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March 10, 2005

Docket No. 50-271
BVY 05-024
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. 24
Extended Power Uprate – Response to Request for Additional Information

- References:
- 1) U.S. Nuclear Regulatory Commission (Richard B. Ennis) letter to Entergy Nuclear Operations, Inc. (Michael Kansler), "Request for Additional Information – Extended Power Uprate, Vermont Yankee Nuclear Power Station (TAC No. MC0761)," December 21, 2004
 - 2) 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, September 10, 2003
 - 3) Entergy letter to U.S. Nuclear Regulatory Commission, "Vermont Yankee Nuclear Power Station, Technical Specification Proposed Change No. 263 – Supplement No. 23, Extended Power Uprate – Response to Request for Additional Information," BVY 05-017, February 24, 2005

This letter responds to NRC's request for additional information (RAI) of December 21, 2004 (Reference 1) regarding the application by Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. (Entergy) for a license amendment (Reference 2) to increase the maximum authorized power level of the Vermont Yankee Nuclear Power Station (VYNPS) from 1593 megawatts thermal (MWt) to 1912 MWt.

Reference 3 provided Entergy's response to 15 of the 18 individual RAIs included in Reference 1. This submittal provides responses to two of the remaining RAIs. Entergy is in the process of preparing a response to the last remaining RAI and anticipates submitting that response by March 16, 2005.

Subsequent to the receipt of the RAI, discussions were held with the NRC staff to further clarify the RAIs. In certain instances the RAIs may have been modified based on clarifications

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reached during the telecons. The information provided herein is consistent with those clarifications.

Attachment 1 is Entergy's response to RAI SPSB-C-35. Attachment 2 provides the "Exhibits" referenced in the response.

Attachment 3 is Entergy's response to RAI SRXB-A-6. Because the response to RAI SRXB-A-6 contains proprietary information as defined by 10CFR2.390, Attachment 3 has been designated in its entirety as proprietary information. A non-proprietary version of Attachment 3, suitable for public disclosure, is provided as Attachment 4 to this letter with the proprietary information redacted. An affidavit that constitutes a request for withholding of the proprietary information in Attachment 3 from public disclosure in accordance with NRC regulations is provided by the owner of the proprietary information (General Electric Company (GE)) as Attachment 5. The proprietary information in Attachment 3 is designated by double underline within double square brackets. In each case, the superscript notation, "⁽³⁾", refers to paragraph (3) of the affidavit, which provides the basis for the proprietary determination. The proprietary information has been handled and classified as proprietary, is customarily held in confidence, and has been withheld from public disclosure. The proprietary information contained in the response was provided to Entergy in a GE transmittal that is referenced by the affidavit. The proprietary information has been faithfully reproduced in the enclosed response such that the affidavit remains applicable. GE requests that the enclosed proprietary information be withheld from public disclosure in accordance with the provisions of 10CFR2.390 and 10CFR9.17.

There are no new regulatory commitments contained in the responses to the RAIs.

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

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 March 10, 2005.

Sincerely,



William F. Maguire
General Manager, Plant Operations
Vermont Yankee Nuclear Power Station

Attachments (5)

cc: Mr. Richard B. Ennis, Project Manager
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation
Mail Stop O 8 B1
Washington, DC 20555

Mr. Samuel J. Collins (w/o attachments)
Regional Administrator, Region 1
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406-1415

USNRC Resident Inspector (w/o attachments)
Entergy Nuclear Vermont Yankee, LLC
P.O. Box 157
Vernon, Vermont 05354

Mr. David O'Brien, Commissioner (w/o proprietary information)
VT Department of Public Service
112 State Street – Drawer 20
Montpelier, Vermont 05620-2601

Attachment 1

Vermont Yankee Nuclear Power Station

Proposed Technical Specification Change No. 263 – Supplement No. 24

Extended Power Uprate

Response to RAI SPSB-C-35

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

Probabilistic Safety Assessment Branch (SPSB)

Containment and Accident Dose Assessment Section (SPSB-C)

RAI SPSB-C-35

- (a) The licensee's December 29, 1999, letter to the NRC, concerning installation of larger emergency core cooling system suction strainers in accordance with NRC Bulletin 96-03, stated that the head loss correlation of NUREG/CR 6224 was used. Verify that this correlation was used within its range of applicability considering debris materials present in the VYNPS containment, bed thickness, suppression pool temperature, and approach velocity.
- (b) The head loss due to loss-of-coolant accident (LOCA)-generated debris appears to be low. Please provide the calculation of head loss, VYC-1924, Revision 0 (Reference 2 to calculation VYC-0808, Revision 8).

Response to RAI SPSB-C-35

- (a) The Vermont Yankee Nuclear Power Station (VYNPS) strainers were designed for conservative suppression pool debris loads based on debris material present in the VYNPS containment. The parameters considered in the calculation of head loss (i.e., debris materials present, bed thickness, suppression pool temperature, and approach velocity) following a postulated loss-of-coolant accident at VYNPS are within the range of applicability of the correlation in NUREG/CR 6224.

To validate the parameters used in the NUREG/CR 6224 head loss correlation a series of tests were performed at Alden Research Labs (ARL) in Holden, Massachusetts. These tests included debris mixes and low approach velocities characteristic of the very large VYNPS strainers. The tests were done at room temperature. Correlation to suppression pool temperature is made with appropriate adjustment to viscosity and density terms in the head loss correlation. Supporting information on the ARL testing and the basis for the debris head loss correlations is contained in VYNPS calculations VYC-1959, Rev. 1, "Analysis of Tests for Investigating the Effect of Coatings Debris on ECCS Strainer Performance for Vermont Yankee," (non-proprietary version) and VYC-1924, Rev. 0, "Vermont Yankee ECCS Suction Strainer Head Loss Performance Assessment. RHR and CS Debris Head Loss Calculations". These calculations are included herewith as Exhibits 1 and 2, respectively, of Attachment 2.

- (b) The VYNPS strainers are very large and sized to achieve a very low head loss. See calculation VYC-1924. This calculation provides an analysis of the debris head loss tests performed at Alden Research Labs.

Attachment 2

Vermont Yankee Nuclear Power Station

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Response to Request for Additional Information

Exhibits