



Entergy Nuclear Operations, Inc
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Emergency Planning and Licensing

ENOC-15-00005
March 30, 2015

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

SUBJECT: Decommissioning Funding Status Report -- Entergy Nuclear Operations, Inc

Big Rock Point
Docket 50-155

Palisades Nuclear Plant
Docket 50-255

Indian Point Nuclear
Generating Stations 1, 2, & 3
Dockets 50-3, 50-247 and 50-286

James A. FitzPatrick
Nuclear Power Plant
Docket 50-333

Pilgrim Nuclear Power Station
Docket 50-293

Vermont Yankee Nuclear Power Station
Docket 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, 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 (Palisades and Big Rock Point), Entergy Nuclear Operations, Inc. hereby submits the information requested for power reactors operated by Entergy Nuclear

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N15501

Operations, Inc. The reports provided in Attachments 1 through 13 for the eight 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 14 and 15 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 Revision 4, are provided in Attachment 16 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 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, 2014 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 2014 tax liabilities, not reflected in the trust fund balances, as follows:

Indian Point 1	\$	0
Indian Point 2	\$	0
Indian Point 3	\$	0
Vermont Yankee	\$	2,236,000
Pilgrim	\$	0
FitzPatrick	\$	0
Palisades	\$	0

In accordance with guidance provided by the NRC Staff in April 2014 requests for additional information (Accession No. ML14120A273) that "[f]uture 10 CFR 50.75(f) reports should clearly delineate estimate reactor and ISFSI decommissioning costs," the information in Attachments 1, 2, 3, 5, 7 and 9 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 16.

The aforementioned worksheets, using the December 31, 2014 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. David Mannai, Senior Manager, Fleet Regulatory Assurance at 802-380-1175.

Sincerely,



JFM / djm / 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 – Palisades
12. Entergy Nuclear Operations, Inc. Calculation of Minimum Amount – Palisades
13. Entergy Nuclear Operations, Inc. Status of Decommissioning Funding – Big Rock Point
14. Entergy Nuclear Operations, Inc. IP1 DTF Balance Based on Decommissioning Funding Assurance Plan
15. Entergy Nuclear Operations, Inc. Vermont Yankee Annual Cash Flow Analysis
16. Entergy Nuclear Operations, Inc. Minimum Financial Assurance Calculation Worksheets

cc: See next page

cc:

Mr. J. A. Aluise (ENT)
Mr. J.S. Forbes (ECH)
Mr. B. E. Green (TMBR)
Mr. D. J. Mannai (WPO)
Mr. T. G. Mitchell (ECH)
Mr. L. Jager Smith (ECH)
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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
ENOC-15-00005
(Page 1 of 2)

Entergy Nuclear Operations, Inc.
Status of Decommissioning Funding - Indian Point 1
For Year Ending December 31, 2014 - 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) (2014\$) | \$ 557.97 million ^(Note) |
| 2. ISFSI Obligation as of 12/31/14 | \$0.195 million |
| 3. Decommissioning Trust Fund Total
as of 12/31/14 | \$ 414.44 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: 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 14. (Calculation of the NRC Minimum Amount is provided in Attachment 4.)

Attachment 1
ENOC-15-00005
(Page 2 of 2)

Entergy Nuclear Operations, Inc.
Status of Decommissioning Funding - Indian Point 1
For Year Ending December 31, 2014 - 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	\$ 136.02 million [Note1]
2. 2014 decommissioning spending	\$ 5.49 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 to date have been funded by operations, and not the decommissioning fund.	
5. Estimated costs to complete from latest estimate	\$ 557.97 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 2014 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.

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 14. (Calculation of the NRC Minimum Amount is provided in Attachment 4.) This estimate does not include 2014 spending because current costs are being paid out of operating funds.

Attachment 2
ENOC-15-00005
(Page 1 of 1)

Entergy Nuclear Operations, Inc.
Status of Decommissioning Funding - Indian Point 2
For Year Ending December 31, 2014 - 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) (2014\$)	\$524.08 million ^[Note 1]
2. ISFSI Obligation as of 12/31/14	\$1.88 million
3. Decommissioning Trust Fund Total as of 12/31/14	\$529.41 million ^[Note 2]
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: Includes provisional fund balance of \$31.8 million.

Attachment 3
ENOC-15-00005
(Page 1 of 1)

Entergy Nuclear Operations, Inc.
Status of Decommissioning Funding – Indian Point 3
For Year Ending December 31, 2014 - 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) (2014\$)	\$524.08 million ^[Note]
2. ISFSI Obligation as of 12/31/14	\$2.08 million
3. Decommissioning Trust Fund Total as of 12/31/14	\$ 676.65 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: Calculation of the NRC Minimum Amount is provided in Attachment 4.

Attachment 4
ENOC-15-00005
(Page 1 of 1)

Entergy Nuclear Operations, Inc.
Calculation of Minimum Amount – Indian Point
For Year Ending December 31, 2014 - 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)

	<u>Factor</u>
L=Labor (North)	2.66 ¹
E=Energy (PWR)	2.22 ²
B=Waste Burial-Vendor (PWR)	13.885 ³

PWR Escalation Factor:

$$0.65(L) + 0.13(E) + 0.22(B) = 5.07334$$

1986 PWR Base Year \$ Escalated:

Indian Point 1: \$85,560,000 * Factor=	<u>\$434,074,654</u>
Indian Point 2 & 3: \$103,300,800 * Factor=	<u>\$524,079,698</u>

¹ Bureau of Labor Statistics, Series Report ID: CIU201000000210i (4th Quarter 2014)
² Bureau of Labor Statistics, Series Report ID: wpu0543 and wpu0573 (December 2014)
³ Nuclear Regulatory Commission: NUREG-1307 Revision 15, Table 2.1 (2012)

Attachment 5
ENOC-15-00005
(Page 1 of 2)

Entergy Nuclear Operations, Inc.
Status of Decommissioning Funding Vermont Yankee
For Year Ending December 31, 2014 - 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) (2014\$) | \$ 817.22 million ^[Note 1] |
| 2. ISFSI Obligation as of 12/31/14 | \$5.06 million ^[Note 2] |
| 3. Decommissioning Trust Fund Total as of 12/31/14 | \$ 664.56 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 15. (Calculation of the NRC Minimum Amount is provided in Attachment 6).

Note 2: From Vermont Yankee's Update to Irradiated Fuel Management Program Pursuant to 10 CFR 50.54(bb), December 19, 2014 (Accession No. ML14358A251).

Attachment 5
ENOC-15-00005
(Page 2 of 2)

Entergy Nuclear Operations, Inc.
Status of Decommissioning Funding Vermont Yankee
For Year Ending December 31, 2014 - 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 12/31/2014 | \$ 0 million |
| 2. 2014 decommissioning spending | \$ 0 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 12/31/2014 have been funded by operations, and not from the decommissioning fund. | |
| 5. Estimated costs to complete from latest estimate | \$ 817.22 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: This estimate does not include 2014 spending because 2014 costs were paid out of operating funds and are planned to be repaid from the nuclear decommissioning trust in 2015 or later.

**Entergy Nuclear Operations, Inc.
Calculation of Minimum Amount - Vermont Yankee
For Year Ending December 31, 2014 - 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)	2.66 ¹
E=Energy (BWR)	2.25 ²
B=Waste Burial-Vendor (BWR)	14.160 ³

BWR Escalation Factor:

$$0.65(L) + 0.13(E) + 0.22(B) = 5.13807$$

1986 BWR Base Year \$ Escalated:

$$\$121,208,000 * \text{Factor} = \$622,775,764$$

¹ Bureau of Labor Statistics, Series Report ID: CIU201000000210i (4th Quarter 2014)
² Bureau of Labor Statistics, Series Report ID: wpu0543 and wpu0573 (December 2014)
³ Nuclear Regulatory Commission: NUREG-1307 Revision 15, Table 2.1 (2012)

Attachment 7
ENOC-15-00005
(Page 1 of 1)

Entergy Nuclear Operations, Inc.
Status of Decommissioning Funding - Pilgrim
For Year Ending December 31, 2014 - 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) (2014\$)	\$ 628.14 million ^[Note]
2. ISFSI Obligation as of 12/31/14	\$2.89 million
3. Decommissioning Trust Fund Total as of 12/31/14	\$ 896.42 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: Calculation of the NRC Minimum Amount is provided in Attachment 8.

Attachment 8
ENOC-15-00005
(Page 1 of 1)

Entergy Nuclear Operations, Inc.
Calculation of Minimum Amount - Pilgrim
For Year Ending December 31, 2014 - 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)	2.66 ¹
E=Energy (BWR)	2.25 ²
B=Waste Burial-Vendor (BWR)	14.160 ³

BWR Escalation Factor:

$$0.65(L) + 0.13(E) + 0.22(B) = 5.13807$$

1986 BWR Base Year \$ Escalated:

$$\$122,252,000 * \text{Factor} = \$628,139,915$$

¹ Bureau of Labor Statistics, Series Report ID: CIU201000000210i (4th Quarter 2014)
² Bureau of Labor Statistics, Series Report ID: wpu0543 and wpu0573 (December 2014)
³ Nuclear Regulatory Commission: NUREG-1307 Revision 15, Table 2.1 (2012)

Attachment 9
ENOC-15-00005
(Page 1 of 1)

Entergy Nuclear Operations, Inc.
Status of Decommissioning Funding – James A. Fitzpatrick
For Year Ending December 31, 2014 - 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) (2014\$)	\$ 651.63 million ^[Note]
2. ISFSI Obligation as of 12/31/14	\$ 3.03 million
3. Decommissioning Trust Fund Total as of 12/31/14	\$ 738.34 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: Calculation of the NRC Minimum Amount is provided in Attachment 10.

Attachment 10
ENOC-15-00005
(Page 1 of 1)

Entergy Nuclear Operations, Inc.
Calculation of Minimum Amount – James A. Fitzpatrick
For Year Ending December 31, 2014 - 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)	2.66 ¹
E=Energy (BWR)	2.25 ²
B=Waste Burial-Vendor (BWR)	14.160 ³

BWR Escalation Factor:

$$0.65(L) + 0.13(E) + 0.22(B) = 5.13807$$

1986 BWR Base Year \$ Escalated:

$$\$126,824,000 * \text{Factor} = \$651,631,192$$

¹ Bureau of Labor Statistics, Series Report ID: CIU201000000210i (4th Quarter 2014)
² Bureau of Labor Statistics, Series Report ID: wpu0543 and wpu0573 (December 2014)
³ Nuclear Regulatory Commission: NUREG-1307 Revision 15, Table 2.1 (2012)

Entergy Nuclear Operations, Inc.
Status of Decommissioning Funding – Palisades
For Year Ending December 31, 2014 - 10 CFR 50.75(f)(1)

Plant Name: **Palisades Nuclear Plant**

1. Minimum Financial Assurance (MFA) estimated per 10 CFR 50.75(b) and (c) (2014\$)	\$ 484.94 million ^[Note]
	\$ 3.97 million
2. ISFSI Obligation as of 12/31/14	
3. Decommissioning Trust Fund Total as of 12/31/14	\$ 384.16 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: Calculation of the NRC Minimum Amount is provided in Attachment 12.

Entergy Nuclear Operations, Inc.
Calculation of Minimum Amount – Palisades
For Year Ending December 31, 2014 - 10 CFR 50.75(f)(1)

Entergy Nuclear Palisades LLC.: 100% ownership interest

Plant Location: Covert, Michigan

Reactor Type: Pressure Water Reactor (“PWR”)

Power Level: <3,400 MWt (2565 MWt)

PWR Base Year 1986\$: \$97,572,000

Labor Region: Midwest

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 (Midwest)	2.50 ¹³
E=Energy (PWR)	2.22 ¹⁴
B=Waste Burial-Vendor (PWR)	13.885 ¹⁵

PWR Escalation Factor:

$$0.65(L) + 0.13(E) + 0.22(B) = 4.97006$$

1986 PWR Base Year \$ Escalated:

$$\$97,572,000 * \text{Factor} = \$484,939,114$$

¹³ Bureau of Labor Statistics, Series Report ID: CIU201000000230i (4th Quarter 2014)

¹⁴ Bureau of Labor Statistics, Series Report ID: wpu0543 and wpu0573 (December 2014)

¹⁵ Nuclear Regulatory Commission: NUREG-1307 Revision 15, Table 2.1 (2012)

Attachment 13
ENOC-15-00005
(Page 1 of 1)

Entergy Nuclear Operations, Inc.
Status of Decommissioning Funding – Big Rock Point
For Year Ending December 31, 2014 - 10 CFR 50.75(f)(1)

Plant Name: **Big Rock Point ISFSI**

- | | |
|---|--|
| 1. Amount of decommissioning funds required from most recent estimate (2014 dollars). | \$ 1.63 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 13, 2012, Accession No. ML12352A126. Adjusted for inflation.

Entergy Nuclear Operations, Inc.
IP1 DTF Balance Based on Decommissioning Funding Assurance Plan
For Year Ending December 31, 2014 - 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 2075, at which time the plant will be decommissioned and the site released for alternative use without restriction. Table 14-1 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).

Attachment 14
ENOC-15-00005
 (Page 2 of 4)

Entergy Nuclear Operations, Inc.
IP1 DTF Balance Based on Decommissioning Funding Assurance Plan
For Year Ending December 31, 2014 - 10 CFR 50.75(f)(1)

Table 14-1		
NRC License Termination Cost		
(\$ millions)		
	2014 \$ Unit	Ending DTF
	1 Radiological	Balance
2014		414.436
2015	0.946	421.778
2016	3.784	426.429
2017	3.784	431.174
2018	3.795	436.002
2019	3.784	440.938
2020	3.784	445.972
2021	3.784	451.108
2022	3.795	456.335
2023	3.784	461.677
2024	3.784	467.126
2025	3.784	472.685
2026	3.795	478.344
2027	3.784	484.126
2028	3.784	490.024
2029	3.784	496.040
2030	3.795	502.167
2031	3.784	508.426
2032	3.784	514.810
2033	3.784	521.322
2034	3.795	527.953
2035	3.784	534.728
2036	3.784	541.638
2037	3.784	548.687
2038	3.795	555.866
2039	3.784	563.199
2040	3.784	570.678
2041	3.784	578.307
2042	3.795	586.079
2043	3.784	594.016
2044	3.784	602.112
2045	3.784	610.370
2046	3.795	618.783
2047	3.784	627.374
2048	3.784	636.137
2049	3.784	645.075

Attachment 14
ENOC-15-00005
(Page 3 of 4)

Entergy Nuclear Operations, Inc.
IP1 DTF Balance Based on Decommissioning Funding Assurance Plan
For Year Ending December 31, 2014 - 10 CFR 50.75(f)(1)

2050	3.795	654.182
2051	3.784	663.481
2052	3.784	672.967
2053	3.784	682.642
2054	3.795	692.500
2055	3.784	702.565
2056	3.784	712.832
2057	3.784	723.305
2058	3.795	733.976
2059	3.784	744.871
2060	3.795	755.974
2061	3.784	767.309
2062	3.784	778.871
2063	3.784	790.664
2064	3.795	802.683
2065	27.795	790.941
2066	61.062	745.698
2067	102.265	658.346
2068	109.050	562.464
2069	15.701	558.012
2070	15.900	553.272
2071	15.900	548.437
2072	15.944	543.461
2073	7.841	546.489
Total	557.974	

Attachment 14
ENOC-15-00005
(Page 4 of 4)

Entergy Nuclear Operations, Inc.
IP1 DTF Balance Based on Decommissioning Funding Assurance Plan
For Year Ending December 31, 2014 - 10 CFR 50.75(f)(1)

As can be seen from the information provided in Table 14-1, the required funding for SAFSTOR decommissioning, \$557.97 million, is greater than the NRC formula amount per 10 CFR 50.75(b) and 1(c) of \$434.07 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, 2014 DTF balance is escalated at the allowable rate and compared against the annual figures for the SAFSTOR period, an approximately \$546.49 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.

Entergy Nuclear Operations, Inc.
Vermont Yankee Annual Cash Flow Analysis
For Year Ending December 31, 2014 - 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 \$665 million as of December 31, 2014. 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 15-1.

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 \$225 million) will be funded from the decommissioning trust fund, assuming that Entergy Nuclear Operations, Inc. obtains an exemption that allows the use of trust funds for spent fuel management activities.

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 15-1 below provides the annual license termination and spent fuel management 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).

Thus, considering the fund balance of \$665 million, as of December 31, 2014, and projected fund earnings during the SAFSTOR period (assuming an annual 2% growth rate), the trust fund

Attachment 15
ENOC-15-00005
 (Page 2 of 5)

Entergy Nuclear Operations, Inc.
Vermont Yankee Annual Cash Flow Analysis
For Year Ending December 31, 2014 - 10 CFR 50.75(f)(1)

is expected to have an excess of \$181.26 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," BNY 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)," BNY 14-085, dated December 19, 2014 (Accession No. ML14358A251).

Table 15-1									
Vermont Yankee Nuclear Power Station - SAFSTOR Methodology									
Annual Cash Flow Analysis - Total License Termination, Spent Fuel Management less Dry Fuel Costs									
(In Millions in 2014 Dollars) (see column definitions below)									
Year	Column 1 50.75 License Termination Cost (millions)	Column 2 50.54 (bb) Spent Fuel Management Cost (millions)	Column 3 Exclude Dry Fuel Spent Fuel Management Cost (millions)	Column 4 License Termination Cost plus Spent Fuel Management Cost less Dry Fuel Cost (millions)	Column 5 Beginning of Year Trust Fund Balance (millions)	Column 6 Withdraw (millions)	Column 7 Contribute (millions)	Column 8 Trust Fund Earnings (millions)	Column 9 Year Ending Trust Fund Balance (millions)
2015	96,362	14,319	10,001	100,680	664,558	100,680*	0	11,278	575,155
2016	36,126	29,506	7,613	58,018	575,155	58,018	0	10,343	527,480
2017	10,823	49,049	28,873	31,000	527,480	31,000	0	9,930	506,409
2018	9,548	62,330	41,644	30,235	506,409	30,235	0	9,523	485,698
2019	8,173	59,684	39,516	28,342	485,698	28,342	0	9,147	466,503
2020	17,763	20,745	10,420	28,088	466,503	28,088	0	8,768	447,183
2021	5,241	3,996		9,237	447,183	9,237	0	8,759	446,705
2022	5,191	3,996		9,187	446,705	9,187	0	8,750	446,269
2023	5,191	3,996		9,187	446,269	9,187	0	8,742	445,824
2024	3,650	4,007		7,657	445,824	7,657	0	8,763	446,930
2025	3,591	3,996		7,587	446,930	7,587	0	8,787	448,130
2026	3,733	3,996		7,729	448,130	7,729	0	8,808	449,209
2027	3,783	3,996		7,779	449,209	7,779	0	8,829	450,259
2028	3,742	4,007		7,749	450,259	7,749	0	8,850	451,361

Attachment 15
ENOC-15-00005
(Page 3 of 5)

Entergy Nuclear Operations, Inc.
Vermont Yankee Annual Cash Flow Analysis
For Year Ending December 31, 2014 - 10 CFR 50.75(f)(1)

2029	3,733	3,996		7,729	451,361	7,729	0	8,873	452,505
2030	3,783	3,996		7,779	452,505	7,779	0	8,895	453,621
2031	3,733	3,996		7,729	453,621	7,729	0	8,918	454,810
2032	3,742	4,007		7,749	454,810	7,749	0	8,941	456,002
2033	3,783	3,996		7,779	456,002	7,779	0	8,964	457,188
2034	3,733	3,996		7,729	457,188	7,729	0	8,989	458,448
2035	3,733	3,996		7,729	458,448	7,729	0	9,014	459,734
2036	3,792	4,007		7,799	459,734	7,799	0	9,039	460,974
2037	3,733	3,996		7,729	460,974	7,729	0	9,065	462,310
2038	3,733	3,996		7,729	462,310	7,729	0	9,092	463,673
2039	3,783	3,996		7,779	463,673	7,779	0	9,118	465,012
2040	3,742	4,007		7,749	465,012	7,749	0	9,145	466,409
2041	3,733	3,996		7,729	466,409	7,729	0	9,174	467,853
2042	3,783	3,996		7,779	467,853	7,779	0	9,201	469,276
2043	3,733	3,996		7,729	469,276	7,729	0	9,231	470,778
2044	3,742	4,007		7,749	470,778	7,749	0	9,261	472,290
2045	3,783	3,996		7,779	472,290	7,779	0	9,290	473,802
2046	3,733	3,996		7,729	473,802	7,729	0	9,321	475,394
2047	3,733	3,996		7,729	475,394	7,729	0	9,353	477,019
2048	3,792	4,007		7,799	477,019	7,799	0	9,384	478,605
2049	3,733	3,996		7,729	478,605	7,729	0	9,418	480,293
2050	3,733	3,996		7,729	480,293	7,729	0	9,451	482,016
2051	3,783	3,996		7,779	482,016	7,779	0	9,485	483,722
2052	3,742	4,007		7,749	483,722	7,749	0	9,519	485,493
2053	3,583	0		3,583	485,493	3,583	0	9,638	491,548
2054	3,633	0		3,633	491,548	3,633	0	9,758	497,674
2055	3,583	0		3,583	497,674	3,583	0	9,882	503,973
2056	3,591	0		3,591	503,973	3,591	0	10,008	510,389
2057	3,633	0		3,633	510,389	3,633	0	10,135	516,892
2058	3,583	0		3,583	516,892	3,583	0	10,266	523,575
2059	3,583	0		3,583	523,575	3,583	0	10,400	530,393
2060	3,641	0		3,641	530,393	3,641	0	10,535	537,286
2061	3,583	0		3,583	537,286	3,583	0	10,674	544,378
2062	3,583	0		3,583	544,378	3,583	0	10,816	551,611
2063	3,633	0		3,633	551,611	3,633	0	10,960	558,938
2064	3,591	0		3,591	558,938	3,591	0	11,107	566,453
2065	3,583	0		3,583	566,453	3,583	0	11,257	574,128
2066	3,633	0		3,633	574,128	3,633	0	11,410	581,906

Attachment 15
ENOC-15-00005
 (Page 4 of 5)

Entergy Nuclear Operations, Inc.
Vermont Yankee Annual Cash Flow Analysis
For Year Ending December 31, 2014 - 10 CFR 50.75(f)(1)

2067	3,583	0		3,583	581,906	3,583	0	11,566	589,889
2068	43,277	0		43,277	589,889	43,277	0	10,932	557,545
2069	92,030	0		92,030	557,545	92,030	0	9,310	474,825
2070	104,519	0		104,519	474,825	104,519	0	7,406	377,713
2071	84,524	0		84,524	377,713	84,524	0	5,864	299,053
2072	84,953	0		84,953	299,053	84,953	0	4,282	218,382
2073	50,139	0		50,139	218,382	50,139	0	3,365	171,607
2074	512	0		512	171,607	512	0	3,422	174,518
2075	295	0		295	174,518	295	0	3,484	177,707
2076	0	0		0	177,707	0	0	3,554	181,261
	817,219	363,595	138,066	1,042,748	664,558	1,042,748	0	559,451	181,261

* As noted in Attachment 5 above, 2014 costs were paid out of operating funds and are planned to be repaid from the nuclear decommissioning trust in 2015 or later. For purposes only of this filing, the Column 6 withdrawal amount for 2015 assumes all of the 2014 decommissioning expenditures (approximately \$15.2 million) will be withdrawn in from the decommissioning trust in 2015.

As can be seen from the information provided in Table 15-1, the required funding for SAFSTOR decommissioning, \$817.2 million, is greater than the NRC formula amount per 10 CFR 50.75(b) and 1(c) of \$622.8 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, 2014 DTF balance is escalated at the allowable rate and compared against the annual figures for the SAFSTOR period, an approximately \$188.7 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 15-1 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

Entergy Nuclear Operations, Inc.
Vermont Yankee Annual Cash Flow Analysis
For Year Ending December 31, 2014 - 10 CFR 50.75(f)(1)

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 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 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)

**Attachment 16
ENOC-15-00005
(Page 1 of 7)**

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

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

	Month	Day	Year
Year of Biennial:	12	31	2014
Termination of Operation:	9	28	2013

	<u>MWth</u>	<u>1986\$</u>	<u>ECI</u>	<u>Base Lx</u>		<u>Lx</u>	<u>Px</u>	<u>Fx</u>		<u>Ex</u>		<u>Bx</u>
PWR	615	\$85,560,000	123.2	2.16	0.65	2.66	1.880	2.695	0.13	2.22	0.22	13.885

NRC Minimum: \$434,074,654 Site Specific: \$565,542,258

<u>Licensee:</u>	<u>% Owned:</u>	<u>Amount of NRC Minimum/Site Specific:</u>	<u>Amount in Trust Fund:</u>
Entergy	100.00%	\$565,542,258	\$414,435,517

Note: See Attachment 14 for adequacy of the trust fund.

Attachment 16
ENOC-15-00005
 (Page 2 of 7)

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 2014**
 Termination of Operation: **9 28 2013**

	MWth	1986\$	ECl	Base Lx		Lx	Px	Fx		Ex		Bx
PWR	3216	\$103,300,800	123.2	2.16	0.65	2.66	1.880	2.695	0.13	2.22	0.22	13.885

NRC Minimum: \$524,079,698 Site Specific:

Licensee:	% Owned:	Amount of NRC Minimum/Site Specific:	Amount in Trust Fund:
Entergy	100.00%	\$524,079,698	\$529,407,345

Step 1:

Earnings Credit:

Trust Fund Balance:	Real Rate of Return per	Years Left in License	Total Real Rate of	Total Earnings:	
\$529,407,345	2%	0.00	1.00000	\$529,407,345	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

Total Annuity	Real Rate of Return per	Years remaining after annuity	Total Step 2
\$0	2%	0	\$0

Total Step 1 + Step 2
\$529,407,345

Step 3:

Decom Period:

Total Earnings:	Real Rate of Return per	Decom Period:	Total Real Rate of	Total Earnings for Decom:	
\$529,407,345	2%	7	0.14869	\$39,357,642	Total Earnings for Decom = (1/2) x Total Earnings x [(1+RRR)^Decom period - 1]

Total of Steps 1 - 3:
\$568,764,988
Total = Total Earnings + Total Earnings for Decom

Excess (Shortfall)	\$	44,685,289	to NRC minimum
	\$	(1,880,084)	Less ISFSI
	\$	-	Parent Co Guaranty
	\$	42,805,205	Total Excess Financial Assurance

**Attachment 16
ENOC-15-00005
(Page 3 of 7)**

**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	2014
Termination of Operation:	12	12	2015

	MWth	1986\$	ECI	Base Lx		Lx	Px	Fx		Ex		Bx
PWR	3216	\$103,300,800	123.2	2.16	0.65	2.66	1.880	2.695	0.13	2.22	0.22	13.885

NRC Minimum: \$524,079,698 **Site Specific:**

Licensee:	% Owned:	Amount of NRC Minimum/Site Specific:	Amount in Trust Fund:
Entergy	100.00%	\$524,079,698	\$676,645,001

**Step 1:
Earnings Credit:**

Trust Fund Balance:	Real Rate of Return per	Years Left in License	Total Real Rate of	Total Earnings:	
\$676,645,001	2%	0.95	1.01895	\$689,466,817	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:	
\$689,466,817	2%	7	0.14869	\$51,256,917	Total Earnings for Decom = (1/2) x Total Earnings x [(1+RRR)^Decom period - 1]

Total of Steps 1 - 3:	
\$740,723,734	Total = Total Earnings + Total Earnings for Decom

Excess (Shortfall)	\$ 216,644,036	to NRC minimum
	-	Less ISFSI
	-	Parent Co Guaranty
	\$ 214,568,952	Total Excess Financial Assurance

**Attachment 16
ENOC-15-00005
(Page 4 of 7)**

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

Plant name: Vermont Yankee Power Station

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

	MWth	1986\$	ECI	Base Lx		Lx	Px	Fx		Ex		Bx
BWR	1912	\$121,208,000	123.2	2.16	0.65	2.66	1.880	2.695	0.13	2.25	0.22	14.16

NRC Minimum: \$622,775,764 Site Specific: \$817,219,461

Licensee:	% Owned:	Amount of NRC Minimum/Site Specific:	Amount in Trust Fund:
Entergy	100.00%	\$817,219,461	\$664,557,695

Note: See Attachment 15 for adequacy of the trust fund.

**Attachment 16
ENOC-15-00005
(Page 5 of 7)**

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

Plant name: Pilgrim Nuclear Generating Station

Year of Biennial: Month 12 Day 31 Year 2014
Termination of Operation: 6 8 2032

	MWth	1986\$	ECI	Base Lx		Lx	Px	Fx		Ex		Bx
BWR	2028	\$122,252,000	123.2	2.16	0.65	2.66	1.880	2.695	0.13	2.25	0.22	14.16

NRC Minimum: \$628,139,915 Site Specific:

Licensee:	% Owned:	Amount of NRC Minimum/Site Specific:	Amount in Trust Fund:
Entergy	100.00%	\$628,139,915	\$896,423,410

**Step 1:
Earnings Credit:**

Trust Fund Balance:	Real Rate of Return per	Years Left in License	Total Real Rate of	Total Earnings:	
\$896,423,410	2%	17.44	1.41241	\$1,266,118,244	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:	
\$1,266,118,244	2%	7	0.14869	\$94,126,818	Total Earnings for Decom = (1/2) x Total Earnings x [(1+RRR)^Decom period - 1]

Total of Steps 1 - 3:	
\$1,360,245,062	Total = Total Earnings + Total Earnings for Decom

Excess (Shortfall)	\$	732,105,147	to NRC minimum
	\$	(2,885,155)	Less ISFSI
	\$	-	Parent Co Guaranty
	\$	729,219,993	Total Excess Financial Assurance

**Attachment 16
ENOC-15-00005
(Page 6 of 7)**

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

Plant name:

James A. FitzPatrick

	Month	Day	Year
Year of Biennial:	12	31	2014
Termination of Operation:	10	17	2034

	MWth	1986\$	ECI	Base Lx		Lx	Px	Fx		Ex		Bx
BWR	2536	\$126,824,000	123.2	2.16	0.65	2.66	1.880	2.695	0.13	2.25	0.22	14.16

NRC Minimum: \$651,631,192 Site Specific:

Licensee:	% Owned:	Amount of NRC Minimum/Site Specific:	Amount in Trust Fund:
Entergy	100.00%	\$651,631,192	\$738,342,800

**Step 1:
Earnings Credit:**

Trust Fund Balance:	Real Rate of Return per	Years Left in License	Total Real Rate of	Total Earnings:	
\$738,342,800	2%	19.79	1.47993	\$1,092,693,219	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:	
\$1,092,693,219	2%	7	0.14869	\$81,233,910	Total Earnings for Decom = (1/2) x Total Earnings x [(1+RRR)^Decom period - 1]

Total of Steps 1 - 3:	
\$1,173,927,130	Total = Total Earnings + Total Earnings for Decom

Excess (Shortfall)	\$ 522,295,937	to NRC minimum
	(3,026,996)	Less ISFSI
	-	Parent Co Guaranty
	\$ 519,268,941	Total Excess Financial Assurance

**Attachment 16
ENOC-15-00005
(Page 7 of 7)**

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

Plant name: Palisades Nuclear Plant

Year of Biennial: Month 12 Day 31 Year 2014
Termination of Operation: 3 24 2031

	MWth	1986\$	ECI	Base Lx		Lx	Px	Fx		Ex		Bx
PWR	2565	\$97,572,000	120.3	2.08	0.65	2.50	1.880	2.695	0.13	2.22	0.22	13.885

NRC Minimum: \$484,939,114 **Site Specific:**

Licensee:	% Owned:	Amount of NRC Minimum/Site Specific:	Amount in Trust Fund:
Entergy	100.00%	\$484,939,114	\$384,160,403

**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
\$384,160,403	2%	16.23	1.37907	\$529,785,972	

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]
\$529,785,972	2%	7	0.14869	\$39,385,791	

Total of Steps 1 - 3:	
\$569,171,763	Total = Total Earnings + Total Earnings for Decom

Excess (Shortfall)	\$	84,232,649	to NRC minimum
	\$	(3,970,503)	Less ISFSI
	\$	-	Parent Co Guaranty
	\$	80,262,147	Total Excess Financial Assurance