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John F. McCann
Vice President, Regulatory Assurance

CNRO-2016-00010
March 30, 2016

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
11555 Rockville Pike
Rockville, MD 20852-2738

SUBJECT: Decommissioning Funding Status Report per 10 CFR §50.75(f)(1) and
10 CFR 50.82(a)(8)(v) -- Entergy Nuclear Operations, Inc.

Big Rock Point
Docket No. 50-155

Indian Point Nuclear
Generating Stations 1, 2, & 3
Docket Nos. 50-3, 50-247, & 50-286

James A. FitzPatrick
Nuclear Power Plant
Docket No. 50-333

Pilgrim Nuclear Power Station
Docket 50-293

Vermont Yankee Nuclear Power Station
Docket No. 50-271

- REFERENCES:**
1. NUREG-1307, "Report on Waste Burial Charges," Revision 15, dated January 2013.
 2. NRC Regulatory Issue Summary 2001-07, "10 CFR 50.75(f)(1) Reports on the Status of Decommissioning Funds (Due March 31, 2001)."
 3. NRC Regulatory Issue Summary 2014-12, "Decommissioning Fund Status Report Calculations."

Dear Sir or Madam:

10 CFR 50.75(f)(1) requires each power reactor licensee to report to the NRC by March 31, 1999, and every two years thereafter with certain exception, on the status of its decommissioning funding for each reactor, or share of a reactor, that it owns. 10 CFR 50.82(a)(8)(v) requires licensees of shutdown sites to report to the NRC annually, by March 31, on the status of decommissioning financial assurance for those sites. On behalf of Entergy Nuclear Indian Point 2, LLC (Indian Point 1 & 2), Entergy Nuclear Indian Point 3, LLC, Entergy Nuclear Vermont Yankee, LLC, Entergy Nuclear Generation Company (Pilgrim Station), Entergy Nuclear FitzPatrick, LLC, and Entergy Nuclear Palisades, LLC (Big Rock Point), Entergy Nuclear Operations, Inc. hereby submits the information requested for power reactors operated by Entergy Nuclear Operations, Inc. The reports provided in Attachments 1 through 11 for the seven licensed facilities addressed by this filing, were prepared in accordance with NUREG-1307 (Reference 1) and NRC Regulatory Issue Summary 2001-07 (Reference 2). Attachments

12 and 13 are updated site specific decommissioning cost estimates for Indian Point Unit 1 and Vermont Yankee, respectively. The Minimum Funding Assurance calculation worksheets, derived from LIC-205, Rev. 4, are provided in Attachment 14 for the convenience of the reviewer.

The estimated minimum decommissioning fund values were determined using the NRC's methodology in NUREG-1307, Rev 15. Pursuant to NRC Regulatory Issue Summary 2014-12, Entergy Nuclear Operations, Inc. understands that the NRC has directed licensees to use NUREG-1307, Rev. 15 for this filing.

The trust fund amounts reported for each facility in the responses to item 3 represent the market value of decommissioning trust funds as of December 31, 2015 net of any material current income tax liability on realized gains, interest, dividends and other income of the trusts. The New York Power Authority (NYPA) holds the decommissioning trust funds for Indian Point 3 and FitzPatrick. NYPA is a state agency, and the decommissioning trust funds held by NYPA are not subject to taxes. The trusts for the following plants had estimated balances on their 2015 tax liabilities, not reflected in the trust fund balances, as follows (in thousands):

Indian Point 1	\$ 0
Indian Point 2	\$ 0
Indian Point 3	\$ 0
Vermont Yankee	\$ 0
Pilgrim	\$272
FitzPatrick	\$ 0
Palisades	\$ 0

In accordance with guidance provided by the NRC Staff in April 2014 requests for additional information (Accession No. ML14120A273) that "future 10 CFR 50.75(f) reports should clearly delineate estimate reactor and ISFSI decommissioning costs," the information in Attachments 1, 2, 3, 5, 7, 9, and 11 includes line item 2 identifying the ISFSI decommissioning obligation, escalated from the most recent 10 CFR 72.30 filing. This obligation is also accounted for in the Excess/Shortfall calculations for each plant in Attachment 14.

The aforementioned worksheets, using the December 31, 2015 trust fund balances and parent guarantee amounts, indicate that all of the plants covered by this submittal met or exceeded the NRC's funding requirements. Accordingly, the licensees conclude that no further action is required at this time to demonstrate adequate funding assurance for decommissioning the plants covered by this submittal.

There are no new commitments made in this letter. If you have any questions, please contact Mr. Guy Davant, Manager, Fleet Licensing Programs at (601) 368-5756.

Sincerely,



JFM / ghd / ljs

Attachments:

1. Entergy Nuclear Operations, Inc. Status of Decommissioning Funding – Indian Point 1
2. Entergy Nuclear Operations, Inc. Status of Decommissioning Funding – Indian Point 2
3. Entergy Nuclear Operations, Inc. Status of Decommissioning Funding – Indian Point 3
4. Entergy Nuclear Operations, Inc. Calculation of Minimum Amount – Indian Point
5. Entergy Nuclear Operations, Inc. Status of Decommissioning Funding – Vermont Yankee
6. Entergy Nuclear Operations, Inc. Calculation of Minimum Amount – Vermont Yankee
7. Entergy Nuclear Operations, Inc. Status of Decommissioning Funding – Pilgrim
8. Entergy Nuclear Operations, Inc. Calculation of Minimum Amount – Pilgrim
9. Entergy Nuclear Operations, Inc. Status of Decommissioning Funding – James A. Fitzpatrick
10. Entergy Nuclear Operations, Inc. Calculation of Minimum Amount – James A. Fitzpatrick
11. Entergy Nuclear Operations, Inc. Status of Decommissioning Funding – Big Rock Point
12. Entergy Nuclear Operations, Inc. IP1 DTF Balance Based on Decommissioning Funding Assurance Plan
13. Entergy Nuclear Operations, Inc. Vermont Yankee Annual Cash Flow Analysis
14. Entergy Nuclear Operations, Inc. Minimum Financial Assurance Calculation Worksheets

cc: See next page

cc: Mr. J. A. Aluise (ENT)
Mr. C. Bakken (ECH)
Mr. B. E. Green (TMBR)
Mr. D. J. Mannai (WPO)
Mr. J. F. McCann (WPO)
Mr. T. G. Mitchell (ECH)
Mr. L. Jager Smith (ECH)
Mr. J. A. Ventosa (ECH)
Mr. M. Perito (ECH)
Mr. B. Sullivan (JAF)
Mr. J. Dent (PIL)
Mr. L. Coyle (IPEC)
Mr. A. J. Vitale (PAL)
Mr. C. J. Wamser (VTY)

USNRC Regional Administrator, Region I
USNRC Regional Administrator, Region III

USNRC Project Manager, Indian Point 1
USNRC Project Manager, Indian Point 2 / 3
USNRC Project Manager, J. A. FitzPatrick
USNRC Project Manager, Palisades
USNRC Project Manager, Pilgrim
USNRC Project Manager, Vermont Yankee

USNRC Resident Inspector, Indian Point 2 / 3
USNRC Resident Inspector, J. A. FitzPatrick
USNRC Resident Inspector, Palisades
USNRC Resident Inspector, Pilgrim
USNRC Resident Inspector, Vermont Yankee

Michigan Department of Environmental Quality
Michigan Public Service Commission
NYS Department of Public Service
Vermont Department of Public Service
Massachusetts Emergency Management Agency

Attachment 1
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Entergy Nuclear Operations, Inc.
Status of Decommissioning Funding - Indian Point 1
For Year Ending December 31, 2015 - 10 CFR 50.75(f)(1) and 10 CFR 50.82(a)(8)(v)

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

10 CFR 50.75(f)(1)

- | | |
|---|---|
| 1. Minimum Financial Assurance (MFA)
estimated per 10 CFR 50.75(b) and (c) (2015\$) | \$556.76 million ^[Note1] |
| 2. ISFSI Obligation as of 12/31/15 | \$0.64 million ^[Note2] |
| 3. Decommissioning Trust Fund Total
as of 12/31/15 | \$ 413.92 million |
| 4. A schedule of the annual amounts remaining to be collected | None |
| 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 | None |
| 8. Any material changes to trust agreements | None |

Note 1: This amount is based upon total SAFSTOR expenditures for radiological remediation and license termination set forth in the updated Decommissioning Funding Assurance Plan and SAFSTOR analysis that are provided in Attachment 12. (Calculation of the NRC Minimum Amount is provided in Attachment 4.)

Note 2: From 10 CFR 50.82(a)(8)(vii) filing for Indian Point 1 of March 2016

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Entergy Nuclear Operations, Inc.
Status of Decommissioning Funding - Indian Point 1
For Year Ending December 31, 2015 - 10 CFR 50.75(f)(1) and 10 CFR 50.82(a)(8)(v)

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

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

- | | |
|--|---------------------------------------|
| 1. Cumulative decommissioning spending | \$94.28 million ^[Note1] |
| 2. 2015 decommissioning spending | \$5.66 million ^[Note1] |
| 3. Fund Balance | See above in 10 CFR 50.75 information |
| 4. No other financial assurance mechanism is being relied upon, but costs through 12/31/2015 have been funded by operations, and not the decommissioning fund. | |
| 5. Estimated costs to complete from latest estimate | \$556.76 million ^[Note2] |
| 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: Entergy does not possess records that would permit determination of charges to IP1 prior to its acquisition in September 2001 by Entergy Nuclear Indian Point 2, LLC. The costs presented here represent those costs charged in 2015 and the total costs that have been assigned to IP1 since 2001. Entergy has not fully determined what portion of those costs would be considered "decommissioning" costs as that term is defined in 10 CFR 50.2. Cumulative and 2015 decommissioning spending only consists of costs related to license termination. In previous filings, cumulative and annual decommissioning costs have included costs related to spent fuel management operations.

Note 2: This amount is based upon total SAFSTOR expenditures for radiological remediation and license termination set forth in the updated Decommissioning Funding Assurance Plan and SAFSTOR analysis that are provided in Attachment 12. (Calculation of the NRC Minimum Amount is provided in Attachment 4.) This estimate does not include 2015 spending because current costs are being paid out of operating funds.

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Entergy Nuclear Operations, Inc.
Status of Decommissioning Funding - Indian Point 2
For Year Ending December 31, 2015 - 10 CFR 50.75(f)(1)

Plant Name: **Indian Point Nuclear Generating Unit No. 2**

- | | |
|---|---|
| 1. Minimum Financial Assurance (MFA) estimated per 10 CFR 50.75(b) and (c) (2015\$) | \$521.34 million ^[Note 1] |
| 2. ISFSI Obligation as of 12/31/15 | \$6.16 million ^[Note 2] |
| 3. Decommissioning Trust Fund Total as of 12/31/15 | \$529.05 million ^[Note 3] |
| 4. A schedule of the annual amounts remaining to be collected | None |
| 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 | None |
| 8. Any material changes to trust agreements | None |

Note 1: Calculation of the NRC Minimum Amount is provided in Attachment 4.

Note 2: From 10 CFR 50.82(a)(8)(vii) filing for Indian Point 2 of March 2016

Note 3: Includes provisional fund balance of \$32.14 million.

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Entergy Nuclear Operations, Inc.
Status of Decommissioning Funding – Indian Point 3
For Year Ending December 31, 2015 - 10 CFR 50.75(f)(1)

Plant Name: **Indian Point Nuclear Generating Unit No. 3**

1. Minimum Financial Assurance (MFA) estimated per 10 CFR 50.75(b) and (c) (2015\$)	\$521.34 million ^[Note 1]
2. ISFSI Obligation as of 12/31/15	\$6.79 million ^[Note 2]
3. Decommissioning Trust Fund Total as of 12/31/15	\$ 683.84 million
4. A schedule of the annual amounts remaining to be collected	None
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	None
8. Any material changes to trust agreements	None

Note 1: Calculation of the NRC Minimum Amount is provided in Attachment 4.

Note 2: From Entergy's ISFSI Decommissioning Funding Plans pursuant to 10 CFR 72.30, December 17, 2015 (Accession No. ML15351A524)

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Entergy Nuclear Operations, Inc.
Calculation of Minimum Amount – Indian Point
For Year Ending December 31, 2015 - 10 CFR 50.75(f)(1)

Entergy Nuclear Indian Point 2, LLC: 100% ownership interest of Indian Point 1 & 2

Entergy Nuclear Indian Point 3, LLC: 100% ownership interest of Indian Point 3

Plant Location: Buchanan, New York

Reactor Type: Pressurized Water Reactor (“PWR”)

Indian Point Unit 1 Power Level: <3,400 MWt (615 MWt)

Indian Point Unit 1 PWR Base Year 1986\$: \$85,560,000

Indian Point Unit 2 Power Level: <3,400 MWt (3,216 MWt)

Indian Point Unit 2 PWR Base Year 1986\$: \$103,300,800

Indian Point Unit 3 Power Level: <3,400 MWt (3,216 MWt)

Indian Point Unit 3 PWR Base Year 1986\$: \$103,300,800

Labor Region: North

Waste Burial Facility: Generic Disposal Site

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

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

L=Labor (North)

E=Energy (PWR)

B=Waste Burial-Vendor (PWR)

Factor

2.71¹

1.76²

13.885³

PWR Escalation Factor:

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

5.04684

1986 PWR Base Year \$ Escalated:

Indian Point 1: \$85,560,000 * Factor=

\$431,807,460

Indian Point 2 & 3: \$103,300,800 * Factor=

\$521,342,404

¹ Bureau of Labor Statistics, Series Report ID: CIU201000000210i (4th Quarter 2015)

² Bureau of Labor Statistics, Series Report ID: wpu0543 and wpu0573 (December 2015)

³ Nuclear Regulatory Commission: NUREG-1307 Revision 15, Table 2.1 (2013)

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Entergy Nuclear Operations, Inc.
Status of Decommissioning Funding Vermont Yankee
For Year Ending December 31, 2015 - 10 CFR 50.75(f)(1) and 10 CFR 50.82(a)(8)(v)

Plant Name: **Vermont Yankee Nuclear Power Station**

10 CFR 50.75(f)(1)

1. Minimum Financial Assurance (MFA) estimated per 10 CFR 50.75(b) and (c) (2015\$)	\$ 740.52 million ^[Note 1]
2. ISFSI Obligation as of 12/31/15	\$5.05 million ^[Note 2]
3. Decommissioning Trust Fund Total as of 12/31/15	\$ 595.44 million
4. A schedule of the annual amounts remaining to be collected	None
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	None
8. Any material changes to trust agreements	None

Note 1: This amount is based upon total SAFSTOR expenditures for radiological remediation and license termination set forth in the updated Decommissioning Funding Assurance Plan and SAFSTOR analysis provided in Attachment 13. (Calculation of the NRC Minimum Amount is provided in Attachment 6).

Note 2: From Entergy's ISFSI Decommissioning Funding Plans Pursuant to 10 CFR 72.30, December 17, 2015 (Accession No. ML15351A524).

Note 3: Since the last submitted report, Entergy Nuclear Vermont Yankee, LLC canceled a \$40 million parent guarantee that previously provided decommissioning financial assurance for Vermont Yankee, based on the establishment of certain lines of credit. In a letter from the NRC to Entergy Nuclear Operations, Inc., and Vermont Yankee Nuclear Power Station dated April 21, 2015, the NRC determined that Entergy Corporation had complied with the general requirements of 10 CFR 30 Appendix A (III)(A) and granted Entergy Corporation the right to cancel the \$40 million parent company guarantee for Vermont Yankee (Accession No. ML15107A074).

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Entergy Nuclear Operations, Inc.
Status of Decommissioning Funding Vermont Yankee
For Year Ending December 31, 2015 - 10 CFR 50.75(f)(1) and 10 CFR 50.82(a)(8)(v)

Plant Name: **Vermont Yankee Nuclear Power Station**

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

- | | |
|---|---------------------------------------|
| 1. Cumulative decommissioning spending through 12/31/2015 | \$ 74.35 million ^[Note1] |
| 2. 2015 decommissioning spending | \$ 59.57 million ^[Note2] |
| 3. Fund Balance | See above in 10 CFR 50.75 information |
| 4. No other financial assurance mechanism is being relied upon. | |
| 5. Estimated costs to complete from latest estimate | \$ 740.52 million |
| 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: Some decommissioning costs have been paid by the parent company, and not refunded from the decommissioning trust.

Note 2: This estimate only includes 2015 decommissioning costs. 2014 costs are included in item 1 and have been reimbursed in 2015.

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Entergy Nuclear Operations, Inc.
Calculation of Minimum Amount - Vermont Yankee
For Year Ending December 31, 2015 - 10 CFR 50.75(f)(1)

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)	2.71 ¹
E=Energy (BWR)	1.75 ²
B=Waste Burial-Vendor (BWR)	14.160 ³

BWR Escalation Factor:

$$0.65(L) + 0.13(E) + 0.22(B) = 5.10582$$

1986 BWR Base Year \$ Escalated:

$$\$121,208,000 * \text{Factor} = \$618,866,471$$

¹ Bureau of Labor Statistics, Series Report ID: CIU201000000210i (4th Quarter 2015)
² Bureau of Labor Statistics, Series Report ID: wpu0543 and wpu0573 (December 2015)
³ Nuclear Regulatory Commission: NUREG-1307 Revision 15, Table 2.1 (2013)

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Entergy Nuclear Operations, Inc.
Status of Decommissioning Funding - Pilgrim
For Year Ending December 31, 2015 - 10 CFR 50.75(f)(1)

Plant Name: **Pilgrim Nuclear Power Station**

1. Minimum Financial Assurance (MFA) estimated per 10 CFR 50.75(b) and (c) (2015\$)	\$ 624.20 million ^[Note 1]
2. ISFSI Obligation as of 12/31/15	\$8.98 million ^[Note 2]
3. Decommissioning Trust Fund Total as of 12/31/15	\$ 895.71 million
4. A schedule of the annual amounts remaining to be collected	None
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	None
8. Any material changes to trust agreements	None

Note 1: Calculation of the NRC Minimum Amount is provided in Attachment 8.

Note 2: From Entergy's ISFSI Decommissioning Funding Plans Pursuant to 10 CFR 72.30, December 17, 2015 (Accession No. ML15351A524).

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Entergy Nuclear Operations, Inc.
Calculation of Minimum Amount - Pilgrim
For Year Ending December 31, 2015 - 10 CFR 50.75(f)(1)

Entergy Nuclear Generation Co.: 100% ownership interest
Plant Location: Plymouth, Massachusetts
Reactor Type: Boiling Water Reactor ("BWR")
Power Level: <3,400 MWt (2028 MWt)
BWR Base Year 1986\$: \$122,252,000
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)	2.71 ¹
E=Energy (BWR)	1.75 ²
B=Waste Burial-Vendor (BWR)	14.160 ³

BWR Escalation Factor:

$$0.65(L) + 0.13(E) + 0.22(B) = 5.10582$$

1986 BWR Base Year \$ Escalated:

$$\$122,252,000 * \text{Factor} = \$624,196,949$$

¹ Bureau of Labor Statistics, Series Report ID: CIU201000000210i (4th Quarter 2015)
² Bureau of Labor Statistics, Series Report ID: wpu0543 and wpu0573 (December 2015)
³ Nuclear Regulatory Commission: NUREG-1307 Revision 15, Table 2.1 (2013)

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Entergy Nuclear Operations, Inc.
Status of Decommissioning Funding – James A. Fitzpatrick
For Year Ending December 31, 2015 - 10 CFR 50.75(f)(1)

Plant Name: **James A. Fitzpatrick Nuclear Power Plant**

1. Minimum Financial Assurance (MFA) estimated per 10 CFR 50.75(b) and (c) (2015\$)	\$ 647.54 million ^[Note 1]
2. ISFSI Obligation as of 12/31/15	\$ 8.17 million ^[Note 2]
3. Decommissioning Trust Fund Total as of 12/31/15	\$ 746.19 million
4. A schedule of the annual amounts remaining to be collected	None
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	None
8. Any material changes to trust agreements	None

Note 1: Calculation of the NRC Minimum Amount is provided in Attachment 10.

Note 2: From Entergy's ISFSI Decommissioning Funding Plans Pursuant to 10 CFR 72.30, December 17, 2015 (Accession No. ML15351A524).

Attachment 10
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Entergy Nuclear Operations, Inc.
Calculation of Minimum Amount – James A. Fitzpatrick
For Year Ending December 31, 2015 - 10 CFR 50.75(f)(1)

Entergy Nuclear FitzPatrick LLC.: 100% ownership interest
Plant Location: Oswego, New York
Reactor Type: Boiling Water Reactor (“BWR”)
Power Level: <3,400 MWt (2536 MWt)
BWR Base Year 1986\$: \$126,824,000
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)	2.71 ¹
E=Energy (BWR)	1.75 ²
B=Waste Burial-Vendor (BWR)	14.160 ³

BWR Escalation Factor:
0.65(L) +0.13(E) +0.22(B)= 5.10582

1986 BWR Base Year \$ Escalated:
\$126,824,000 * Factor= \$647,540,768

¹ Bureau of Labor Statistics, Series Report ID: CIU201000000210i (4th Quarter 2015)
² Bureau of Labor Statistics, Series Report ID: wpu0543 and wpu0573 (December 2015)
³ Nuclear Regulatory Commission: NUREG-1307 Revision 15, Table 2.1 (2013)

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Entergy Nuclear Operations, Inc.
Status of Decommissioning Funding – Big Rock Point
For Year Ending December 31, 2015 - 10 CFR 50.75(f)(1)

Plant Name: **Big Rock Point ISFSI**

- | | |
|---|--|
| 1. Amount of decommissioning funds required from most recent estimate (2015 dollars). | \$ 2.43 million ^[Note 1] |
| 2. Decommissioning Funding Assurance Method. | Parent Guarantee (\$5 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 | Escalation rate: CPIU
Rate of earnings: n/a |
| 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 1: See 10 CFR §72.30 filing for Big Rock Point, dated December 17, 2015, Accession No. ML15351A524.

Attachment 12
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Entergy Nuclear Operations, Inc.
IP1 DTF Balance Based on Decommissioning Funding Assurance Plan
For Year Ending December 31, 2015 - 10 CFR 50.75(f)(1)

On October 23, 2008, Entergy Nuclear Indian Point 2, LLC (ENIP2) submitted a preliminary decommissioning cost analysis to the NRC in conjunction with its spent fuel management plan under 10 CFR 50.75(f)(3) and 10 CFR 50.54(bb) (Accession No. ML083040378, as supplemented by ENIP2's reply to RAIs on July 15, 2009 (Accession No. ML092050204). The preliminary decommissioning cost analysis contained separate site-specific decommissioning cost estimates for Indian Point 1 and Indian Point 2. The estimates were subsequently found to be reasonable by the NRC on March 17, 2010 (Accession No. ML100280544).

Pursuant to Regulatory Guide 1.159, Revision 2, adjustment to the site-specific cost estimates should be made at least once a year for the effects of inflation. Adjustment to site-specific cost estimates for the effects of technological and status changes should be made according to the amount of change experienced, as appropriate, but in no event, less than once every 5 years. As such, ENIP2 has updated the aforementioned estimates consistent with the requirements of Regulatory Guide 1.159, Revision 2.

ENIP2 has determined that use of a SAFSTOR analysis shows that there is presently 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." ENIP2 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) ENIP2 also understands that NRC should be provided the analysis, and that the analysis should include data for each year of the analysis.

The updated Indian Point 1 site-specific decommissioning cost estimate is based on a period of safe storage that is specifically described in the estimate, namely storage until 2073, at which time the plant will be decommissioned and the site released for alternative use without restriction. Table 12-1 below provides the annual license termination costs computed in the updated estimate. These costs to date have been funded by operations, and not by the decommissioning fund. 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).

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Entergy Nuclear Operations, Inc.
IP1 DTF Balance Based on Decommissioning Funding Assurance Plan
For Year Ending December 31, 2015 - 10 CFR 50.75(f)(1)

Table 12-1		
NRC License Termination Cost (\$ millions)		
	2015 \$ Unit 1 Radiological	Ending DTF Balance
2015		413.921
2016	0.951	421.248
2017	3.804	425.869
2018	3.804	430.582
2019	3.815	435.379
2020	3.804	440.282
2021	3.804	445.283
2022	3.804	450.385
2023	3.815	455.578
2024	3.804	460.885
2025	3.804	466.298
2026	3.804	471.820
2027	3.815	477.442
2028	3.804	483.186
2029	3.804	489.045
2030	3.804	495.022
2031	3.815	501.108
2032	3.804	507.326
2033	3.804	513.668
2034	3.804	520.137
2035	3.815	526.725
2036	3.804	533.455
2037	3.804	540.320
2038	3.804	547.322
2039	3.815	554.453
2040	3.804	561.738
2041	3.804	569.169
2042	3.804	576.748
2043	3.815	584.468
2044	3.804	592.353
2045	3.804	600.396
2046	3.804	608.599
2047	3.815	616.957
2048	3.804	625.491
2049	3.804	634.197
2050	3.804	643.076
2051	3.815	652.123

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Entergy Nuclear Operations, Inc.
IP1 DTF Balance Based on Decommissioning Funding Assurance Plan
For Year Ending December 31, 2015 - 10 CFR 50.75(f)(1)

Table 12-1		
NRC License Termination Cost (\$ millions)		
	2015 \$ Unit 1 Radiological	Ending DTF Balance
2052	3.804	661.361
2053	3.804	670.784
2054	3.804	680.396
2055	3.815	690.189
2056	3.804	700.188
2057	3.804	710.388
2058	3.804	720.791
2059	3.815	731.392
2060	3.815	742.205
2061	3.804	753.245
2062	3.804	764.506
2063	3.804	775.992
2064	3.815	787.697
2065	28.011	775.440
2066	61.646	729.303
2067	102.982	640.907
2068	109.450	544.275
2069	15.770	539.390
2070	15.792	534.386
2071	15.792	529.282
2072	15.835	524.033
2073	7.788	526.726
Total	556.759	

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Entergy Nuclear Operations, Inc.
IP1 DTF Balance Based on Decommissioning Funding Assurance Plan
For Year Ending December 31, 2015 - 10 CFR 50.75(f)(1)

As can be seen from the information provided in Table 12-1, the required funding for SAFSTOR decommissioning, \$556.76 million, is greater than the NRC formula amount per 10 CFR 50.75(b) and (c) of \$431.81 million, therefore, the site-specific analysis complies with the requirement from Regulatory Guide 1.159 section 1.1.1 previously discussed. The foregoing SAFSTOR analysis shows that when the December 31, 2015 DTF balance is escalated at the allowable rate and compared against the annual figures for the SAFSTOR period, that an approximately \$526.73 million surplus exists at the end of the decommissioning project. Accordingly, ENIP2 concludes that no further action is required at this time to demonstrate adequate funding assurance for decommissioning Indian Point 1.

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Entergy Nuclear Operations, Inc.
Vermont Yankee Annual Cash Flow Analysis
For Year Ending December 31, 2015 - 10 CFR 50.75(f)(1)

Vermont Yankee Nuclear Power Station (Vermont Yankee) permanently ceased operations on December 29, 2014. The Vermont Yankee decommissioning trust fund balance is approximately \$595 million as of December 31, 2015. Tables 3.4 and 3.5 of the site-specific decommissioning cost estimate (Reference 1, Attachment 1) set forth the estimated annual expenditures for license termination and spent fuel management, respectively. A cash flow analysis utilizing this annual expenditure information is included as Table 13-1.

The cash flow analysis 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). 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 pool and Independent Spent Fuel Storage Installation, totaling approximately \$223 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).

The licensee has determined that use of a SAFSTOR analysis shows that there is presently 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." The licensee 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.) The licensee 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 December 19, 2014 (Accession No. ML14357A110).

The updated Vermont Yankee site-specific decommissioning cost estimate is based on a period of safe storage that is specifically described in the estimate, namely storage until approximately 2068, at which time the plant will be decommissioned and the site released for alternative use without restriction. Table 13-1 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).

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Entergy Nuclear Operations, Inc.
Vermont Yankee Annual Cash Flow Analysis
For Year Ending December 31, 2015 - 10 CFR 50.75(f)(1)

Thus, considering the fund balance of \$595 million, as of December 31, 2015, and projected fund earnings during the SAFSTOR period (assuming an annual 2% growth rate), the trust fund is expected to have an excess of \$190.6 million after completion of license termination and the operational spent fuel management activities that will be funded by the trust fund.

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 10 CFR 50.54(bb)," Bvy 14-085, dated December 19, 2014 (Accession No. ML14358A251).
3. NRC Approval of Exemption Request for Spent Fuel Management, 80 Fed. Reg. 35992 (June 23, 2015)

Table 13-1									
Vermont Yankee Nuclear Power Station - SAFSTOR Methodology									
Annual Cash Flow Analysis - Total License Termination, Spent Fuel Management less Dry Fuel Costs									
(In Thousands in 2015 Dollars) (see column definitions below)									
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)
2016	48,305	75,778	53,820	70,263	595,443	70,263		10,504	535,683
2017	11,007	49,345	29,882	30,471	535,683	30,471		10,104	515,317
2018	9,704	41,277	19,752	31,229	515,317	31,229		9,682	493,769
2019	8,299	36,929	17,022	28,205	493,769	28,205		9,311	474,875
2020	17,779	27,680	17,625	27,834	474,875	27,834		8,941	455,982
2021	5,303	4,055		9,358	455,982	9,358		8,932	455,557
2022	5,251	4,055		9,307	455,557	9,307		8,925	455,176
2023	5,251	4,055		9,307	455,176	9,307		8,917	454,786
2024	3,676	4,066		7,742	454,786	7,742		8,941	455,985
2025	3,616	4,055		7,671	455,985	7,671		8,966	457,280
2026	3,761	4,055		7,816	457,280	7,816		8,989	458,453
2027	3,812	4,055		7,867	458,453	7,867		9,012	459,597

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Entergy Nuclear Operations, Inc.
Vermont Yankee Annual Cash Flow Analysis
For Year Ending December 31, 2015 - 10 CFR 50.75(f)(1)

Table 13-1									
Vermont Yankee Nuclear Power Station - SAFSTOR Methodology									
Annual Cash Flow Analysis - Total License Termination, Spent Fuel Management less Dry Fuel Costs									
(In Thousands in 2015 Dollars) (see column definitions below)									
Year	<u>Column 1</u> 50.75 License Termination Cost (\$000's)	<u>Column 2</u> 50.54 (bb) Spent Fuel Management Cost (\$000's)	<u>Column 3</u> Exclude Dry Fuel Spent Fuel Management Cost (\$000's)	<u>Column 4</u> License Termination Cost plus Spent Fuel Management Cost less Dry Fuel Cost (\$000's)	<u>Column 5</u> Beginning of Year Trust Fund Balance (\$000's)	<u>Column 6</u> Withdraw (\$000's)	<u>Column 7</u> Contribute (\$000's)	<u>Column 8</u> Trust Fund Earnings (\$000's)	<u>Column 9</u> Year Ending Trust Fund Balance (\$000's)
2028	3,770	4,066		7,836	459,597	7,836		9,035	460,796
2029	3,761	4,055		7,816	460,796	7,816		9,060	462,040
2030	3,812	4,055		7,867	462,040	7,867		9,083	463,256
2031	3,761	4,055		7,816	463,256	7,816		9,109	464,548
2032	3,770	4,066		7,836	464,548	7,836		9,134	465,846
2033	3,812	4,055		7,867	465,846	7,867		9,160	467,139
2034	3,761	4,055		7,816	467,139	7,816		9,186	468,509
2035	3,761	4,055		7,816	468,509	7,816		9,214	469,906
2036	3,821	4,066		7,887	469,906	7,887		9,240	471,259
2037	3,761	4,055		7,816	471,259	7,816		9,269	472,712
2038	3,761	4,055		7,816	472,712	7,816		9,298	474,194
2039	3,812	4,055		7,867	474,194	7,867		9,327	475,653
2040	3,770	4,066		7,836	475,653	7,836		9,356	477,173
2041	3,761	4,055		7,816	477,173	7,816		9,387	478,744
2042	3,812	4,055		7,867	478,744	7,867		9,418	480,294
2043	3,761	4,055		7,816	480,294	7,816		9,450	481,927
2044	3,770	4,066		7,836	481,927	7,836		9,482	483,573
2045	3,812	4,055		7,867	483,573	7,867		9,514	485,220
2046	3,761	4,055		7,816	485,220	7,816		9,548	486,952
2047	3,761	4,055		7,816	486,952	7,816		9,583	488,718
2048	3,821	4,066		7,887	488,718	7,887		9,617	490,447
2049	3,761	4,055		7,816	490,447	7,816		9,653	492,284
2050	3,761	4,055		7,816	492,284	7,816		9,689	494,157
2051	3,812	4,055		7,867	494,157	7,867		9,726	496,015
2052	3,770	4,066		7,836	496,015	7,836		9,764	497,942
2053	3,608			3,608	497,942	3,608		9,887	504,221
2054	3,659			3,659	504,221	3,659		10,011	510,574
2055	3,608			3,608	510,574	3,608		10,139	517,105

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Entergy Nuclear Operations, Inc.
Vermont Yankee Annual Cash Flow Analysis
For Year Ending December 31, 2015 - 10 CFR 50.75(f)(1)

Table 13-1									
Vermont Yankee Nuclear Power Station - SAFSTOR Methodology									
Annual Cash Flow Analysis - Total License Termination, Spent Fuel Management less Dry Fuel Costs									
(In Thousands in 2015 Dollars) (see column definitions below)									
Year	<u>Column 1</u> 50.75 License Termination Cost (\$000's)	<u>Column 2</u> 50.54 (bb) Spent Fuel Management Cost (\$000's)	<u>Column 3</u> Exclude Dry Fuel Spent Fuel Management Cost (\$000's)	<u>Column 4</u> License Termination Cost plus Spent Fuel Management Cost less Dry Fuel Cost (\$000's)	<u>Column 5</u> Beginning of Year Trust Fund Balance (\$000's)	<u>Column 6</u> Withdraw (\$000's)	<u>Column 7</u> Contribute (\$000's)	<u>Column 8</u> Trust Fund Earnings (\$000's)	<u>Column 9</u> Year Ending Trust Fund Balance (\$000's)
2056	3,617			3,617	517,105	3,617		10,270	523,758
2057	3,659			3,659	523,758	3,659		10,402	530,502
2058	3,608			3,608	530,502	3,608		10,538	537,432
2059	3,608			3,608	537,432	3,608		10,676	544,500
2060	3,668			3,668	544,500	3,668		10,817	551,649
2061	3,608			3,608	551,649	3,608		10,961	559,002
2062	3,608			3,608	559,002	3,608		11,108	566,502
2063	3,659			3,659	566,502	3,659		11,257	574,100
2064	3,617			3,617	574,100	3,617		11,410	581,894
2065	3,608			3,608	581,894	3,608		11,566	589,851
2066	3,659			3,659	589,851	3,659		11,724	597,916
2067	3,608			3,608	597,916	3,608		11,886	606,195
2068	43,690			43,690	606,195	43,690		11,250	573,755
2069	93,039			93,039	573,755	93,039		9,614	490,331
2070	105,681			105,681	490,331	105,681		7,693	392,343
2071	85,618			85,618	392,343	85,618		6,134	312,859
2072	86,055			86,055	312,859	86,055		4,536	231,341
2073	50,949			50,949	231,341	50,949		3,608	184,000
2074	523			523	184,000	523		3,670	187,147
2075	302			302	187,147	302		3,737	190,582
	740,517	360,863	138,101	963,280	595,443	963,280		558,418	190,582

As can be seen from the information provided in Table 13-1, the required funding for SAFSTOR decommissioning, \$740.52 million, is greater than the NRC formula amount per 10 CFR 50.75(b) and (c) of \$618.87 million, therefore, the site-specific analysis complies with the requirement from Regulatory Guide 1.159 section 1.1.1 previously discussed. The foregoing SAFSTOR analysis shows that when the December 31, 2015 DTF balance is escalated at the

Entergy Nuclear Operations, Inc.
Vermont Yankee Annual Cash Flow Analysis
For Year Ending December 31, 2015 - 10 CFR 50.75(f)(1)

allowable rate and compared against the annual figures for the SAFSTOR period, that an approximately \$190.6 million surplus exists at the end of the decommissioning project. Accordingly, the licensee concludes that no further action is required at this time to demonstrate adequate funding assurance for decommissioning Vermont Yankee.

Table 13-1 Definitions:

Column 1: 50.75 License Termination Cost

Reflects the Total Annual License Termination Plan cost in 2015 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 2015 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 2015 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 2015 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 2015 dollars at a 0.0% escalation rate and 2.0% Fund Earnings

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Vermont Yankee Annual Cash Flow Analysis
For Year Ending December 31, 2015 - 10 CFR 50.75(f)(1)

Column 6: Withdraw

Reflects the annual expenditures from the Trust Fund in 2015 dollars at a 0.0% escalation rate (equals Column 4)

Column 7: Contribute

Reflects the annual contributions to the Trust Fund in 2015 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 100% of the projected annual expenditure for each year. (Column 5 - 100% 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 specified at a 0.0% escalation rate and 2.0% Fund Earnings in 2015 dollars. (Column 5 - Column 6 + Column 7 + Column 8)

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Entergy Nuclear Operations, Inc.
Minimum Financial Assurance Calculation Worksheets

Plant name: **Indian Point Energy Center, Unit 1**

Year of Biennial: **Month** **Day** **Year**
12 **31** **2015**

Termination of Operation: **9** **28** **2013**

	<u>MWth</u>	<u>1986\$</u>	ECI	Base Lx		<u>Lx</u>	Px	Fx		<u>Ex</u>		<u>Bx</u>
PWR	615	\$85,560,000	125.6	2.16	0.65	2.71	1.882	1.590	0.13	1.76	0.22	13.885

NRC Minimum: **\$431,807,460** **Site Specific:** **\$556,759,099**

<u>Licensee:</u>	<u>% Owned:</u>	<u>Amount of NRC Minimum/Site Specific:</u>	<u>Amount in Trust Fund:</u>
Entergy	100.00%	\$556,759,099	\$413,920,819

Note: See Attachment 12 for adequacy of the trust fund.

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**Entergy Nuclear Operations, Inc.
Minimum Financial Assurance Calculation Worksheets**

Plant name: Indian Point Energy Center, Unit 3

	Month	Day	Year
Year of Biennial:	12	31	2015
Termination of Operation:	12	12	2015

	MWth	1986\$	ECI	Base Lx		Lx	Px	Fx		Ex		Bx
<i>PWR</i>	3216	\$103,300,800	125.6	2.16	0.65	2.71	1.882	1.590	0.13	1.76	0.22	13.885

NRC Minimum: \$521,342,404 **Site Specific:**

Licensee:	% Owned:	Amount of NRC Minimum/Site Specific:	Amount in Trust Fund:
<i>Entergy</i>	100.00%	\$521,342,404	\$683,835,864

**Step 1:
Earnings Credit:**

Trust Fund Balance:	Real Rate of Return per	Years Left in License	Total Real Rate of	Total Earnings:	Total Earnings = Trust Fund balance x (1+RRR)^Years left in license
\$683,835,864	2%	0.00	1.00000	\$683,835,864	

Step 2:

Accumulation:

Value of Annuity per year	Real Rate of Return per	Years of Annuity:	Total Annuity:
\$0	2%	0	\$0

**Step 3:
Decom Period:**

Total Earnings:	Real Rate of Return per	Decom Period:	Total Real Rate of	Total Earnings for Decom:	Total Earnings for Decom = (1/2) x Total Earnings x [(1+RRR)^Decom period - 1]
\$683,835,864	2%	7	0.14869	\$50,838,296	

Total of Steps 1 - 3:	Total = Total Earnings + Total Earnings for Decom
\$734,674,160	

Excess (Shortfall)	\$ 213,331,756	to NRC minimum
	\$ (6,790,496)	Less ISFSI
	-	Parent Co Guaranty
	\$ 206,541,261	Total Excess Financial Assurance

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**Entergy Nuclear Operations, Inc.
Minimum Financial Assurance Calculation Worksheets**

Plant name: Indian Point Energy Center, Unit 2

Year of Biennial: Month 12 Day 31 Year 2015
Termination of Operation: 9 28 2013

	MWth	1986\$	ECI	Base Lx		Lx	Px	Fx		Ex		Bx
PWR	3216	\$103,300,800	125.6	2.16	0.65	2.71	1.882	1.590	0.13	1.76	0.22	13.885

NRC Minimum: \$521,342,404 **Site Specific:**

Licensee:	% Owned:	Amount of NRC Minimum/Site Specific:	Amount in Trust Fund:
Entergy	100.00%	\$521,342,404	\$529,053,777

**Step 1:
Earnings Credit:**

Trust Fund Balance:	Real Rate of Return per	Years Left in License	Total Real Rate of	Total Earnings:	
\$529,053,777	2%	0.00	1.00000	\$529,053,777	Total Earnings = Trust Fund balance x (1+RRR)^Years left in license

Step 2:

Accumulation:

Value of Annuity per year	Real Rate of Return per	Years of Annuity:	Total Annuity:
\$0	2%	0	\$0

**Step 3:
Decom Period:**

Total Earnings:	Real Rate of Return per	Decom Period:	Total Real Rate of	Total Earnings for Decom:	
\$529,053,777	2%	7	0.14869	\$39,331,357	Total Earnings for Decom = (1/2) x Total Earnings x [(1+RRR)^Decom period - 1]

Total of Steps 1 - 3:	\$568,385,134	Total = Total Earnings + Total Earnings for Decom
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Excess (Shortfall)	\$	47,042,730	to NRC minimum
	\$	(6,152,189)	Less ISFSI
	\$	-	Parent Co Guaranty
	\$	40,890,541	Total Excess Financial Assurance

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Entergy Nuclear Operations, Inc.
Minimum Financial Assurance Calculation Worksheets

Plant name:

Vermont Yankee Power Station

	Month	Day	Year
Year of Biennial:	12	31	2015
Termination of Operation:	12	29	2014

	<u>MWth</u>	<u>1986\$</u>	ECI	Base Lx		<u>Lx</u>	Px	Fx		<u>Ex</u>		<u>Bx</u>
BWR	1912	\$121,208,000	125.6	2.16	0.65	2.71	1.882	1.590	0.13	1.75	0.22	14.16

NRC Minimum: \$618,866,471 Site Specific: \$740,517,165

<u>Licensee:</u>	<u>% Owned:</u>	<u>Amount of NRC Minimum/Site Specific:</u>	<u>Amount in Trust Fund:</u>
Entergy	100.00%	\$740,517,165	\$595,443,076

Note: See Attachment 13 for adequacy of the trust fund.

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**Entergy Nuclear Operations, Inc.
Minimum Financial Assurance Calculation Worksheets**

Plant name: Pilgrim Nuclear Generating Station

Year of Biennial: Month 12 Day 31 Year 2015
Termination of Operation: 5 31 2019

	MWth	1986\$	ECI	Base Lx		Lx	Px	Fx		Ex		Bx
BWR	2028	\$122,252,000	125.6	2.16	0.65	2.71	1.882	1.590	0.13	1.75	0.22	14.16

NRC Minimum: \$624,196,949 **Site Specific:**

Licensee:	% Owned:	Amount of NRC Minimum/Site Specific:	Amount in Trust Fund:
Entergy	100.00%	\$624,196,949	\$895,714,834

**Step 1:
Earnings Credit:**

Trust Fund Balance:	Real Rate of Return per	Years Left in License	Total Real Rate of	Total Earnings:	
\$895,714,834	2%	3.42	1.07000	\$958,415,187	Total Earnings = Trust Fund balance x (1+RRR)^Years left in license

Step 2:

Accumulation:

Value of Annuity per year	Real Rate of Return per	Years of Annuity:	Total Annuity:
\$0	2%	0	\$0

**Step 3:
Decom Period:**

Total Earnings:	Real Rate of Return per	Decom Period:	Total Real Rate of	Total Earnings for Decom:	
\$958,415,187	2%	7	0.14869	\$71,251,301	Total Earnings for Decom = (1/2) x Total Earnings x [(1+RRR)^Decom period - 1]

Total of Steps 1 - 3:	Total = Total Earnings + Total Earnings for Decom
\$1,029,666,488	

Excess (Shortfall)	\$	405,469,538	to NRC minimum
	\$	(8,975,100)	Less ISFSI
	\$	-	Parent Co Guaranty
	\$	396,494,438	Total Excess Financial Assurance

Attachment 14
CNRO-2016-00010
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Entergy Nuclear Operations, Inc.
Minimum Financial Assurance Calculation Worksheets

Plant name: **James A. FitzPatrick**

	Month	Day	Year
Year of Biennial:	12	31	2015
Termination of Operation:	1	27	2017

	<u>MWth</u>	<u>1986\$</u>	ECI	Base Lx		<u>Lx</u>	Px	Fx		<u>Ex</u>		<u>Bx</u>
BWR	2536	\$126,824,000	125.6	2.16	0.65	2.71	1.882	1.590	0.13	1.75	0.22	14.16

NRC Minimum: **\$647,540,768** **Site Specific:**

<u>Licensee:</u>	<u>% Owned:</u>	<u>Amount of NRC Minimum/Site Specific:</u>	<u>Amount in Trust Fund:</u>
Entergy	100.00%	\$647,540,768	\$746,189,340

Step 1:
Earnings Credit:

<u>Trust Fund Balance:</u>	<u>Real Rate of Return per</u>	<u>Years Left in License</u>	<u>Total Real Rate of</u>	<u>Total Earnings:</u>	
\$746,189,340	2%	1.07	1.02146	\$762,204,739	Total Earnings = Trust Fund balance x (1+RRR)^Years left in license

Step 2:

Accumulation:

<u>Value of Annuity per year</u>	<u>Real Rate of Return per</u>	<u>Years of Annuity:</u>	<u>Total Annuity:</u>
\$0	2%	0	\$0

Step 3:
Decom Period:

<u>Total Earnings:</u>	<u>Real Rate of Return per</u>	<u>Decom Period:</u>	<u>Total Real Rate of</u>	<u>Total Earnings for Decom:</u>	
\$762,204,739	2%	7	0.14869	\$56,664,460	Total Earnings for Decom = (1/2) x Total Earnings x [(1+RRR)^Decom period - 1]

Total of Steps 1 - 3:	
\$818,869,200	Total = Total Earnings + Total Earnings for Decom

Excess (Shortfall)	\$ 171,328,432	to NRC minimum
	(8,171,509)	Less ISFSI
	-	Parent Co Guaranty
	\$ 163,156,923	Total Excess Financial Assurance