May 24, 2004

David A. Gibson
Secretary of the Senate
State Capitol
Montpelier, VT 05633-5501

Dear Mr. Gibson:

I am responding on behalf of the U.S. Nuclear Regulatory Commission (NRC) to your letter dated March 17, 2004, regarding the request by Entergy Nuclear Vermont Yankee, LLC, and Entergy Nuclear Operations, Inc. (Entergy) to amend the Vermont Yankee Nuclear Power Station (Vermont Yankee) license to increase the power level of the facility. In your letter, you requested that the NRC condition approval of any power uprate at Vermont Yankee upon performance of an independent engineering assessment, as proposed by the Vermont Public Service Board.

I have enclosed a copy of the letter that we have sent to the Public Service Board regarding its request for an independent engineering assessment. In response to the many requests that we have received, the NRC has taken a closer look at our proposed inspections and technical reviews to assure ourselves that they will identify any potential concerns for operating at uprated power conditions. We have concluded that the detailed technical review, coupled with our normal associated program of power uprate and engineering inspections, will provide the information necessary for the NRC staff to make a decision on the safety of operation of Vermont Yankee under uprated power conditions.

The Senate Resolution attached to your March 17, 2004, letter identifies five specific actions that the Senate requested be included in an independent engineering assessment. The staff believes that the specific actions requested by the Senate are already satisfied in one way or another through current or planned NRC processes as discussed further below.

The Senate requested that any assessment of Vermont Yankee assess the conformance of the facility to its design and licensing bases, for operating at both 100 percent and 120 percent of its originally intended power production level. We continually assess whether Entergy operates Vermont Yankee in conformance with Vermont Yankee's design and licensing basis. One of the functions of our Reactor Oversight Process is to assess whether Entergy operates Vermont Yankee in accordance with the appropriate nuclear safety requirements and standards. The most recent annual assessment of Vermont Yankee concluded that the plant has been operating in a manner that preserved public health and safety. We have also conducted inspections beyond our normal inspections that are specifically focused on conformance with design and licensing bases. In 1997, the NRC staff performed an architect engineer inspection to evaluate the capability of selected systems to perform the safety functions required by their design bases, the adherence of the systems to their respective design and licensing bases, and the consistency of the as-built configuration and system operations with the plant's Final Safety Analysis Report. Based on our inspection activities and the plant staff's response to our inspections, we continue to have reasonable assurance that Entergy is operating Vermont Yankee in accordance with the plant's design and licensing bases. Regarding conformance at

the uprated power level, the NRC's review standard for extended power uprates states that all safety systems affected by the power uprate should be evaluated to ensure that they will safely operate at the higher power level and in conformance with their design basis. In addition, the NRC will use the new pilot engineering inspection, as described in our letter to the Public Safety Board, to verify that design bases have been correctly implemented for a sampling of components across multiple systems and to identify latent design issues.

The Senate also requested that the evaluation identify all deviations, exemptions, and/or waivers from (a) regulatory requirements applicable to Vermont Yankee and (b) regulatory requirements applicable to a new nuclear reactor and verifies that adequate safety margins are retained despite the cumulative effect of such deviations, exemptions, and/or waivers for both the present licensed power level and under the proposed extended power uprate.
Regarding the underlying concern that the plant operates safely, the staff was unable to identify an additional safety benefit to be gained by undertaking a specific effort to perform these evaluations. The NRC licensing and inspection processes routinely evaluate Vermont Yankee against its licensing basis and applicable regulations, providing the NRC with an understanding of the overall condition of the plant. All exemptions that were approved for Vermont Yankee were evaluated at the time they were requested and determined to be acceptable based on their acceptably low impact on plant safety. The NRC has specific criteria for evaluating any request by a licensee to design or operate a plant in a way that is different from the regulations. The NRC will only approve such an exemption if it does not present an undue risk to the public health and safety and special circumstances are present.

The staff believes that re-evaluating differences between the current licensing bases and new requirements would provide no additional safety benefit because each of these new requirements has already been evaluated for its impact on the plant. The NRC frequently updates its regulations as a result of improvements to technology and based on operating experience. When requirements are changed, the NRC applies a rigorous evaluation standard to determine if the safety benefit of the new requirements justifies imposing the changes on existing licensees. For example, Vermont Yankee was designed and constructed based on the proposed General Design Criteria (GDC) published by the Atomic Energy Commission (AEC) in 1967. The final GDC were made a part of the AEC's regulations in 1971. Each plant licensed before the final GDC were formally adopted, including Vermont Yankee, was evaluated by the AEC on a plant-specific basis, and was determined to be safe. The NRC determined that imposing the final GDC on plants with construction permits issued prior to 1971 would provide little or no safety benefit while requiring an extensive commitment of resources. In other cases, the NRC has imposed new regulations on currently operating nuclear facilities based on the substantial safety benefit that would be provided (e.g., environmental qualification of electrical equipment). In addition, licensees have used a probablistic approach to evaluate the overall safety of their plants by performing probablistic risk assessments (PRAs). The PRA provides a comprehensive safety evaluation of the facility, taking into account the actual design and operating experience of the plant, thereby incorporating by default the cumulative effect of any changes to the facility into the evaluation results.

The Senate resolution requested that the NRC assess the facility's operational safety performance giving risk perspectives where appropriate, and evaluate the effectiveness of licensee self-assessments, corrective actions, and improvement plans. These requests duplicate functions already performed under the Reactor Oversight Program (ROP) baseline program. Specifically, the baseline inspection program performs ongoing monitoring and assessment of licensee performance and utilizes the significance determination process (SDP)

as a standard tool to incorporate risk insights in the oversight and enforcement processes. Similarly the ROP includes an inspection procedure (Inspection Procedure 71152, "Identification and Resolution of Problems") that assesses licensee performance of self-assessments and corrective action plans. Results of the most recent baseline inspection can be found at http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/LETTERS/vy_2003q4.pdf.

Regarding routine management of plant risk, it should also be noted that Vermont Yankee's Maintenance Rule program includes assessment of the daily risk level associated with routine and emergent maintenance activities. The NRC's inspection staff is notified of potentially risk significant activities on a daily basis. During outage periods, Vermont Yankee conducts a similar routine assessment of shutdown risk and has procedures in place to maintain shutdown risk acceptably low. The risk management programs are also covered by the ROP baseline inspection program.

Finally, the Senate resolution requests that the evaluation of Vermont Yankee determine the root cause of safety-significant findings and draw conclusions on overall performance. The NRC inspection manual provides guidance on when enhanced oversight, which would include evaluation of safety-significant issues, of a licensee may be appropriate. For example, around 2000, the NRC identified multiple degraded cornerstones in its ROP review at Indian Point 2. NRC initiated a multi-disciplined team inspection to determine the extent of condition and root cause. The NRC, under the ROP, has the ability to escalate inspection resources onsite at Vermont Yankee as either events, inspection findings, or performance indicators warrant. There are no current inspection findings or performance indicators at Vermont Yankee that warrant enhanced oversight. Nevertheless, as you are probably aware, we have initiated a special inspection at Vermont Yankee in response to the recent information from Entergy that two irradiated fuel rod segments were not found in their storage container in the spent fuel pool. Our special inspection will evaluate Entergy's response to this situation that will include an evaluation of the root cause. We will document the results of our special inspection in a report that will be publicly available.

The NRC appreciates the Senate's concerns regarding the NRC's review of the proposed power uprate at Vermont Yankee. We believe the NRC's program of review and oversight is comprehensive, effective, and responsive to the needs of the Vermont Senate. Please feel free to contact Cornelius F. Holden of my staff at 301-415-3036 if you have any further questions.

Sincerely,

/RA/

J. E. Dyer, Director
Office of Nuclear Reactor Regulation

Enclosure: Letter to the Vermont Public Service Board

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Enclosure: Letter to the Vermont Public Service Board

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