



Entergy Nuclear Vermont Yankee, LLC
Entergy Nuclear Operations, Inc.
185 Old Ferry Road
Brattleboro, VT 05302-0500

February 18, 2004
BVY 04-021

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 – Supplement No. 9
Alternative Source Term
Response to Request for Additional Information**

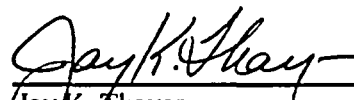
This letter provides a response to NRC's request of February 17, 2004¹ for additional information regarding Vermont Yankee's² (VY) proposed revision to the licensing basis for the Vermont Yankee Nuclear Power Station (VYNPS) by incorporating full scope application of an Alternative Source Term methodology. By letter dated July 31, 2003, as supplemented by letters dated October 10, 2003, November 7, 2003 (two letters), November 20, 2003, December 11, 2003 (two letters), December 30, 2003, and February 10, 2004, VY proposed to amend Facility Operating License No. DPR-28 for VYNPS.

Attachment 1 to this letter provides a response to the request for additional information (RAI). The responses to the RAIs were also the subject of a telephone conference call held between NRC staff and representatives of VY on February 17, 2004.

This supplement to the license amendment request does not change the scope or conclusions in the original application, nor does it change VY's determination of no significant hazards consideration.

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

Sincerely,



Jay K. Thayer
Site Vice President

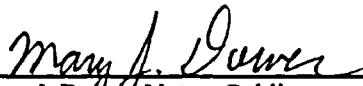
¹ A draft request for additional information was transmitted on February 17, 2004, to VY as documented in NRC memorandum from Richard B. Ennis to Darrell J. Roberts under TAC No. MC0253.

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

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STATE OF VERMONT)
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WINDHAM COUNTY)

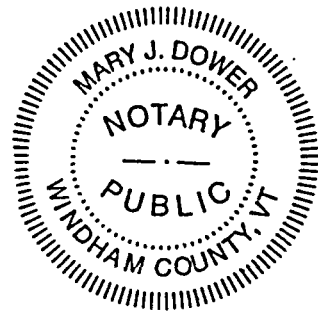
Then personally appeared before me, Jay K. Thayer, who, being duly sworn, did state that he is Site Vice President of the Vermont Yankee Nuclear Power Station, that he is duly authorized to execute and file the foregoing document, and that the statements therein are true to the best of his knowledge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



Mary J. Dower, Notary Public
My Commission Expires February 10, 2007

Attachment

- cc: USNRC Region 1 Administrator (w/o attachment)
- USNRC Resident Inspector – VYNPS (w/o attachment)
- USNRC Project Manager – VYNPS
- Vermont Department of Public Service



Docket No. 50-271
BVY 04-021

Attachment 1

Vermont Yankee Nuclear Power Station

Proposed Technical Specification Change No. 262 – Supplement No. 9

Alternative Source Term

Response to Request for Additional Information

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

Background

In the response to Request for Additional Information (RAI) No. 2 in Vermont Yankee's (VY) submittal dated February 10, 2004, it was stated: "VY also identified an error in establishing the value of 0.8% [regarding the fraction of main steam isolation valve (MSIV) leakage to the high pressure (HP) turbine]. The calculation used a non-conservative value for the flow area in the ALT [alternative leakage treatment] pathway. Therefore, VY will be making a plant modification involving one of the ALT Pathways to meet the 1% criterion and achieve the analytical value of 0.8%."

NEDC-31858P-A¹ established a means for demonstrating that ALT pathways using the main steam system piping and the main condenser are capable of performing a post-accident dose mitigation function for MSIV leakage. Appendix C to NEDC-31858P-A describes the radiological dose methodology, which is based on the traditional TID source term. The methodology includes the 0.01 (1%) "Fraction of MSIV Leakage to the HP turbine" criterion. The 1% limitation in the radiological dose assessment methodology in NEDC-31858P-A credits deposition in the HP turbine; however, VY methodology conservatively does not credit this deposition in the HP turbine.

VY is applying the seismic ruggedness evaluation methodology in NEDC-31858P-A to establish the seismic ruggedness of the ALT pathway in support of the Alternative Source Term (AST) licensing basis.

RAI No. 1

What was the error identified in the determination of the "Fraction of MSIV leakage to the HP Turbine"?

Response

The error was associated with the pipe schedule assumed for the one-inch (1") diameter pipes and components in the Alternative Leakage Treatment pathways. The as-built schedule of the pipe in question is 160 and a schedule of 80 was used to perform the evaluation. As explained in the telephone conference between NRC staff and representatives of VY that was held on February 17, 2004, the error was due to the mistaken designation of the piping schedule on an engineering drawing. In addition, as part of a comprehensive re-review of calculation inputs, one valve in the pathway was determined to have a reduced port (i.e., dimension of opening). However, the schedule difference was the primary factor for the decrease in flow properties and the resultant increase in the "Fraction of MSIV leakage to the HP Turbine".

RAI No. 2

What is the value of the "Fraction of MSIV leakage to the HP Turbine" without the proposed plant modification?

¹ Boiling Water Reactor Owners Group, NEDC-31858P-A, "BWROG Report for Increasing MSIV Leakage Rate Limits and Elimination of Leakage Control Systems," Revision 2, September 1993.

Response

The "Fraction of MSIV leakage to the HP Turbine" for the current, as-built configuration to four significant figures is 0.0114. This fraction is slightly larger than the value of 0.01 (1%) specified in NEDC-31858P-A. The 1% limitation in the radiological dose assessment methodology of NEDC-31858P-A credits deposition in the HP turbine. Even though VY conservatively does not credit deposition in the HP turbine, VY's calculation of the fraction of MSIV leakage to the HP turbine is 0.008 and meets the acceptance criterion of 0.01. In VY's analysis, the fraction of MSIV leakage to the HP turbine is an untreated release, and its contribution is therefore conservatively included in dose calculations. VY performed a sensitivity analysis of effects of a change in the leakage fraction (without deposition) from 0.008 to 0.011. This change results in an approximate 20 mrem TEDE increase in control room dose, or a dose contribution of less than 1%. Nevertheless, VY is planning the plant modification discussed below.

RAI No. 3

What does proposed plant modification consist of?

Response

The proposed plant modification involves increasing the pipe diameter and replacing a valve in one of the primary path Main Steam (MS) drain lines. The MS drain lines are 2½" diameter and reduce to 1" downstream for the corresponding valve, and then the pipe diameter is increased back to 2½". The plant modification will replace this segment of 1" pipe with 2" pipe (approximately 6 linear feet) and replace the 1" valve with a 2" valve of the same or similar design. The combination of piping diameter and port diameter of the new valve will ensure that the 0.008 "Fraction of MSIV Leakage to the HP Turbine" analytical value is met. Furthermore, the modification will be designed to ensure seismic ruggedness.

RAI No. 4

Which one of the leakage pathways will be modified?

Response

The primary path of the MS drain line will be modified. This path is identified in Figures A-1 and A-2 of Attachment 5 in the original submittal (July 31, 2003).

RAI No. 5

When will the modification be completed?

Response

The plant modification will be completed during the April 2004 refueling outage.