For purposes of this report only, Indian Point 1 trust funds are being considered separately from Indian Point 2 trust funds; however, both funds are covered by a single trust agreement, and will likely be handled together upon decommissioning.

Note 2: The excess currently existing in Unit 1's decommissioning trust is sufficient to cover the estimated costs of spent fuel management. The licensee acknowledges the need for an exemption pursuant to 10 CFR §50.12(a) to use radiological decommissioning trust funds for costs other than decommissioning activities as defined in 10 CFR 50.2.

**Attachment 2
ENOC-17-0006**

(Page 1 of 1)

**Entergy Nuclear Operations, Inc.
Status of Funding for Managing Irradiated Fuel – Big Rock Point
For Year Ending December 31, 2016 - 10 CFR 50.82(a)(8)(vii)**

Plant Name: **Big Rock Point**

- | | |
|---|------------------|
| 1. Funds accumulated to cover the cost of managing irradiated fuel as of 12/31/2016 | See Note 1 |
| 2. Projected costs to manage fuel until DOE removal (2016\$) | \$ 57.37 million |
| 3. Plan as required | See Note 1 |

Note 1: Spent fuel management costs have been paid for out of Entergy Nuclear Palisades, LLC operating funds since Big Rock Point was acquired from Consumers Energy on April 11, 2007. Entergy Nuclear Palisades, LLC plans to continue paying for spent fuel management costs from said operating funds. Therefore, no funds are specifically accumulated for the cost of managing irradiated fuel at Big Rock Point as of 12/31/2016.

Attachment 3
ENOC-17-00006

(Page 1 of 4)

Entergy Nuclear Operations, Inc.
Status of Funding for Managing Irradiated Fuel – Vermont Yankee
For Year Ending December 31, 2016 - 10 CFR 50.82(a)(8)(vii)

Plant Name: **Vermont Yankee**

1.	Funds accumulated to cover the cost of managing irradiated fuel as of 12/31/2016	\$ 193.61 million [Note 1]
2.	Projected costs to manage fuel until DOE removal (2016\$)	\$ 264.88 million
3.	Plan as required	See Note 2

Note 1: This amount represents the excess funds available in the Vermont Yankee decommissioning trust fund less an amount necessary to decommission the Independent Spent Fuel Storage Installation (ISFSI). Per Vermont Yankee's site-specific decommissioning cost estimate (Reference 1), the present value of excess funds in the decommissioning trust at the end of decommissioning in 2075, after considering license termination expenses, is \$198.81 million ($\$626.97 \text{ million} / (1.02)^{(2075-2017)}$). See Table 3-1 below. Table 3-1 has been constructed by removing spent fuel management expenses from Table 15-1, Decommissioning Funding Status Report per 10 CFR §50.75(f)(1) and 10 CFR 50.82(a)(8)(v) -- Entergy Nuclear Operations, Inc. filed March 2017, to yield the surplus at the end of decommissioning that would otherwise be available for spent fuel management and ISFSI decommissioning. This calculated surplus takes into account available funds in the decommissioning trust. The estimated cost for decommissioning Vermont Yankee's ISFSI is \$5.20 million. Thus, the present value of Vermont Yankee trust funds available for spent fuel management is \$198.81 million minus \$5.20 million, or \$193.61 million.

Note 2: Reference 3, Attachment 15 demonstrates that the Vermont Yankee decommissioning trust fund is sufficiently funded for all license termination activities and certain spent fuel management activities (i.e., operational costs, shown in Col. 2, less Col. 3, of Table 15-1 of Reference 3), and reflects completion of the transfer to dry fuel storage in 2018, contingent upon certain regulatory approvals. As discussed in the Irradiated Fuel Management Program Update (Reference 2) costs related to spent fuel management operations (e.g., operations and maintenance costs for the spent fuel and Independent Spent Fuel Storage Installation, totaling approximately \$175 million) will be funded from the decommissioning trust fund. Entergy Nuclear Operations, Inc. obtained an exemption that allows the use of trust funds for spent fuel management activities (NRC Approval of Exemption Request for Spent Fuel Management, 80 Fed. Reg. 35992, June 23, 2015, Reference 4). The remaining \$90 million is associated with transfer of spent fuel to dry storage (e.g., procurement of dry storage systems, transfer of fuel from the spent fuel pool to the Independent Spent Fuel Storage Installation (ISFSI), and construction of the second ISFSI pad). To fund the "transfer to dry storage" portion of spent fuel management costs, Entergy Nuclear Vermont Yankee, LLC has established two separate revolving credit facilities from third party banks totaling \$145 million.

**Attachment 3
ENOC-17-00006**

(Page 2 of 4)

**Entergy Nuclear Operations, Inc.
Status of Funding for Managing Irradiated Fuel – Vermont Yankee
For Year Ending December 31, 2016 - 10 CFR 50.82(a)(8)(vii)**

Table 3-1

Vermont Yankee Nuclear Power Station - SAFSTOR Methodology									
Annual Cash Flow Analysis - Total License Termination									
(In Thousands in 2015 Dollars)									
Year	Column 1 50.75 License Termination Cost (\$000's)	Column 2 50.54 (bb) Spent Fuel Management Cost (\$000's)	Column 3 Exclude Dry Fuel Spent Fuel Management Cost (\$000's)	Column 4 License Termination Cost plus Spent Fuel Management Cost less Dry Fuel Cost (\$000's)	Column 5 Beginning of Year Trust Fund Balance (\$000's)	Column 6 Withdraw (\$000's)	Column 7 Contribute (\$000's)	Column 8 Trust Fund Earnings (\$000's)	Column 9 Year Ending Trust Fund Balance (\$000's)
2017	42,386	0	0	42,386	561,615	42,386	0	10,385	529,613
2018	51,878	0	0	51,878	529,613	51,878	0	9,555	487,289
2019	5,414	0		5,414	487,289	5,414	0	9,638	491,513
2020	5,362	0		5,362	491,513	5,362	0	9,723	495,874
2021	5,362	0		5,362	495,874	5,362	0	9,810	500,322
2022	3,741	0		3,741	500,322	3,741	0	9,932	506,513
2023	3,741	0		3,741	506,513	3,741	0	10,055	512,827
2024	3,741	0		3,741	512,827	3,741	0	10,182	519,267
2025	3,680	0		3,680	519,267	3,680	0	10,312	525,899
2026	3,829	0		3,829	525,899	3,829	0	10,441	532,511
2027	3,882	0		3,882	532,511	3,882	0	10,573	539,202
2028	3,838	0		3,838	539,202	3,838	0	10,707	546,072
2029	3,829	0		3,829	546,072	3,829	0	10,845	553,088
2030	3,882	0		3,882	553,088	3,882	0	10,984	560,190
2031	3,829	0		3,829	560,190	3,829	0	11,127	567,489
2032	3,838	0		3,838	567,489	3,838	0	11,273	574,924
2033	3,882	0		3,882	574,924	3,882	0	11,421	582,463
2034	3,829	0		3,829	582,463	3,829	0	11,573	590,207
2035	3,829	0		3,829	590,207	3,829	0	11,728	598,105
2036	3,891	0		3,891	598,105	3,891	0	11,884	606,099
2037	3,829	0		3,829	606,099	3,829	0	12,045	614,316
2038	3,829	0		3,829	614,316	3,829	0	12,210	622,696
2039	3,882	0		3,882	622,696	3,882	0	12,376	631,191
2040	3,838	0		3,838	631,191	3,838	0	12,547	639,900
2041	3,829	0		3,829	639,900	3,829	0	12,721	648,793
2042	3,882	0		3,882	648,793	3,882	0	12,898	657,809
2043	3,829	0		3,829	657,809	3,829	0	13,080	667,060
2044	3,838	0		3,838	667,060	3,838	0	13,264	676,486
2045	3,882	0		3,882	676,486	3,882	0	13,452	686,057
2046	3,829	0		3,829	686,057	3,829	0	13,645	695,873

Attachment 3
ENOC-17-00006
(Page 4 of 4)

Entergy Nuclear Operations, Inc.
Status of Funding for Managing Irradiated Fuel – Vermont Yankee
For Year Ending December 31, 2016 - 10 CFR 50.82(a)(8)(vii)

REFERENCES:

1. Letter, Entergy Nuclear Operations, Inc. to USNRC, "Post Shutdown Decommissioning Activities Report," BVY 14-078, dated December 19, 2014 (Accession No. ML14357A110)
2. Letter, Entergy Nuclear Operations, Inc. to USNRC, "Update to Irradiated Fuel Management Program Pursuant to 10CFR 50.54(bb)," BVY14-085, dated December 19,2014 (Accession No. ML14358A251)
3. 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), Filed March 2017
4. NRC Approval of Exemption Request for Spent Fuel Management, 80 Fed. Reg. 35992 (June 23, 2015)