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April 24, 2008
BVY 08-022

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

- References:
- (1) Letter, Entergy to USNRC, Report Pursuant to 10CFR50.54(bb), BVY 07-007, dated March 21, 2007.
 - (2) Letter, USNRC to Entergy, Request for Additional Information to Support the Review of the Vermont Yankee Spent Fuel Management Plan Pursuant to 10CFR50.54(bb), NVY 08-030, dated March 12, 2008.
 - (3) Letter, Entergy to USNRC, Report Pursuant to 10CFR50.75(f)(3), BVY 08-010, dated February 6, 2008.
 - (4) Letter, USNRC to Entergy, Request for Additional Information to Support the Review of the Vermont Yankee Nuclear Power Station Preliminary Cost Estimate Pursuant to 10CFR50.75(f)(3), NVY 08-033, dated March 25, 2008.

**Subject: Vermont Yankee Nuclear Power Station
License No. DPR-28 (Docket No. 50-271)
Response to Request for Additional Information**

Dear Sir or Madam,

In References (2) and (4), NRC requested additional information pertaining to our Reference (1) and (3) submittals. Reference (1) concerns how Vermont Yankee (VY) intends to manage and provide funding for irradiated fuel until title to the irradiated fuel is transferred to the Department of Energy. Reference (3) provided a preliminary decommissioning plan and cost estimate.

Per discussion with NRC staff, the attachment to this letter provides VY's combined responses to the staff's questions contained in References (2) and (4).

There are no new regulatory commitments being made in this submittal.

Should you have any questions concerning this submittal, please contact Mr. David J. Mannai at (802) 451-3304.

Sincerely,

Ted A. Sullivan
Site Vice President
Vermont Yankee Nuclear Power Station

Attachments (2)
cc listing (next page)

A001
LLR

cc: Mr. Samuel J. Collins, Regional Administrator
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Mr. James S. Kim, Project Manager
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Mr. David O'Brien, Commissioner
VT Department of Public Service
112 State Street – Drawer 20
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Docket No. 50-271
BVY 08-022

Attachment 1

Vermont Yankee Nuclear Power Station
Response to Request for Additional Information

Spent Fuel Management Plan - 10CFR50.54(bb)

**VERMONT YANKEE NUCLEAR POWER STATION
SPENT FUEL MANAGEMENT PLAN – RAI Response
DOCKET NO. 50-271**

RAI No. 1:

Table 2 entitled, "Estimated Spent Fuel Management Costs" listed expenditures for the period from 2012 - 2017 at an estimated cost of \$157 million in 2006 dollars. Describe in detail, the \$157.0 million in expenditures for the period from 2012- 2017. Since Table 2 identified these costs as spent fuel management costs, how are these costs to be funded recognizing the decommissioning trust fund is required by NRC regulations, 10 CFR 50.75, for radiological decommissioning and not for spent fuel management costs or other non-radiological costs?

RESPONSE:

The line items contributing to \$157 million (actually \$156.4) are identified in the following table. The table is an excerpt from the detailed cost table D-1, Scenario 5 in the TLG Services report entitled "Decommissioning Cost Analysis for the Vermont Yankee Nuclear Power Station," issued in January 2007 (TLG Document No. E11-1559-002). Additional detail for the line items identified as "Spent Fuel Capital and Transfer" can be found in Table 4 of the Program for Maintenance of Irradiated Fuel. The first six line items in Table 4 (equating to a total of approximately \$90 million) are assumed to be spent over the years 2012 to 2017 on Independent Spent Fuel Storage Installation (ISFSI) construction and relocation of the spent fuel residing in the spent fuel storage pool at the time of shutdown to the ISFSI. The remaining \$67 million is associated with site operating costs, fees and allocation of the site staff to spent fuel management in Period 2a.

At this time, based on expectations from historical earnings on the entirety of the decommissioning trust fund, Entergy VY plans to use funds from the decommissioning trust fund to cover spent fuel management costs. Based upon historical earnings (since Entergy VY acquired the fund on July 31, 2002), the decommissioning trust fund will have sufficient money to safely manage the spent fuel until the DOE is able to remove it from the site and remediate the site to levels whereby the operating license can be terminated and the site made available for alternative and unrestricted use (based upon Scenario 5 as outlined in the TLG study).

Entergy VY has formally filed its request to continue operating for 20 years past its scheduled 2012 license expiration date with both the NRC and the State of Vermont. A final NRC decision on whether to extend Vermont Yankee's license could come later this year. Extended operations of the reactor will defer the need to access the decommissioning fund, allowing more time for the fund to grow. With a larger decommissioning fund, there will be additional and financially viable decommissioning options (even at lower rates of earnings). However, contributing to the fund prior to the decision on license extension creates the possibility for over funding. Entergy VY will revisit the financial adequacy of the decommissioning trust once the license end date has been confirmed, in accordance with the flexibility in fund accumulation rates described in

Regulatory Position 2.2.8 in Regulatory Guide 1.159, Rev. 1. Entergy VY plans to review the adequacy of the funding in light of the then-existing license termination date once the license renewal request is resolved. If at that time, funding is not deemed adequate, Entergy VY will take steps in accordance with 10CFR50.75(e)(1) to address any inadequacy.

It should be noted that the projected expenditures for spent fuel management identified in the decommissioning cost analysis do not consider the outcome of the litigation (including compensation for damages) with the Department of Energy (DOE) with regard to the delays incurred by Entergy VY in the timely removal of the spent fuel from the site. Entergy VY views the extended spent fuel management costs to be damages that should be paid by the government because of the Department of Energy's breach of the spent fuel disposal contract.

Extract from Table D-1
Vermont Yankee Nuclear Power Station
Scenario 5: 2012 Shutdown, SAFSTOR Alternative, 2017 DOE Start Date
(thousands of 2006 dollars)

Activity	Spent Fuel Management	
Index	Activity Description	Costs
PERIOD 1a - Shutdown through Transition		
Period start date: March, 2012		
Period end date: March, 2013		
Period duration: 11.99 months		
Period 1a Collateral Costs		
1a.3.1	Spent Fuel Capital and Transfer	11,269
Period 1a Period-Dependent Costs		
1a.4.8	Emergency Planning Fees	3,929
1a.4.10	Spent Fuel Pool O&M	1,158
1a.4.11	ISFSI Operating Costs	122
PERIOD 1b - SAFSTOR Limited DECON Activities		
Period start date: March, 2013		
Period end date: June, 2013		
Period duration: 3.02 months		
Period 1b Collateral Costs		
1b.3.4	Spent Fuel Capital and Transfer	2,383
Period 1b Period-Dependent Costs		
1b.4.9	Emergency Planning Fees	30
1b.4.11	Spent Fuel Pool O&M	292
1b.4.12	ISFSI Operating Costs	31
PERIOD 1c - Preparations for SAFSTOR Dormancy		
Period start date: June, 2013		
Period end date: September, 2013		
Period duration: 3.06 months		
Period 1c Additional Costs		
1c.2.2	Spent Fuel Pool Isolation	9,200

Extract from Table D-1 (continued)
Vermont Yankee Nuclear Power Station
Scenario 5: 2012 Shutdown, SAFSTOR Alternative, 2017 DOE Start Date
(thousands of 2006 dollars)

Activity	Spent Fuel Management	
Index	Activity Description	Costs
Period 1c Collateral Costs		
1c.3.3	Spent Fuel Capital and Transfer	2,409
Period 1c Period-Dependent Costs		
1c.4.8	Emergency Planning Fees	30
1c.4.10	Spent Fuel Pool O&M	295
1c.4.11	ISFSI Operating Costs	31
PERIOD 2a – SAFSTOR Dormancy with Wet Spent Fuel Storage		
Period start date: September, 2013		
Period end date: September, 2017		
Period duration: 47.9 months		
Period 2a Collateral Costs		
2a.3.1	Spent Fuel Capital and Transfer	71,539
Period 2a Period-Dependent Costs		
2a.4.1	Insurance	2,982
2a.4.5	Plant energy budget	680
2a.4.7	Emergency Planning Fees	470
2a.4.8	Corporate A&G	7,336
2a.4.9	Spent Fuel Pool O&M	4,627
2a.4.10	ISFSI Operating Costs	487
2a.4.11	Security Staff Cost	15,119
2a.4.12	Utility Staff Cost	20,248
PERIOD 2b – SAFSTOR Dormancy with Dry Spent Fuel Storage		
Period start date: September, 2017		
Period end date: December, 2017		
Period duration: 3.68 months		
Period 2b Collateral Costs		
2b.3.1	Spent Fuel Capital and Transfer	80

Extract from Table D-1 (continued)
Vermont Yankee Nuclear Power Station
Scenario 5: 2012 Shutdown, SAFSTOR Alternative, 2017 DOE Start Date
(thousands of 2006 dollars)

		Spent Fuel
Activity		Management
Index	Activity Description	Costs
Period 2b Period-Dependent Costs		
2b.4.1	Insurance	209
2b.4.5	Plant energy budget	26
2b.4.7	Emergency Planning Fees	36
2b.4.8	Corporate A&G	56
2b.4.9	ISFSI Operating Costs	37
2b.4.10	Security Staff Cost	465
2b.4.11	Utility Staff Cost	869
TOTAL		156,444

RAI No. 2:

While the submittal identified the expenses associated with spent fuel storage, it did not include in the plan a mechanism for funding for the spent fuel costs. Section 5.2 entitled, "Financial Assurance" listed the balance in the decommissioning trust fund as of December 31, 2006, as \$416.5 million.

For planning purposes, NRC regulations allow a licensee to take a 2% real rate of return credit on investments unless a higher rate is authorized by a regulated licensee's public utility commission. Vermont Yankee (VY) is not rate regulated, so the staff applied a 2% real rate of return on the trust fund balance (\$416.5 million) based on the regulation and deducted the expenses identified in Table 3, "Estimated Combined License Termination and Spent Fuel Management Costs." The results were that sufficient funds were not available to decommission VY. If the Table 2, "Estimated Spent Fuel Management Costs" were not included in the staff's analysis, sufficient funds are projected to be available to decommission VY based on the formula amount.

VY makes the statement that even taking out spent fuel expenses, sufficient funds would be available for decommissioning VY based on an after tax rate of return of 5.59% with an inflation rate of 3% or a rate of return of 6.62% with an inflation rate of 4%. In addition to assuming a real rate of return of greater than 2%, does this analysis take into account the \$157.0 million spent from 2012 - 2017, and the annual costs of approximately \$6.2 million for the period 2018-2043. What are the bases for the greater than 2 % real rate of return, assumed by VY, notwithstanding the limit of a 2 % real rate set by the applicable regulation?

RESPONSE:

The analysis took into account the \$157.0 million spent from 2012 - 2017, and the annual costs of approximately \$6.2 million for the period 2018-2043. As shown in the following table, the schedule of expenditures from Table 3 (which included both license termination and spent fuel management costs) was used as a basis to determine the rate of return required to fund Scenario 5 as delineated in the "Decommissioning Cost Analysis for the Vermont Yankee Nuclear Power Station," issued in January 2007 by TLG Services, Inc.

Entergy VY's bases for employing a real rate of return greater than 2% are that (1) resolution is expected in the very near future of Entergy's request for a renewed operating license for VY, which will allow an additional 20 years of growth of the trust funds, and (2) the historical performance of the trust funds has exceeded the 2% figure. See also Entergy VY's response to RAI #1 above.

At the time the calculation was performed, Entergy VY's historic average annual rate of earnings on the decommissioning trust fund (since Entergy VY acquired the fund on July 31, 2002) exceeded 5.59%. Actual annualized composite rate of return for the Vermont Yankee decommissioning fund, from July 31, 2002 to December 31, 2007, after tax, was 6.05%. As such, the scenario is deemed to be financially viable.

Entergy VY believes that it is reasonable to consider historic fund performance for this filing in the limited situation where the constraint on remaining license life is the absence of a final decision in the pending license renewal application request, where the final Safety Evaluation Report (SER) has been approved and the Advisory Committee on Reactor Safeguards (ACRS) has recommended license renewal. If these bases are not considered sufficient, some decommissioning activities could be deferred, and credit can be taken for funds in the amount of the current parent company commitment that has been made of up to \$60 million for spent fuel management. If needed, this money could be deposited into the decommissioning trust or a provisional trust as late as year 2026 to cover decommissioning and spent fuel storage costs. As discussed further in the response to RAI No. 2 on Vermont Yankee's Preliminary Decommissioning Cost Estimate (Attachment 2 / page 2), adequate funding would be available with a 2 percent real rate of return on earnings on the trust fund.

Entergy VY believes it should be given a reasonable amount of time to resolve any shortfall in the funding calculated using the existing license expiration date in accordance with Regulatory Position 2.2.8 in NRC Regulatory Guide 1.159 Rev. 1. Entergy VY believes a reasonable amount of time in this instance would encompass the time required for the decision on the license renewal request. If deemed necessary, Entergy VY would expressly request a finding that its use of the rate of return in its filing meets the NRC's requirements, pursuant to 10 CFR 50.75(e)(1)(vi), under the specific circumstances presented here with a decision on a license renewal to be rendered in the near future.

Funding Requirements to Equal Expected Expenditures				
Scenario 5: 2012 SAFSTOR [License Termination & Spent Fuel Expenditures]				
Basis Year	2006			
Fund Balance	\$416.54	(millions)		
Annual Escalation	3.00%			
Annual Earnings	5.59%			
Year	Fund Balance	Table 3 Costs	Escalated Table 3 Costs	Present Value of Escalated Costs
2006	416.54			
2007	439.82		-	-
2008	464.41		-	-
2009	490.37		-	-
2010	517.78		-	-
2011	546.73		-	-
2012	523.59	44.97	53.70	38.74
2013	474.94	63.36	77.92	53.25
2014	461.62	31.47	39.87	25.80
2015	446.36	31.47	41.06	25.17
2016	428.90	31.56	42.41	24.62
2017	420.14	23.65	32.74	18.00
2018	434.26	6.57	9.37	4.88
2019	449.44	6.19	9.09	4.48
2020	464.84	6.43	9.73	4.54
2021	480.71	6.49	10.11	4.47
2022	497.17	6.49	10.41	4.36
2023	514.35	6.42	10.61	4.21
2024	532.28	6.36	10.83	4.07
2025	550.91	6.34	11.12	3.96
2026	570.26	6.34	11.45	3.86
2027	590.34	6.34	11.79	3.76
2028	611.16	6.36	12.19	3.68
2029	632.97	6.26	12.35	3.54
2030	655.46	6.34	12.89	3.49
2031	678.83	6.34	13.27	3.41
2032	703.40	6.20	13.37	3.25
2033	728.82	6.26	13.91	3.20
2034	755.24	6.26	14.32	3.12
2035	782.32	6.42	15.13	3.12
2036	810.81	6.28	15.24	2.98
2037	840.29	6.34	15.85	2.94
2038	870.93	6.34	16.33	2.86
2039	902.80	6.34	16.82	2.79
2040	935.89	6.36	17.37	2.73

Funding Requirements to Equal Expected Expenditures (continued)				
Scenario 5: 2012 SAFSTOR [License Termination & Spent Fuel Expenditures]				
Basis Year	2006			
Fund Balance	\$416.54	(millions)		
Annual Escalation	3.00%			
Annual Earnings	5.59%			
Year	Fund Balance	Table 3 Costs	Escalated Table 3 Costs	Present Value of Escalated Costs
2041	970.60	6.26	17.61	2.62
2042	1,005.38	6.72	19.48	2.75
2043	962.50	33.19	99.08	13.24
2044	696.80	103.91	319.50	40.44
2045	476.53	81.85	259.22	31.07
2046	309.04	59.51	194.12	22.04
2047	126.37	59.51	199.95	21.50
2048	1.41	38.15	132.03	13.44
2049	0.03	0.41	1.46	0.14
2050	(0.71)	0.2	0.73	0.07
		762.26	1,824.44	416.60

Docket No. 50-271
BVY 08-022

Attachment 2

Vermont Yankee Nuclear Power Station
Response to Request for Additional Information

Preliminary Decommissioning Cost Estimate - 10CFR50.75(f)

**VERMONT YANKEE NUCLEAR POWER STATION
PRELIMINARY DECOMMISSIONING COST ESTIMATE – RAI Response
DOCKET NO. 50-271**

Background:

If necessary, as required by 10 CFR 50.75(f)(5), the preliminary cost estimate shall also include plans for adjusting levels of funds to demonstrate a reasonable level of assurance that funds will be available to cover the cost of decommissioning.

RAI No. 1:

Entergy's submittal (BVY 08-010) for Vermont Yankee (VY) entitled, "Report Pursuant to 10CFR 50.75(f)(3)" dated February 6, 2008, included a cost estimate for various decommissioning options. Table 3.1, Table 3.3, Table 3.5, and Table 3.7 identified the cost and annual expenditures for each of the selected alternatives. Entergy needs to provide an assessment of the trust fund amount as of December 31, 2007, to determine if sufficient funds would be available to fund the designated scenario.

RESPONSE:

The costs reported in Entergy VY's submittal (BVY 08-010) for Vermont Yankee (VY) entitled, "Report Pursuant to 10 CFR 50.75(f)(3)" dated February 6, 2008, were presented in 2006 dollars. For comparison with a December 2007 trust fund amount, the costs need to be escalated to 2007 dollars. Table 3, "Estimated Combined License Termination and Spent Fuel Management Costs" in Vermont Yankee's Spent Fuel Management Plan presented the costs for Scenario 5, the preferred scenario, in 2006 dollars. Those costs have been escalated to 2007 dollars in Table 1A.

The 2007 cost reported in Table 1A is \$783.66 million. Based upon a December 2007 trust fund balance of \$439.567 million, a rate of return of 5.58% would be required to fund this scenario (license termination and spent fuel management costs). The analysis is provided in Table 1B.

Based upon historical earnings (since Entergy VY acquired the fund on July 31, 2002), the decommissioning trust fund will have sufficient money to safely manage the spent fuel until the Department of Energy (DOE) is able to remove it from the site and remediate the site to levels whereby the operating license can be terminated and the site made available for alternative and unrestricted use. Entergy VY's historic average annual rate of earnings on the decommissioning trust fund since acquisition has exceeded 5.58%. The actual annualized composite rate of return for the Vermont Yankee decommissioning fund, from July 31, 2002 to December 31, 2007, after tax, was 6.05%. Using these assumptions, the scenario is financially viable.

Entergy VY believes that it is reasonable to consider historic fund performance for this filing in the limited situation where the constraint on remaining license life is the absence of a final decision in the pending license renewal application request, where the SER has been completed and the ACRS has recommended license renewal. If these bases are not considered sufficient,

Entergy VY believes it should be given a reasonable amount of time to resolve any shortfall in the funding calculated using the existing license expiration date in accordance with Regulatory Position 2.2.8 in NRC Regulatory Guide 1.159 Rev. 1. Entergy VY believes a reasonable amount of time in this instance would encompass the time required for the decision on the license renewal request. If deemed necessary, Entergy VY would expressly request a finding that its use of the rate of return in its filing meets the NRC's requirements, pursuant to 10 CFR 50.75(e)(1)(vi), under the specific circumstances presented here with a decision on a license renewal to be rendered in the near future.

See also the response to RAI No. 2 below.

RAI No. 2:

While the submittal identified the expenses associated with decommissioning scenarios, it did not include the plan, required by 50.75(f)(5), to adjust funding levels to demonstrate a reasonable level of financial assurance, if necessary.

NRC regulations allow a licensee to take a 2% real rate of return earnings credit on trust balances unless a higher rate is authorized by a regulated licensee's public utility commission. VY is not rate regulated, so the staff applied a 2% real rate of return on the trust fund balance (\$416.5 million as of December 31, 2006) based on the regulation and deducted the expenses identified in submittal. The staff's result for the scenario analyzed was that sufficient funds were not available to decommission VY. The review was based on one of the scenarios that used a current license expiration date of 2012. How does the licensee intend to adjust funding levels, if required?

RESPONSE:

Based upon historical earnings (since Entergy VY acquired the fund on July 31, 2002), the decommissioning trust fund will have sufficient money to safely manage the spent fuel until the DOE is able to remove it from the site and remediate the site to levels whereby the operating license can be terminated and the site made available for alternative and unrestricted use (based upon Scenario 5 as outlined in the TLG study and at least a 2.58% real rate of return on investment).

Entergy VY's bases for employing a real rate of return greater than 2% are that (1) resolution is expected in the very near future of Entergy's request for a renewed operating license for VY, which will allow an additional 20 years of growth of the trust funds, and (2) the historical performance of the trust funds has exceeded the 2% figure.

Entergy VY's historic average annual rate of earnings on the decommissioning trust fund (since Entergy VY acquired the fund on July 31, 2002) has exceeded 5.58%. Actual annualized composite rate of return for the Vermont Yankee decommissioning fund, from July 31, 2002 to December 31, 2007, after tax, was 6.05%.

Entergy VY believes that it is reasonable to consider historic fund performance for this filing in the limited situation where the constraint on remaining license life is the absence of a final decision in the pending license renewal application request, where the SER has been completed and the ACRS has recommended license renewal.

If these bases are not considered sufficient, some decommissioning activities could be deferred, and credit can be taken for funds in the amount of the current parent company commitment that has been made of up to \$60 million for spent fuel management. If needed, this money could be deposited into the decommissioning trust or a provisional trust as late as year 2026 to cover decommissioning and spent fuel storage costs. As discussed further below, Table 2B demonstrates that adequate funding would be available with a 2 percent real rate of return on earnings on the trust fund.

In response to RAI No. 1 on Vermont Yankee's Preliminary Decommissioning Cost Estimate, the 2006 dollar estimate for Scenario 5 was escalated to 2007 dollars (for comparison with the December 2007 trust fund balance of \$439.567). The results are shown in Table 1A.

Scenario 5 was based upon the premise that decommissioning would commence once the spent fuel is removed from the site in 2042. However, current NRC regulations permit decommissioning to be deferred up to 60 years (with the plant's operating license terminated as late as 2072). For illustrative purposes, a 60-year SAFSTOR scenario is shown in Table 2A. This scenario was created by inserting additional years of storage within the Scenario 5 cost model (adjusted for the absence of spent fuel after year 2042). The progression of the cost increases in the original Scenario 5 cost for spent fuel and license termination is delineated as follows:

License Termination and Spent Fuel Management Cost	Year's Dollars	Reference
\$762.28 million	2006	Table 3, "Estimated Combined License Termination and Spent Fuel Management Costs." Vermont Yankee's Spent Fuel Management Plan
\$783.66 million	2007	Table 3 costs escalated to 2007 dollars in response to RAI No. 1 on Vermont Yankee's Preliminary Decommissioning Cost Estimate
\$875.16 million	2007	Storage period extended and decommissioning deferred to maximum extent (additional storage costs included)

As shown in Table 2B, the 60-year SAFSTOR scenario is financially viable using a 3% rate of inflation and 5% rate of earnings (for a 2% real rate of return) with the additional \$60 million added to the trust fund as late as the year 2026. Should the rate of inflation be less or earnings on the fund exceed 5% (as they have historically done), less (or no) money would need to be added to the fund or it could be added later.

Entergy VY believes it should be given a reasonable amount of time to resolve any shortfall in the funding calculated using the existing license expiration date in accordance with Regulatory Position 2.2.8 in NRC Regulatory Guide 1.159 Rev. 1. Entergy VY believes a reasonable amount of time in this instance would encompass the time required for the decision on the license renewal request. If deemed necessary, Entergy VY would expressly request a finding that its use of the rate of return in its filing meets the NRC's requirements, pursuant to 10 CFR 50.75(e)(1)(vi), under the specific circumstances presented here with a decision on a license renewal to be rendered in the near future.

Entergy VY has formally filed its request to continue operating for 20 years past its scheduled 2012 license expiration date with both with the NRC and the State of Vermont. A final NRC decision on whether to extend Vermont Yankee's license could come later this year. Extended operations of the reactor will defer the need to access the decommissioning fund, allowing more time for the fund to grow. With a larger decommissioning fund, there will be additional and financially viable decommissioning options (even at lower rates of earnings). However, contributing to the fund prior to the decision on license extension creates the possibility for over funding. Entergy VY will revisit the financial adequacy of the decommissioning trust once the license end date has been confirmed, in accordance with the flexibility in fund accumulation rates described in Regulatory Position 2.2.8 in Regulatory Guide 1.159, Rev. 1. Entergy VY plans to review the adequacy of the funding in light of the then-existing license termination date once the license renewal request is resolved. If at that time, funding is not deemed adequate, Entergy VY will take steps in accordance with 10CFR50.75(e)(1) to address any inadequacy.

It should be noted that the projected expenditures for spent fuel management identified in the decommissioning cost analysis do not consider the outcome of the litigation (including compensation for damages) with the DOE with regards to the delays incurred by Entergy VY in the timely removal of the spent fuel from the site. Entergy VY views the extended spent fuel management costs to be damages that should be paid by the government because of the DOE's breach of the spent fuel disposal contract.

RAI No. 3:

The submittal identified the estimated costs associated with the selected decommissioning scenarios in 2006 dollars. Recent media reports concerning construction costs indicates a significant increase in material and labor costs over general inflation. In light of such reports, what escalation factor will be used by Entergy to escalate the decommissioning costs to 2008 dollars? For the staff to complete their evaluation, the decommissioning cost, in 2008 dollars, is necessary for staff to determine if sufficient funds are available for the designated scenarios.

The resulting escalation indices for inflating the various cost categories to 2007 (based upon actual performance) and 2008 (projections) are provided below.

	LABOR	MTL/EQ	ENERGY	BURIAL	OTHER	TOTAL
	COSTS	COSTS	COSTS	COSTS	COSTS	COSTS
2006 Costs	431,513	115,832	8,038	87,147	119,755	762,285
2006 Indices	102.0500	126.1667	166.6917	198.7000	2.3887	
2007 Indices	105.2500	127.3250	177.9222	203.4990	2.4711	
Multiplier	1.0314	1.0092	1.0674	1.0242	1.0345	
2007 Costs	445,044	116,895	8,580	89,252	123,887	783,657
2008 Indices	108.6072	127.6010	185.0188	211.6930	2.5595	
Multiplier	1.0643	1.0114	1.1099	1.0654	1.0715	
2008 Costs	459,239	117,148	8,922	92,846	128,318	806,473

Based upon the information from Global Insight, costs have increased approximately 5.8% over the two year period, or less than 3% annually.

RAI No. 4:

Since the VY's projected end of operation is less than 5 years based on its license expiration date, the licensee is required by 10 CFR 50.75(f)(2) to submit annually their decommissioning funding report rather than biennially. Provide the amount in the trust fund as of December 31, 2007, as well as the revised formula amount because the staff will need to factor this information into the staff's analysis.

RESPONSE:

The information was provided to the NRC in a letter from John F. McCann, Director, Nuclear Safety and Licensing, Entergy Nuclear Operations, Letter No. ENOC-08-00018, dated March 26, 2008.

Table 1A
Vermont Yankee Nuclear Power Station
Scenario 5: 2012 Shutdown, SAFSTOR Alternative, 2017 DOE Start Date
(thousands of 2007 dollars)

Year	Labor	Equip. & Materials	Energy	Burial	Other	Yearly Totals
2012	30,785	7,444	734	41	7,261	46,265
2013	33,446	13,507	689	1,385	16,083	65,110
2014	13,786	13,798	182	34	4,379	32,178
2015	13,786	13,798	182	34	4,379	32,178
2016	13,824	13,835	182	34	4,391	32,266
2017	10,924	9,624	154	33	3,457	24,192
2018	4,647	598	91	32	1,401	6,769
2019	4,540	318	91	32	1,401	6,382
2020	4,617	487	91	32	1,405	6,632
2021	4,626	542	91	32	1,401	6,692
2022	4,626	542	91	32	1,401	6,692
2023	4,604	486	91	32	1,401	6,614
2024	4,595	431	91	32	1,405	6,554
2025	4,583	430	91	32	1,401	6,537
2026	4,583	430	91	32	1,401	6,537
2027	4,583	430	91	32	1,401	6,537
2028	4,595	431	91	32	1,405	6,554
2029	4,562	374	91	32	1,401	6,459
2030	4,583	430	91	32	1,401	6,537
2031	4,583	430	91	32	1,401	6,537
2032	4,553	319	91	32	1,405	6,399
2033	4,562	374	91	32	1,401	6,459
2034	4,562	374	91	32	1,401	6,459
2035	4,604	486	91	32	1,401	6,614
2036	4,574	375	91	32	1,405	6,477
2037	4,583	430	91	32	1,401	6,537
2038	4,583	430	91	32	1,401	6,537
2039	4,583	430	91	32	1,401	6,537
2040	4,595	431	91	32	1,405	6,554
2041	4,562	374	91	32	1,401	6,459
2042	4,736	656	93	32	1,405	6,923
2043	29,272	1,112	908	62	2,894	34,248
2044	49,606	14,244	888	30,041	11,928	106,707
2045	41,197	8,668	728	24,461	9,053	84,107
2046	36,416	3,931	681	14,431	5,771	61,231
2047	36,416	3,931	681	14,431	5,771	61,231
2048	20,484	1,717	297	3,468	13,371	39,336

Table 1A (continued)
Vermont Yankee Nuclear Power Station
Scenario 5: 2012 Shutdown, SAFSTOR Alternative, 2017 DOE Start Date
 (thousands of 2007 dollars)

Year	Labor	Equip. & Materials	Energy	Burial	Other	Yearly Totals
2049	190	173	0	0	59	422
2050	90	83	0	0	28	201
	445,044	116,895	8,580	89,252	123,887	783,657

Table 1B
Vermont Yankee Nuclear Power Station
Scenario 5: 2012 Shutdown, SAFSTOR Alternative, 2017 DOE Start Date
(millions of dollars)

Basis Year	2007			
Fund Balance	\$439.567	(millions)		
Annual Escalation	3%			
Annual Earnings	5.58%			
		2007	Escalated	Present Value
Year	Fund Balance	Decommissioning	Decommissioning	of Escalated
		Costs	Costs	Costs
2007	\$439.567	-	-	-
2008	\$464.095	-	-	-
2009	\$489.992	-	-	-
2010	\$517.334	-	-	-
2011	\$546.201	-	-	-
2012	\$523.045	\$46.265	\$53.634	\$40.882
2013	\$474.486	\$65.110	\$77.745	\$56.128
2014	\$461.387	\$32.178	\$39.575	\$27.061
2015	\$446.370	\$32.178	\$40.762	\$26.400
2016	\$429.177	\$32.266	\$42.100	\$25.825
2017	\$420.613	\$24.192	\$32.512	\$18.890
2018	\$434.713	\$6.769	\$9.370	\$5.156
2019	\$449.871	\$6.382	\$9.099	\$4.743
2020	\$465.235	\$6.632	\$9.739	\$4.808
2021	\$481.073	\$6.692	\$10.122	\$4.733
2022	\$497.491	\$6.692	\$10.426	\$4.617
2023	\$514.637	\$6.614	\$10.614	\$4.452
2024	\$532.521	\$6.554	\$10.833	\$4.304
2025	\$551.107	\$6.537	\$11.129	\$4.188
2026	\$570.396	\$6.537	\$11.463	\$4.086
2027	\$590.417	\$6.537	\$11.807	\$3.986
2028	\$611.170	\$6.554	\$12.192	\$3.898
2029	\$632.897	\$6.459	\$12.376	\$3.748
2030	\$655.312	\$6.537	\$12.901	\$3.700
2031	\$678.590	\$6.537	\$13.288	\$3.610
2032	\$703.057	\$6.399	\$13.398	\$3.447
2033	\$728.359	\$6.459	\$13.929	\$3.395
2034	\$754.654	\$6.459	\$14.347	\$3.312
2035	\$781.632	\$6.614	\$15.132	\$3.308
2036	\$809.984	\$6.477	\$15.263	\$3.161
2037	\$839.314	\$6.537	\$15.867	\$3.112
2038	\$869.805	\$6.537	\$16.343	\$3.036
2039	\$901.507	\$6.537	\$16.833	\$2.962

Table 1B (continued)
Vermont Yankee Nuclear Power Station
Scenario 5: 2012 Shutdown, SAFSTOR Alternative, 2017 DOE Start Date
(millions of dollars)

Basis Year	2007			
Fund Balance	\$439.567	(millions)		
Annual Escalation	3%			
Annual Earnings	5.58%			
		2007	Escalated	Present Value
Year	Fund Balance	Decommissioning	Decommissioning	of Escalated
		Costs	Costs	Costs
2040	\$934.428	\$6.554	\$17.383	\$2.897
2041	\$968.924	\$6.459	\$17.645	\$2.785
2042	\$1,003.510	\$6.923	\$19.480	\$2.912
2043	\$960.246	\$34.248	\$99.260	\$14.055
2044	\$695.283	\$106.707	\$318.545	\$42.722
2045	\$475.469	\$84.107	\$258.611	\$32.851
2046	\$308.080	\$61.231	\$193.920	\$23.331
2047	\$125.533	\$61.231	\$199.738	\$22.761
2048	\$0.373	\$39.336	\$132.165	\$14.265
2049	-\$1.066	\$0.422	\$1.460	\$0.149
2050	-\$1.841	\$0.201	\$0.716	\$0.069
		\$783.657	\$1,821.722	\$439.745

Table 2A
Vermont Yankee Nuclear Power Station
Scenario 5: 2012 Shutdown, Extended SAFSTOR Alternative, 2017 DOE Start Date
(thousands of 2007 dollars)

Year	Labor	Equip. & Materials	Energy	Burial	Other	Yearly Totals
2012	30,785	7,444	734	41	7,261	46,265
2013	33,446	13,507	689	1,385	16,083	65,110
2014	13,786	13,798	182	34	4,379	32,178
2015	13,786	13,798	182	34	4,379	32,178
2016	13,824	13,835	182	34	4,391	32,266
2017	10,924	9,624	154	33	3,457	24,192
2018	4,647	598	91	32	1,401	6,769
2019	4,540	318	91	32	1,401	6,382
2020	4,617	487	91	32	1,405	6,632
2021	4,626	542	91	32	1,401	6,692
2022	4,626	542	91	32	1,401	6,692
2023	4,604	486	91	32	1,401	6,614
2024	4,595	431	91	32	1,405	6,554
2025	4,583	430	91	32	1,401	6,537
2026	4,583	430	91	32	1,401	6,537
2027	4,583	430	91	32	1,401	6,537
2028	4,595	431	91	32	1,405	6,554
2029	4,562	374	91	32	1,401	6,459
2030	4,583	430	91	32	1,401	6,537
2031	4,583	430	91	32	1,401	6,537
2032	4,553	319	91	32	1,405	6,399
2033	4,562	374	91	32	1,401	6,459
2034	4,562	374	91	32	1,401	6,459
2035	4,604	486	91	32	1,401	6,614
2036	4,574	375	91	32	1,405	6,477
2037	4,583	430	91	32	1,401	6,537
2038	4,583	430	91	32	1,401	6,537
2039	4,583	430	91	32	1,401	6,537
2040	4,595	431	91	32	1,405	6,554
2041	4,562	374	91	32	1,401	6,459
2042	4,736	656	93	32	1,405	6,923
2043	2,469	278	91	45	929	3,812
2044	2,469	278	91	45	929	3,812
2045	2,469	278	91	45	929	3,812
2046	2,469	278	91	45	929	3,812
2047	2,469	278	91	45	929	3,812
2048	2,469	278	91	45	929	3,812
2049	2,469	278	91	45	929	3,812
2050	2,469	278	91	45	929	3,812

Table 2A
Vermont Yankee Nuclear Power Station
Scenario 5: 2012 Shutdown, Extended SAFSTOR Alternative, 2017 DOE Start Date
(thousands of 2007 dollars)

2051	2,469	278	91	45	929	3,812
2052	2,469	278	91	45	929	3,812
2053	2,469	278	91	45	929	3,812
2054	2,469	278	91	45	929	3,812
2055	2,469	278	91	45	929	3,812
2056	2,469	278	91	45	929	3,812
2057	2,469	278	91	45	929	3,812
2058	2,469	278	91	45	929	3,812
2059	2,469	278	91	45	929	3,812
2060	2,469	278	91	45	929	3,812
2061	2,469	278	91	45	929	3,812
2062	2,469	278	91	45	929	3,812
2063	2,469	278	91	45	929	3,812
2064	2,469	278	91	45	929	3,812
2065	2,469	278	91	45	929	3,812
2066	2,469	278	91	45	929	3,812
2067	29,272	1,112	908	62	2,894	34,248
2068	49,606	14,244	888	30,041	11,928	106,707
2069	41,197	8,668	728	24,461	9,053	84,107
2070	36,416	3,931	681	14,431	5,771	61,231
2071	36,416	3,931	681	14,431	5,771	61,231
2072	20,764	1,973	297	3,468	13,458	39,960
	504,312	123,564	10,761	90,338	146,181	875,156

Table 2B
Vermont Yankee Nuclear Power Station
Scenario 5: 2012 Shutdown, Extended SAFSTOR Alternative, 2017 DOE Start Date
(millions of dollars)

Basis Year	2007				
Fund Balance	\$439.567	(millions)			
Annual Escalation	3%				
Annual Earnings	5%				
			Expenditures from Decommissioning Trust Fund		
Year	Fund Balance	Contributions	2007 Decommissioning Costs	Escalated Decommissioning Costs	Present Value of Escalated Costs
2007	\$439.567		-	-	-
2008	\$461.541		-	-	-
2009	\$484.614		-	-	-
2010	\$508.840		-	-	-
2011	\$534.277		-	-	-
2012	\$507.352		\$46.265	\$53.634	\$42.026
2013	\$454.970		\$65.110	\$77.745	\$58.018
2014	\$438.139		\$32.178	\$39.575	\$28.127
2015	\$419.280		\$32.178	\$40.762	\$27.591
2016	\$398.140		\$32.266	\$42.100	\$27.140
2017	\$385.531		\$24.192	\$32.512	\$19.961
2018	\$395.434		\$6.769	\$9.370	\$5.479
2019	\$406.103		\$6.382	\$9.099	\$5.067
2020	\$416.665		\$6.632	\$9.739	\$5.165
2021	\$427.372		\$6.692	\$10.122	\$5.113
2022	\$438.311		\$6.692	\$10.426	\$5.016
2023	\$449.608		\$6.614	\$10.614	\$4.863
2024	\$461.251		\$6.554	\$10.833	\$4.727
2025	\$473.180		\$6.537	\$11.129	\$4.625
2026	\$545.371	\$60.000	\$6.537	\$11.463	-\$19.211
2027	\$560.827		\$6.537	\$11.807	\$4.451
2028	\$576.671		\$6.554	\$12.192	\$4.377
2029	\$593.123		\$6.459	\$12.376	\$4.232
2030	\$609.873		\$6.537	\$12.901	\$4.201
2031	\$627.073		\$6.537	\$13.288	\$4.121
2032	\$645.023		\$6.399	\$13.398	\$3.957
2033	\$663.339		\$6.459	\$13.929	\$3.918
2034	\$682.153		\$6.459	\$14.347	\$3.844
2035	\$701.122		\$6.614	\$15.132	\$3.861
2036	\$720.908		\$6.477	\$15.263	\$3.709
2037	\$741.080		\$6.537	\$15.867	\$3.672
2038	\$761.784		\$6.537	\$16.343	\$3.602
2039	\$783.033		\$6.537	\$16.833	\$3.534

Table 2B
Vermont Yankee Nuclear Power Station
Scenario 5: 2012 Shutdown, Extended SAFSTOR Alternative, 2017 DOE Start Date
(millions of dollars)

Basis Year	2007				
Fund Balance	\$439.567	(millions)			
Annual Escalation	3%				
Annual Earnings	5%				
			Expenditures from Decommissioning Trust Fund		
			2007 Decommissioning Costs	Escalated Decommissioning Costs	Present Value of Escalated Costs
Year	Fund Balance	Contributions			
2040	\$804.794		\$6.554	\$17.383	\$3.475
2041	\$827.381		\$6.459	\$17.645	\$3.360
2042	\$849.262		\$6.923	\$19.480	\$3.533
2043	\$880.669		\$3.812	\$11.048	\$1.908
2044	\$913.314		\$3.812	\$11.380	\$1.872
2045	\$947.250		\$3.812	\$11.721	\$1.836
2046	\$982.530		\$3.812	\$12.073	\$1.801
2047	\$1,019.212		\$3.812	\$12.435	\$1.767
2048	\$1,057.355		\$3.812	\$12.808	\$1.733
2049	\$1,097.021		\$3.812	\$13.192	\$1.700
2050	\$1,138.274		\$3.812	\$13.588	\$1.668
2051	\$1,181.181		\$3.812	\$13.996	\$1.636
2052	\$1,225.814		\$3.812	\$14.415	\$1.605
2053	\$1,272.245		\$3.812	\$14.848	\$1.574
2054	\$1,320.552		\$3.812	\$15.293	\$1.544
2055	\$1,370.815		\$3.812	\$15.752	\$1.515
2056	\$1,423.118		\$3.812	\$16.225	\$1.486
2057	\$1,477.549		\$3.812	\$16.711	\$1.458
2058	\$1,534.199		\$3.812	\$17.213	\$1.430
2059	\$1,593.165		\$3.812	\$17.729	\$1.403
2060	\$1,654.547		\$3.812	\$18.261	\$1.376
2061	\$1,718.450		\$3.812	\$18.809	\$1.350
2062	\$1,784.983		\$3.812	\$19.373	\$1.324
2063	\$1,854.261		\$3.812	\$19.954	\$1.299
2064	\$1,926.403		\$3.812	\$20.553	\$1.274
2065	\$2,001.535		\$3.812	\$21.170	\$1.250
2066	\$2,079.788		\$3.812	\$21.805	\$1.226
2067	\$1,981.982		\$34.248	\$201.776	\$10.808
2068	\$1,433.526		\$106.707	\$647.536	\$33.034
2069	\$979.486		\$84.107	\$525.703	\$25.542
2070	\$634.251		\$61.231	\$394.200	\$18.241
2071	\$259.932		\$61.231	\$406.026	\$17.893
2072	\$0.000		\$39.960	\$272.926	\$11.455
			\$875.156	\$3,445.826	\$439.562