VERMONT YANKEE
NUCLEAR POWER CORPORATION

RD 5, Box 169, Ferry Road, Brattleboro, VT 05301

FVY 88-19

March 1, 1988

REPLY TO
ENGINEERING OFFICE
1671 WORCESTER ROAD
FRAMINGHAM, MASSACHUSETTS 01701
TELEPHONE 617-872-8100

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

References:
(a) License No. DPR-28 (Docket No. 50-271)
(b) Letter, VYNPC to USNRC, FVY 86-36, dated May 5, 1986
(c) Letter, VYNPC to USNRC, FVY 86-49, dated June 2, 1986
(d) Letter, USNRC to VYNPC, NVY 86-113, dated June 16, 1986
(e) Letter, VYNPC to USNRC, FVY 87-07, dated January 12, 1987
(f) Letter, VYNPC to USNRC, FVY 87-50, dated May 7, 1987
(g) Letter, USNRC to VYNPC, NVY 87-81, dated May 28, 1987
(h) Letter, VYNPC to USNRC, FVY 87-100, dated October 20, 1987
(i) Letter, USNRC to All Licensees of Operating Boiling Water Reactors, NVY 88-009, Generic Letter 88-01, "NRC Position on IGSCC in BWR Austenitic Stainless Steel Piping," dated January 25, 1988

Subject: Long-Term Operation With Core Spray Safe End Nozzle Weld Overlays

Dear Sir:

By letter dated May 28, 1987 [Reference (g)], the Nuclear Regulatory Commission (NRC) approved Vermont Yankee's plans to inspect the two overlay-repaired core spray safe ends instead of replacing them during the 1987 refueling outage. That letter also requested Vermont Yankee to provide the results of the inspection no later than three weeks after plant startup following the 1987 refueling outage. In accordance with that request, Vermont Yankee provided the 1987 refueling outage liquid penetrant and ultrasonic examination results of the Vermont Yankee Core Spray System safe end to reactor vessel nozzle weld overlay repair welds by letter dated October 20, 1987 [Reference (h)]. These examinations showed the weld overlays and the underlying nozzle, weld and safe-end material to be free from new or propagating defects.

Vermont Yankee committed [Reference (h)] to notify you of our future plans with regard to replacement of the safe ends upon completion of our evaluation of long-term operation with core spray overlays. This evaluation, incorporating the results of the 1987 inspection of both weld overlays and the relevance of the BWR nozzle cracking detected at two reactors is provided in the attached report, "Justification for Long-Term Operation for Vermont Yankee

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Core Spray Nozzle Weld Overlays." The report discusses the factors related to long-term operation of the weld overlays and demonstrates that long-term operation in accordance with NUREG-0313, Revision 2, [Reference (i)], is justified.

Flaw growth evaluations were performed using the guidelines provided in NUREG-0313, Revision 2. A flaw just below the threshold of detectability was assumed and no credit was taken for any residual stress benefit from the overlay. Even using this very conservative approach, an unlimited service life was predicted.

The nozzle cracking incidents at an overseas reactor and Brunswick Unit 2 were evaluated with respect to their impact on the use of weld overlays. For the geometry and applied stress conditions of the Vermont Yankee core spray nozzles, the possibility of low alloy steel stress corrosion cracking presents no additional structural integrity concerns.

Based upon the results and conclusions contained in the attached report, Vermont Yankee has determined that continued operation with weld overlays on the core spray nozzles in conformance with the code required structural integrity requirements for weld overlays and the reactor pressure vessel is acceptable beyond Cycle 13 (current cycle) operation. Vermont Yankee herein commits to confirm our evaluation results and document acceptable continued operation of the core spray safe-end nozzle weld overlays by performing periodic ultrasonic examination of the weld overlays in accordance with NUREG-0313, Revision 2, (Reference (i)), requirements and the ultrasonic inspection program detailed in our letter of May 7, 1987 [Reference (f)].

Accordingly, we request your concurrence with our plans for continued operation with the core spray safe-end nozzle weld overlays. We trust that the information herein presented and attached is satisfactory; however, should you have any questions or require further information concerning this matter, Vermont Yankee is available to meet with you at your convenience. In accordance with the provisions of 10CFR170.12, we are enclosing an application fee of $150.00.

In order to meet our integrated Cycle 13 refueling outage planning and scheduling requirements, we request your review associated with this matter be completed by June 1, 1988.

Very truly yours,

VERMONT YANKEE NUCLEAR POWER CORPORATION

Warren P. Murphy
Vice President and Manager of Operations

WPM/25.345
cc: USNRC
Office of Nuclear Reactor Regulation
Mr. V. L. Rooney

USNRC Region I
USNRC Resident Inspector, VYNPS