

# VERMONT YANKEE NUCLEAR POWER CORPORATION

185 OLD FERRY ROAD, PO BOX 7002, BRATTLEBORO, VT 05302-7002  
(802) 257-5271

January 22, 2001  
BVY 01-02

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

- References:
- (a) Letter, USNRC to VYNPC, "Feedwater Nozzle Inspection Relief Request – Vermont Yankee Nuclear Power Station (TAC No. M92940)," NVY 95-142, October 12, 1995
  - (b) NUREG-0619, "BWR Feedwater Nozzle and Control Rod Drive Return Line Nozzle Cracking," November 1980
  - (c) BWR Owners Group Topical Report, GE-NE-523-A71-0594, Revision 1, "Alternate BWR Feedwater Nozzle Inspection Requirements," August 1999
  - (d) Letter USNRC to BWROG, "Final Safety Evaluation of BWR Owner's Group Alternate Boiling Water Reactor (BWR) Feedwater Nozzle Inspection (TAC No. MA6787)," March 10, 2000
  - (e) NEI 99-04 [Revision 0], "Guidelines for Managing NRC Commitment Changes," July 1999
  - (f) Letter, USNRC to Licensees, "NRC Regulatory Issue Summary 2000-17, Managing Regulatory Commitments Made by Power Reactor Licensees to the NRC Staff," NVY 00-97, September 21, 2000

**Subject: Vermont Yankee Nuclear Power Station  
License No. DPR-28 (Docket No. 50-271)  
Alternative Feedwater Nozzle Inspection**

Pursuant to a request by Vermont Yankee (VY), the NRC staff concluded by letter dated October 12, 1995 [Reference (a)] that a feedwater nozzle inspection program using automated ultrasonic examination (UT) once every four refueling outages is acceptable for use at the Vermont Yankee Nuclear Power Station. Feedwater nozzle inspections conducted in accordance with this method meet the intent of NUREG-0619 [Reference (b)] and provide an acceptable level of quality and safety. Ultrasonic examinations of this type were first performed at VY in 1995 from the ID, and are due to be performed again during the 2001 refueling outage.

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In addition to UT examinations of the feedwater nozzles, VY also performs visual examinations of the feedwater spargers, tracks thermal cycles, and monitors for thermal sleeve leakage.

Recognizing improvements in modern inspection technology, combined with updated plant-specific fracture mechanics assessments, the BWR Owners Group (BWROG) proposed [Reference (c)] an alternative to the recommendations set forth in NUREG-0619. In Reference (d), the NRC staff determined that the inspection program proposed by Reference (c) is an acceptable alternative to the inspection guidelines of NUREG-0619. VY concurs with this finding.

Therefore, VY intends to inspect the feedwater nozzles in accordance with Reference (c) during the upcoming 2001 refueling outage. For that inspection, the UT examination will be conducted from outside the reactor vessel (on the OD) and will conform to the conditions established in the BWROG topical report. Future UT examinations of feedwater nozzles may again be performed from the ID, in accordance with Reference (c). Decisions on whether future inspections will be conducted from the OD or ID will depend upon then existing considerations, such as ALARA principles and outage efficiencies.

VY intends to conduct its ongoing feedwater nozzle inspection program in compliance with Reference (c). In particular, VY will perform the examinations using an ultrasonic technique qualified in accordance with Paragraphs 4.3, 4.4, and 4.5 of said document until such time that the ASME Section XI, Appendix VIII performance demonstration rules take effect. Re-inspection frequency will be based on the criteria in Table 6-1 of the BWROG topical report, using the inspection interval factor for an interference fit, clad nozzle. VY will also continue to account for feedwater nozzle thermal cycles and conduct visual inspections of the feedwater spargers.

The BWROG topical report does not require leakage monitoring, or the reporting of leak detection data or results to the NRC staff. However, it has been VY's on-going practice to informally report this information to NRC staff each month. Because other methods exist to better assess feedwater nozzle integrity, VY is eliminating the practice of reporting these feedwater nozzle thermocouple data to the NRC staff; however, VY will continue to monitor for feedwater nozzle thermal sleeve leakage and would take the appropriate corrective actions if adverse conditions are detected.

Inspections performed since replacing the VY feedwater spargers in 1976 have shown no new cracking of the VY feedwater nozzles. In addition, we are not aware of any new cracking of BWR feedwater nozzles in the industry over the past 15 years, indicating the effectiveness of measures taken to reduce thermal stresses, which could cause crack propagation and growth.

VY has updated the related fracture mechanics analysis and crack growth projections to include a more conservative temperature correlation at the nozzle inner surface. This correlation bounds potential bypass leakage effects and crack growth rates under postulated system thermal cycling events. VY's approach to calculating postulated crack growth is based on bounding temperature data, conducting UT and visual inspections, and monitoring thermal cycles.

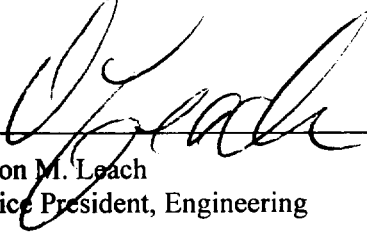
Summary

Future examinations of VY's feedwater nozzles will be conducted in accordance with Reference (c). This approach (1) has been approved by NRC staff, (2) provides sound technical methods to assure the integrity of the feedwater nozzles, and (3) provides an acceptable level of quality and safety.

This change has been evaluated in accordance with VY's program for managing regulatory commitments, and VY has determined that prior NRC approval is not required. This program is consistent with the methodology of Reference (e), which the NRC staff has found to be an acceptable way to control regulatory commitments [Reference (f)]. If there are any questions about this matter, please contact Mr. Jim DeVincentis at (802) 258-4236.

Sincerely,

VERMONT YANKEE NUCLEAR POWER CORPORATION



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Don M. Leach  
Vice President, Engineering

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

## SUMMARY OF VERMONT YANKEE COMMITMENTS

**BVY NO.: 01-02**

The following table identifies commitments made in this document by Vermont Yankee. Any other actions discussed in the submittal represent intended or planned actions by Vermont Yankee. They are described to the NRC for the NRC's information and are not regulatory commitments. Please notify the Licensing Manager of any questions regarding this document or any associated commitments.

<b>COMMITMENT</b>	<b>COMMITTED DATE OR "OUTAGE"</b>
<b>Perform ultrasonic inspections of feedwater nozzles in accordance with BWROG Topical Report GE-NE-523-A71-0594, Revision 1</b>	<b>Every fourth refueling outage, beginning Spring 2001</b>