

May 2, 2001

Mr. Michael A. Balduzzi
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185 Old Ferry Road
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SUBJECT: VERMONT YANKEE NUCLEAR POWER STATION - SAFETY EVALUATION
FOR CONTAINMENT VACUUM BREAKERS (TAC NO. MA9270)

Dear Mr. Balduzzi:

By letter dated June 15, 2000, Vermont Yankee Nuclear Power Corporation (VYNPC, the licensee), identified what it characterized as discrepancies in the U.S. Nuclear Regulatory Commission's safety evaluation (SE) associated with the resolution to Generic Letter (GL) 83-08, "Modification of Vacuum Breakers on Mark I Containment" dated November 24, 1986. The licensee requested that the staff review its comments and clarify the contents of the SE, as appropriate.

On the basis of its review, as discussed in the enclosed SE, the staff concludes that the licensee's comments correctly identify discrepancies; however, these discrepancies do not alter our previous conclusion in the SE for the resolution to GL 83-08 regarding the structural integrity of the containment vacuum breakers for VYNPC.

If you have any questions, please contact me at (301) 415-3016. This completes the staff's efforts under TAC No. MA9270.

Sincerely,

/RA/

Robert M. Pulsifer, Project Manager, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-271

Enclosure: Safety Evaluation

cc w/encl: See next page

Vermont Yankee Nuclear Power Station

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On the basis of its review, as discussed in the enclosed SE, the staff concludes that the licensee's comments correctly identify discrepancies; however, these discrepancies do not alter our previous conclusion in the SE for the resolution to GL 83-08 regarding the structural integrity of the containment vacuum breakers for VYNPC.

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Docket No. 50-271

Enclosure: Safety Evaluation

cc w/encl: See next page

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SAFETY EVALUATION
BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATING TO CLARIFICATION OF THE STAFF SE
ASSOCIATED WITH GL 83-08, CONTAINMENT VACUUM BREAKERS
VERMONT YANKEE NUCLEAR POWER CORPORATION
VERMONT YANKEE NUCLEAR POWER STATION
DOCKET NO. 50-271

1.0 INTRODUCTION

By letter dated June 15, 2000 (Reference 1), Vermont Yankee Nuclear Power Corporation (VYNPC, the licensee) identified what it characterized as discrepancies in the U.S. Nuclear Regulatory Commission's (NRC) safety evaluation (SE) dated November 24, 1986 (Reference 2) associated with the resolution to Generic Letter (GL) 83-08, "Modification of Vacuum Breakers on Mark I Containment" for the Vermont Yankee Nuclear Power Station (VY). The licensee requested that the staff review its comments and clarify the contents of the SE, as appropriate. The staff's evaluation of the licensee's comments is provided in the following section.

2.0 EVALUATION

On November 24, 1986, the staff issued an SE confirming the adequacy of VYNPC's resolution of GL 83-08 regarding the integrity of containment vacuum breakers components during the chugging and condensation oscillation phases of a blowdown to the torus during a loss-of-coolant accident (LOCA).

In the letter dated June 15, 2000, the licensee identified deviations between the SE and the current documentation of the VY plant configuration and operation. The staff's review and evaluation of the licensee's comments are provided below.

The SE stated that there are two 18-inch external type vacuum breakers made by Atwood-Morill mounted on two 18-inch external lines connecting the drywell and the wetwell. In the June 15, 2000, letter the licensee indicated that this differs from the VY plant configuration where there are in fact 10 vacuum breakers mounted on 8 external lines. Based on its review of the VY Updated Final Safety Analysis Report (UFSAR - Reference 3) and the Flow Diagram (Reference 4), the staff concurs with the licensee's finding that there are 10 vacuum breakers (check valves) mounted on 8 external lines. The conclusions of the SE dated November 24, 1986 were based on the integrity of these valves and not on the number of valves or external lines. Therefore, the staff finds that this comment is editorial in nature and does not alter its conclusions.

The SE also stated that the vacuum breakers will not open during chugging transients based on a Continuum Dynamic, Inc. (CDI) analysis in 1983 (Reference 5). In the June 15, 2000, letter, the licensee indicated that this deviates from a later analysis performed by CDI (Reference 6) in 1985, that concluded that the vacuum breakers would open. As background, the 1983 CDI report was submitted to the NRC on May 11, 1983. On June 17, 1983, the licensee reiterated in its response (Reference 7) to the staff's request for additional information (RAI) of April 14, 1983, that the vacuum breaker valves do not actuate during a chugging event. On March 10, 1986, the licensee provided the 1985 CDI report as a reference in its response (Reference 8) to the staff's RAI of January 17, 1986, regarding a load factor used to account for the uncertainty in calculating the underpressure. The licensee, however, did not notify the NRC of the revision of its previous 1983 submittal of the CDI report with regard to the vacuum breaker valves. In the June 15, 2000, letter the licensee indicated that the stress levels under the maximum impact velocity were within an acceptable limit. As such, the licensee concluded that this is consistent with the previous conclusion in the SE of November 24, 1986, that the design of VY vacuum breakers was acceptable without valve modifications. The staff agrees with the licensee's conclusion and concludes that the licensee's comments do not alter the staff's previous conclusion in the SE dated November 24, 1986.

3.0 CONCLUSION

The staff's evaluation in the preceding Section 2.0 concludes that the licensee's comments identifying discrepancies do not alter the previous conclusion in the staff's SE dated November 24, 1986 that the design of containment vacuum breakers remain acceptable during a LOCA at VY.

4.0 REFERENCES

1. VYNPC letter to the NRC, BVY 00-59, "Vermont Yankee Nuclear Power Station, License No. DPR-28 (Docket No. 50-271), Clarification to SE for GL 83-08, Containment Vacuum Breakers," dated June 15, 2000.
2. NRC letter, to VYNPC, "Mark I Containment Drywell Vacuum Breakers," dated November 24, 1986.
3. Vermont Yankee Nuclear Power Station, UFSAR Section 5.2.3.6, "Primary Containment Venting and Vacuum Relief System," and Table 5.2.1, "Principal Design Parameters of Primary Containment."
4. Vermont Yankee Nuclear Power Station DWG No. G-191175, "Flow Diagram - Primary Containment & Atmos. Control System."
5. VYNPC letter to the NRC, FVY 83-36, "Improved Dynamic Vacuum Breaker Valve Response for Vermont Yankee," Revision 0, Continuum Dynamics, Inc., Tech Note 82-20, May 11, 1983.
6. "Mark I Wetwell to Drywell Differential Pressure Load and Vacuum Breaker Response for the Vermont Yankee Generation Station, Revision 0," Continuum Dynamics, Inc., Technical Note Number 84-24, January 1985.

7. VYNPC letter to the NRC, FVY 83-59, "Response to NRC Request for Additional Information - Mark I Containment Long-Term Program," dated June 17, 1983.
8. VYNPC letter to the NRC, FVY 86-19, "Response to NRC Request for Additional Information - Modifications of Vacuum Breakers on Mark I Containment," dated March 10, 1986.

Principal Contributor: C. Wu

Date: May 2, 2001