Entergy

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December 11, 2003
BVY 03-117

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

Subject: **Vermont Yankee Nuclear Power Station**
License No. DPR-28 (Docket No. 50-271)
Technical Specification Proposed Change No. 262
Alternative Source Term
Response to Request for Additional Information

This letter provides a partial response to NRC's request of December 1, 2003[1], for additional information regarding Vermont Yankee's[2] (VY) license amendment request to incorporate an Alternative Source Term methodology into the Vermont Yankee Nuclear Power Station (VYNPS) licensing basis. VY originally proposed to amend Facility Operating License DPR-28 to support the full-scope application of the AST at VYNPS by letter dated July 31, 2003[3].

Attachment 1 to this letter provides a response to 8 of the 11 items requested. VY expects to provide responses to the remaining three items by December 30, 2003. If you have any questions in this regard, please contact Mr. Len Gucwa at (802) 258-4225.

Sincerely,

Jay K. Thayer
Site Vice President

[1] U.S. Nuclear Regulatory Commission letter to Entergy Nuclear Operations, Inc., "Vermont Yankee Nuclear Power Station – Alternative Source Term Request for Additional Information (TAC No. MC0253)," December 1, 2003.

[2] Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. are the licensees of the Vermont Yankee Nuclear Power Station.

[3] Vermont Yankee letter to U.S. Nuclear Regulatory Commission, "Proposed Change No. 262, Alternative Source Term," BVY 03-70, July 31, 2003.

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STATE OF VERMONT)
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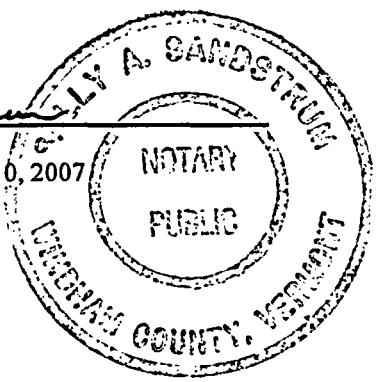
WINDHAM COUNTY)

Then personally appeared before me, Jay K. Thayer, who, being duly sworn, did state that he is Site Vice President of the Vermont Yankee Nuclear Power Station, that he is duly authorized to execute and file the foregoing document, and that the statements therein are true to the best of his knowledge and belief.

Sally A. Sandstrum, Notary Public
My Commission Expires February 10, 2007



Attachment

cc:

USNRC Region 1 Administrator
USNRC Resident Inspector – VYNPS
USNRC Project Manager – VYNPS
Vermont Department of Public Service

Docket No. 50-271
BVY 03-117

Attachment 1

Vermont Yankee Nuclear Power Station

Proposed Technical Specification Change No. 262

Alternative Source Term

Response to Request for Additional Information

VERMONT YANKEE NUCLEAR POWER STATION
ALTERNATIVE SOURCE TERM
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

RAI No. 1

In the application dated July 31, 2003, on page 54 of Attachment 5, it is indicated that seismic criteria were used to evaluate the ruggedness of the alternative leakage treatment pathways and boundary piping, equipment, and supports. Describe the seismic criteria used.

Response to RAI No. 1

The guidelines for plant-specific verification of seismic adequacy of main steam piping and condenser are given in Section 6.7 of Volume 2 of NEDC-31835P-A (reference 29 in Attachment 5 of the VY AST submittal). Section 1 of the ABS Seismic Verification Report, (reference 28 in Attachment 5 of the VY AST submittal) states that the seismic verification followed the guidelines of BWROG Report NEDC-31835P-A, the NRC SER, and previous MSIV ALT submittals for similar vintage BWR power plants. The evaluations of buildings, major equipment, and piping are summarized in the ABS Seismic Verification Report. The nine limitations for the use of the BWROG Topical Report from the NRC SER are addressed in Section 9 of the ABS Seismic Verification Report. Please see the next two responses which describe the reports recently submitted.

RAI No. 2

Provide a list of the outliers and their resolution.

Response to RAI No. 2

Vermont Yankee supplemented the amendment application by letter BVY 03-101 on November 7, 2003 to include the ABS/EQE Report No. 1173875-R-002, Revision 0, "Vermont Yankee Alternate Leakage Treatment Pathways and Boundaries Walkdown Report." Section 4 of the report addresses the outliers and their resolution. The report addresses all piping within the ALT boundary scope accessible during normal power operation. A walkdown of the remainder of the scope (i.e., the inaccessible piping) will be performed during the next refueling outage (scheduled for Spring 2004) or earlier during a reactor down-power condition.

RAI No. 3

Please provide a copy of reference 28, specified in your July 31, 2003 submittal on page 51 of Attachment 5.

Response to RAI No. 3

The November 7, 2003 supplement discussed in the above response also included the requested reference, ABS/EQE Report No. 1173875-R-001, Revision 1, "Vermont Yankee Alternate Leakage Treatment Pathways and Boundaries Seismic Verification Report".

RAI No. 4

The values of certain containment volumes used in the pH calculations (page 9 of the analysis) appear to differ from the design values given in the Updated Final Safety Analysis Report (UFSAR),

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Revision 17, Table 1.7.4. These values were for suppression pool volume, drywell volume, and torus airspace. Please explain the values selected for the pH calculations.

Response to RAI No. 4

The values in UFSAR Table 1.7.4 apply to the original licensed design basis for comparison with other BWRs of similar design. The design input values for the wet well (WW) liquid volume used in the AST analyses are based on UFSAR Table 5.2.1, "Principal Design Parameters of Primary Containment," and Technical Specifications (TS) 3.7.A.1.e and f. The actual value (MIN or MAX) applied in the analysis depends on which value gives the more conservative results. The other values for drywell (DW) and WW free air space are conservative values used for the specific calculations. For example, the UFSAR peak DW pressure calculation uses the values in UFSAR Section 14.6.3.1.1 item 11.k.

RAI No. 5

The amount of water added with the sodium borate from the Standby Liquid Control System to the suppression pool is not specified (i.e., the borate concentration). This additional water may affect the pH calculation. Please identify the amount of water added to the suppression pool with the borate, and discuss its potential effect on the pH calculations.

Response to RAI No. 5

VY Technical Specification Figure 3.4.1 shows the minimum and maximum SLC volumes as 3,850 and 4,830 gallons, respectively. This volume is equal to about 515 and 646 ft^3, respectively. This volume is considered insignificant in comparison to the 79,000 ft^3 volume of the suppression pool. In addition, the pH calculation (PSAT 3019CF.QA.04) on page 10 of 19 addresses pH sensitivity to water volume. It is documented in the calculation that the pH calculated is the same whether one uses either the minimum or the maximum water volumes because one is either maximizing the $[H^+]$ and [B] for the minimum water case, or minimizing these quantities for the maximum water case. Regardless, these quantity variations essentially off-set (within the accuracy of the calculation).

RAI No. 7

You propose to take credit for drywell spray removal of iodine. Do the drywell sprays meet requirements given in Title 10 of the Code of Federal Regulations, Part 50, Appendix A, General Design Criteria 41, 42 and 43 with regard to containment atmosphere cleanup systems? Can the drywell sprays perform their safety function with a single failure? Have you verified the capability of the system to deliver the assumed spray flow?

Response to RAI No. 7

VYNPS is a pre-GDC plant; however, we have reviewed the following General Design Criteria in preparation of this response.

- GDC-41 "Containment Atmosphere Clean-up"
- GDC-42 "Inspection of Containment Atmosphere Clean-up Systems"

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- GDC-43 "Testing of Containment Atmosphere Clean-up Systems"

The drywell spray is the Containment Spray Mode of the RHR system. The drywell is sprayed by two independent spray headers—each supplied by one of two independent RHR loops. Each RHR loop is provided emergency power. Thus the DW spray is a redundant system and can perform the intended safety function in the presence of a single failure.

The RHR containment spray mode of operation is tested up to a position as close to the spray nozzles as practicable. The RHR system is a TS system with system performance specified in TS 4.5.A.1.c., and spray surveillance is specified in TS 4.5.B.1.

RAI No. 10

What are the specifics of your MSLB puff calculation and calculational inputs and assumptions used in the comparison calculations with the puff methodology described in RG 1.194, "Atmospheric Relative Concentrations for Control Room Radiological Habitability Assessments at Nuclear Power Plants?"

Response to RAI No. 10

The license amendment submittal included all the supporting radiological calculations (including inputs and assumptions). Polestar calculation PSAT 3019CF.QA.06, Appendix B provides a full description of the calculation and comparison with the puff methodology in RG 1.194.

RAI No. 11

What is the distance between the turbine building release location and the control room ventilation intake location?

Response to RAI No. 11

The LOCA analysis χ/Q calculation for the MSIV pathway uses the distance between the turbine stop-valve closest to the control room fresh air intake, which is approximately 33 meters. The intake height is approximately 8 meters. The ARCON96 calculated χ/Q values for this pathway are summarized in the Safety Assessment Table 2-3. The MSLB analysis assumes the steam line ruptures in the steam tunnel directly below the control room fresh air intake. This assumption results in the distance being zero.