# VERMONT YANKEE NUCLEAR POWER CORPORATION

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BVY 89-24

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REPLY TO

March 6, 1989

U.S. Nuclear Regulatory Commission Washington, D.C. 20555

Attn: Document Control Desk

References:

- a) License No. DPR-28 (Docket No. 50-271)
  b) Letter, USNRC to All Holders of an Operating License or Construction Permit for Boiling Water Reactors, NVY 88-111,
- USNRC Bulletin No. 88-07, dated 6/15/88 c) Letter, VYNPC to USNRC, FVY 88-79, "Vermont Yankee Response to NRC Bulletin 88-07, dated 9/16/8<sup>r</sup>
- d) Letter, USNRC to All Holders of an Operating License or Construction Permit for Boiling Water Reactors, NVY 88-267, NRC Bulletin No. 88-07, Supplement 1, dated 12/30/88

Dear Sir:

Subject: Response to NRC Bulletin No. 88-07, Supplement 1

NRC Bulletin No. 88-07, Supplement 1 [Reference d)] was issued to provide additional information concerning power oscillations in BWR's and requested that addressees take certain actions to ensure that the safety limit for the plant minimum critical power ratio (MCPR) is not violated. In accordance with the reporting requirements of the subject Bulletin Supplement, Vermont Yankee is herein advising the NRC that the required actions of Bulletin No. 88-07, Supplement 1, have been completed and implemented. Each of these actions requested of operating reactors is addressed below for Vermont Yankee.

## Action 1

"Within 30 days of receipt of this Supplement, all BWR licensees should implement the GE interim stability recommendations described in Attachment 1. However, for those plants that do not have effective automatic scram protection in the event of regional oscillations, a manual scram should be initiated under all operating conditions when two recirculation pumps trip (or "no pumps operating") with the reactor in the RUN mode."

### RESPONSE

Vermont Yankee has implemented the appropriate GE interim stability recommendations. This was accomplished via the issuance of an Operations Department procedure on December 8, 1988, which was prior to receipt of the subject NRC Bulletin supplement.

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Vermont Yankee developed a procedure, OT 3117, Reactor Instability, which would be implemented by the operators upon entry into Region 1 or 2 of Technical Specifications Figure 3.6.4. It should be noted that Vermont Yankee Technical Specifications contain a Figure 3.6.4 (Power/Flow Map) similar to that contained in Reference d) Attachment 1 (Figure 1). The Vermont Yankee Regions 1 and 2 correspond to Regions A, B, and C of Reference d) Figure 1. The operator is directed to immediately scram the reactor if instability is verified by either the existence of multiple, recurrent high or low LPRM alarms, or if the APRM's indicate oscillations greater than 10% peak-to-peak. Further, if Region 1 or 2 is entered and there is no indication of oscillations, Regions 1 and 2 would be exited. This would be accomplished by either inserting control rods in the reverse withdrawal sequence to decrease power to less than the 80% flow control line (i.e., lower boundary of Regions 1 and 2), or by increasing core flow by increasing recirculation pump speed. Startup of an idle recirculation pump is prohibited within these regions, or if it would result in operation within these regions. In addition, intentional operation in Region 1 or 2 is prohibited. Therefore, power maneuvering for control rod pattern adjustment, fuel conditioning, or for maintenance of recirculation pumps is conducted such that entry into these regions is avoided.

The Bulletin requirement for initiating a manual scram when two recirculation pumps trip with the reactor in the RUN mode is not applicable to Vermont Yankee. We have effective automatic scram protection in the evel of regional oscillations, in the form of APRM flow biased neutron flux scram. As stated in Reference c), OT 3118, Recirculation Pump Trip, had been revised to conservatively react to a LaSalle-type event by requiring the operators to scram the reactor if a dual pump trip occurred. However, as justified above, OT 3118 now directs the operators to immediately commence a reactor power reduction to below the 80% flow control line, and to be in the Hot Shutdown Mode within the next 12 hours if a dual pump trip occurs.

#### Action 2

"The boundaries of Regions A, B, and C shown in Figure 1 of the GE recommendations (Attachment 1) were derived for those BWRs using NRC approved GE fuel. For BWRs using fuel supplied by other vendors, these regions should be adopted in principle, but the power/flow boundaries should be based on existing boundaries that have been previously approved by the NRC. For proposed new fuel designs, the stability boundaries should be re-evaluated and justified based on any applicable operating experience, calculated changes in core decay ratio using NRC approved methodology, and/or core decay ratio measurements. There should be a high degree of assurance that instabilities will not occur under any circumstances of operation in Region C." U.S. Nuclear Regulatory Commission March 6, 1989 Page 3

## RESPONSE

Vermont Yankee utilizes only GE fuel, therefore, the boundaries of Regions A, B, and C shown in Figure 1 of the GE recommendations [Reference d) Attachment 1] apply. Further, Vermont Yankee Technical Specifications Figure 3.6.4, Thermal Power and Core Flow Limits for APRM/LPRM Monitoring, identifies those regions where a condition of thermal hydraulic/neutronic instability could exist, and will be kept current for new fuel designs implemented at Vermont Yankee.

## Action 3

"The BWROG recommendations of Attachment 1 are ambiguous with respect to permissible conditions for entry of Regions B and C. Although the recommendations state that intentional operation in Region B is not permitted and operation in Region C is permitted only for purposes of fuel conditioning during rod withdrawal startup operations, intentional entry into Region B or C is also allowable in situations where rod insertion or a flow increase is required by procedures to exit Regions A or B after unintentional entry. Licensees should ensure that the procedures and training employed for implementation of these recommendations avoid any similar ambiguity which could lead to operator confusion."

# RESPONSE

Vermont Yankee has instituted, as identified in the response to Action 1 above, administrative controls prohibiting intentional operation in Regions 1 and 2 of Technical Specifications Figure 3.6.4. As noted above, the operational restrictions are more conservative than those contained within the GE interim stability recommendations. This was consciously done to **avoid** ambiguities or conflicts in the implementation of these restrictions.

The Vermont Yankee Training Department has conducted detailed operator training on the Reactor Instability Procedure (OT 3117) as well as all procedure changes associated with the stability issue. Further, the Reactor Engineering Department has been extensively involved in this matter and in the development of the previously discussed procedural requirements.

The combination of procedural guidance and training provided should preclude any operator confusion on operation within Region 1 or 2 of Figure 3.6.4 of Technical Specifications.

Vermont Yankee is a member of the BWR Owners Group committee on stability and intends to remain involved in it through the final resolution of this issue. Vermont Yankee will evaluate all recommendations brought forth by this committee and implement all appropriate actions. U.S. Nuclear Regulatory Commission March 6, 1989 Page 4

We trust this letter is responsive to the subject Bulletin supplement; however, should you have any questions or require additional information, please do not hesitate to contact us.

Very truly yours,

VERMONT YANKEE NUCLEAR POWER CORPORATION

Warren P. Murph

Vice President and V C Manager of Operations

/dm cc: USNRC Resident Inspector, VYNPS USNRC Regional Administrator, Region I

STATE OF VERMONT) )ss WINDHAM COUNTY )

Then personally appeared before me, Warren P. Murphy, who, being duly sworn, did state that he is Vice President and Manager of Operations of Vermont Yankee Nuclear Power Corporation, that he is duly authorized to execute and file the foregoing document in the name and on the behalf of Vermont Yankee Nuclear Power Corporation and that the statements therein are true to the best of his knowledge and belief.

Diane M. McCue Notary Public

My Commission Expires February 10, 1991

