



October 17, 2005

Docket No. 50-271  
BVY 05-096  
TAC No. MC0761

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

Subject: **Vermont Yankee Nuclear Power Station**  
**Technical Specification Proposed Change No. 263 – Supplement No. 36**  
**Extended Power Uprate – Response to NRC’s Letter re: License Conditions**

- References:
- 1) Entergy letter to U.S. Nuclear Regulatory Commission, “Vermont Yankee Nuclear Power Station, License No. DPR-28 (Docket No. 50-271), Technical Specification Proposed Change No. 263, Extended Power Uprate,” BVY 03-80, dated September 10, 2003
  - 2) U.S. Nuclear Regulatory Commission (J. E. Dyer) letter to Entergy Nuclear Operations, Inc. (Michael Kansler), “Vermont Yankee Nuclear Power Station – Extended Power Uprate Review Schedule and License Conditions (TAC No. MC0761),” NVY 05-122, dated October 12, 2005

This letter provides additional information regarding the application by Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. (Entergy) for a license amendment (Reference 1) to increase the maximum authorized power level of the Vermont Yankee Nuclear Power Station (VYNPS) from 1593 megawatts thermal (MWt) to 1912 MWt.

In a letter dated October 12, 2005 (Reference 2), the NRC staff proposed several license conditions and a regulatory commitment. Entergy has reviewed the letter’s proposed license conditions and regulatory commitment. Based upon Entergy and NRC staff teleconferences on October 14 and 17, 2005, three license conditions were revised for clarity (License Conditions L, M.1.d. and M.3). This letter provides the requested acceptance of license conditions and the regulatory commitment to support the issuance of the draft Safety Evaluation by October 21, 2005. Attachment 1 provides the license conditions as proposed in Reference 2, or in three cases, as clarified in teleconferences and accepted by Entergy.

Attachment 2 provides a regulatory commitment as proposed in Reference 2 and accepted by Entergy.

This supplement to the license amendment request provides additional information to clarify Entergy’s application for a license amendment and does not change the scope or conclusions in

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the original application, nor does it change Entergy's determination of no significant hazards consideration.

In addition, the NRC Project Manager for VYNPS requested clarification regarding markups of a Technical Specification (TS) Bases page and an obsolete TS figure. In the original application (Reference 1), Attachment 1, page 3, Change No. 6, Entergy proposed revision of the TS Figure 2.1.1, "APRM Flow Reference Scram Setting." Since TS page 11 (Figure 2.1.1) was subsequently removed from TS by License Amendment 219, those markups are no longer applicable. To clarify TS Bases page 12, a supplement will be provided by October 21, 2005.

If you have any questions or require additional information, please contact Mr. James DeVincentis at (802) 258-4236.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on October 17, 2005.

Sincerely,

A handwritten signature in cursive script, reading "Jay K. Thayer", is written over a solid horizontal line.

Jay K. Thayer  
Site Vice President  
Vermont Yankee Nuclear Power Station

Attachments (2)

cc: (see next page)

cc: Mr. Samuel J. Collins (w/o attachments)  
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VT Department of Public Service  
112 State Street – Drawer 20  
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**Attachment 1**

Vermont Yankee Nuclear Power Station

Proposed Technical Specification Change No. 263 – Supplement No. 36

Extended Power Uprate - Response to NRC's Letter re: License Conditions

Proposed New License Conditions for Facility License DPR-28  
In Support of Vermont Yankee Nuclear Power Station Extended Power Uprate Review

Total number of pages in Attachment 1  
(excluding this cover sheet) is 4.

**Proposed New License Conditions for Facility License DPR-28  
In Support of Vermont Yankee Nuclear Power Station Extended Power Uprate Review**

Proposed License Conditions

As part of the proposed extended power uprate amendment for the Vermont Yankee Nuclear Power Station, license conditions 3.K, 3.L, and 3.M would be added to Facility Operating License DPR-28 as follows:

K. Minimum Critical Power Ratio

When operating at thermal power greater than 1593 megawatts thermal, the safety limit minimum critical power ratio (SLMCPR) shall be established by adding 0.02 to the cycle-specific SLMCPR value calculated using the NRC-approved methodologies documented in General Electric Licensing Topical Report NEDE-24011-P-A, "General Electric Standard Application for Reactor Fuel," as amended, and documented in the Core Operating Limits Report.

L. Transient Testing

1. During the extended power uprate (EPU) power ascension test program and prior to exceeding 168 hours of plant operation at the nominal full EPU reactor power level, with feedwater and condensate flow rates stabilized at approximately the EPU full power level, Entergy Nuclear Operations, Inc. shall confirm through performance of transient testing that the loss of one condensate pump will not result in a complete loss of reactor feedwater.
2. Within 30 days at nominal full-power operation following successful performance of the test in (1) above, through performance of additional transient testing and/or analysis of the results of the testing conducted in (1) above, confirm that the loss of one reactor feedwater pump will not result in a reactor trip.

M. Potential Adverse Flow Effects

This license condition provides for monitoring, evaluating, and taking prompt action in response to potential adverse flow effects as a result of power uprate operation on plant structures, systems, and components (including verifying the continued structural integrity of the steam dryer).

1. The following requirements are placed on operation of the facility above the original licensed thermal power (OLTP) level of 1593 megawatts thermal (MWt):
  - a. Entergy Nuclear Operations, Inc. shall monitor hourly the 32 main steam line (MSL) strain gages during power ascension above 1593 MWt for increasing pressure fluctuations in the steam lines.

- b. Entergy Nuclear Operations, Inc. shall hold the facility for 24 hours at 105%, 110%, and 115% of OLTP to collect data from the 32 MSL strain gages required by Condition M.1.a, conduct plant inspections and walkdowns, and evaluate steam dryer performance based on these data; shall provide the evaluation to the NRC staff by facsimile or electronic transmission to the NRC project manager upon completion of the evaluation; and shall not increase power above each hold point until 96 hours after the NRC project manager confirms receipt of the transmission.
  - c. If any frequency peak from the MSL strain gage data exceeds the limit curve established by Entergy Nuclear Operations, Inc. and submitted to the NRC staff prior to operation above OLTP, Entergy Nuclear Operations, Inc. shall return the facility to a power level at which the limit curve is not exceeded. Entergy Nuclear Operations, Inc. shall resolve the uncertainties in the steam dryer analysis, document the continued structural integrity of the steam dryer, and provide that documentation to the NRC staff by facsimile or electronic transmission to the NRC project manager prior to further increases in reactor power.
  - d. In addition to evaluating the MSL strain gage data, Entergy Nuclear Operations, Inc. shall monitor reactor pressure vessel water level instrumentation or MSL piping accelerometers on an hourly basis during power ascension above OLTP. If resonance frequencies are identified as increasing above nominal levels in proportion to strain gage instrumentation data, Entergy Nuclear Operations, Inc. shall stop power ascension, document the continued structural integrity of the steam dryer, and provide that documentation to the NRC staff by facsimile or electronic transmission to the NRC project manager prior to further increases in reactor power.
  - e. Following start-up testing, Entergy Nuclear Operations, Inc. shall resolve the uncertainties in the steam dryer analysis and provide that resolution to the NRC staff by facsimile or electronic transmission to the NRC project manager. If the uncertainties are not resolved within 90 days of issuance of the license amendment authorizing operation at 1912 MWt, Entergy Nuclear Operations, Inc. shall return the facility to OLTP.
2. As described in Entergy Nuclear Operations, Inc. letter BVY 05-084 dated September 14, 2005, Entergy Nuclear Operations, Inc. shall implement the following actions:
    - a. Prior to operation above OLTP, Entergy Nuclear Operations, Inc. shall install 32 additional strain gages on the main steam piping and shall enhance the data acquisition system in order to reduce the measurement uncertainty associated with the acoustic circuit model (ACM).

- b. In the event that acoustic signals are identified that challenge the limit curve during power ascension above OLTP, Entergy Nuclear Operations, Inc. shall evaluate dryer loads and re-establish the limit curve based on the new strain gage data, and shall perform a frequency-specific assessment of ACM uncertainty at the acoustic signal frequency.
  - c. After reaching 120% of OLTP, Entergy Nuclear Operations, Inc. shall obtain measurements from the MSL strain gages and establish the steam dryer flow-induced vibration load fatigue margin for the facility, update the dryer stress report, and re-establish the steam dryer monitoring plan (SDMP) limit curve with the updated ACM load definition and revised instrument uncertainty, which will be provided to the NRC staff.
  - d. During power ascension above OLTP, if an engineering evaluation is required in accordance with the SDMP, Entergy Nuclear Operations, Inc. shall perform the structural analysis to address frequency uncertainties up to  $\pm 10\%$  and assure that peak responses that fall within this uncertainty band are addressed.
  - e. Entergy Nuclear Operations, Inc. shall revise the SDMP to reflect long-term monitoring of plant parameters potentially indicative of steam dryer failure; to reflect consistency of the facility's steam dryer inspection program with General Electric Services Information Letter 644, Revision 1; and to identify the NRC Project Manager for the facility as the point of contact for providing SDMP information during power ascension.
  - f. Entergy Nuclear Operations, Inc. shall submit the final extended power uprate (EPU) steam dryer load definition for the facility to the NRC upon completion of the power ascension test program.
  - g. Entergy Nuclear Operations, Inc. shall submit the flow-induced vibration related portions of the EPU startup test procedure to the NRC, including methodology for updating the limit curve, prior to initial power ascension above OLTP.
3. Entergy Nuclear Operations, Inc. shall prepare the EPU startup test procedure to include the (a) stress limit curve to be applied for evaluating steam dryer performance; (b) specific hold points and their duration during EPU power ascension; (c) activities to be accomplished during hold points; (d) plant parameters to be monitored; (e) inspections and walkdowns to be conducted for steam, feedwater, and condensate systems and components during the hold points; (f) methods to be used to trend plant parameters; (g) acceptance criteria for monitoring and trending plant parameters, and conducting the walkdowns and inspections; (h) actions to be taken if acceptance criteria are not satisfied; and (i) verification of the completion of commitments and planned actions specified in its application and all supplements to the application in support of the EPU license amendment request pertaining to the steam dryer prior to power increase above OLTP. Entergy Nuclear Operations, Inc. shall provide the related EPU startup test procedure sections to the NRC by facsimile or electronic transmission to the NRC project manager prior to increasing power above OLTP.

4. When operating above OLTP, the operating limits, required actions, and surveillances specified in the SDMP shall be met. The following key attributes of the SDMP shall not be made less restrictive without prior NRC approval:
  - a. During initial power ascension testing above OLTP, each test plateau increment shall be approximately 80 MWt;
  - b. Level 1 performance criteria; and
  - c. The methodology for establishing the stress spectra used for the Level 1 and Level 2 performance criteria.

Changes to other aspects of the SDMP may be made in accordance with the guidance of NEI 99-04.

5. During each of the three scheduled refueling outages (beginning with the spring 2007 refueling outage), a visual inspection shall be conducted of all accessible, susceptible locations of the steam dryer, including flaws left "as is" and modifications.
6. The results of the visual inspections of the steam dryer conducted during the three scheduled refueling outages (beginning with the spring 2007 refueling outage) shall be reported to the NRC staff within 60 days following startup from the respective refueling outage. The results of the SDMP shall be submitted to the NRC staff in a report within 60 days following the completion of all EPU power ascension testing.
7. The requirements of paragraph 4 above for meeting the SDMP shall be implemented upon issuance of the EPU license amendment and shall continue until the completion of one full operating cycle at EPU. If an unacceptable structural flaw (due to fatigue) is detected during the subsequent visual inspection of the steam dryer, the requirements of paragraph 4 shall extend another full operating cycle until the visual inspection standard of no new flaws/flaw growth based on visual inspection is satisfied.
8. This license condition shall expire upon satisfaction of the requirements in paragraphs 5, 6, and 7 provided that a visual inspection of the steam dryer does not reveal any new unacceptable flaw or unacceptable flaw growth that is due to fatigue.



## **Attachment 2**

Vermont Yankee Nuclear Power Station

Proposed Technical Specification Change No. 263 – Supplement No. 36

Extended Power Uprate – Response to NRC's Letter re: License Conditions

Proposed Regulatory Commitment for Facility License DPR-28  
In Support of Vermont Yankee Nuclear Power Station Extended Power Uprate Review

Total number of pages in Attachment 2  
(excluding this cover sheet) is 1.

### Licensee Identified Commitment Form

This form identifies actions discussed in this letter for which Entergy Nuclear Operations, Inc. (Entergy) commits to perform for the Vermont Yankee Nuclear Power Station (VYNPS). Any other actions discussed in this submittal are described for the NRC's information and are not commitments.

COMMITMENT	TYPE (Check one)		SCHEDULED COMPLETION DATE (If Required)
	One-Time Action	Continuing Compliance	
With regard to License Condition 3.M, "Potential Adverse Flow Effects," Entergy will provide information on plant data, evaluations, walkdowns, inspections, and procedures associated with the individual requirements of that license condition to the NRC staff prior to increasing power above 1593 MWt or each specified hold point, as applicable. If any safety concerns are identified during the NRC staff review of the provided information, Entergy will not increase power above 1593 MWt or the applicable hold point, and the specific requirements in the license condition will not be satisfied.		X	Prior to increasing power above 1593 MWt