PROPOSED CHANGE NO. 152

VERMONT YANKEE
NUCLEAR POWER CORPORATION

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BVY 89-113

REPLY TO
ENGINEERING OFFICE
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November 10, 1989

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

References:
(a) License No. DPR-28 (Docket No. 50-271)
(b) Letter, VYNPC to USNRC, FVY 85-46, Proposed Change No. 129, dated May 10, 1985
(c) Letter, VYNPC to USNRC, FVY 85-107, "Response to Request for Additional Information Concerning Vermont Yankee Proposed Change No. 129 - Reactor Vessel Pressure/Temperature Curves," dated November 21, 1985
(d) Letter, USNRC to VYNPC, NVY 86-121, Amendment No. 93, dated June 24, 1986
(e) Code of Federal Regulations, 10CFR50, Appendix G
(f) Letter, USNRC to All Licensees of Operating Reactors and Holders of Construction Permits, NVY 88-144, USNRC Generic Letter 88-11, "NRC Position on Radiation Embrittlement of Reactor Vessel Materials," dated July 12, 1988
(g) Letter, VYNPC to USNRC, FVY 88-94, Vermont Yankee Response to Generic Letter 88-11, dated November 10, 1988

Subject: Proposed Change to Revise the Reactor Vessel Pressure-Temperature Curves in the Vermont Yankee Technical Specifications (Generic Letter 88-11)

Dear Sir:

Pursuant to Section 50.90 of the Commission's Rules and Regulations, Vermont Yankee Nuclear Power Corporation (VYNPC) hereby proposes the following change to Appendix A of the Operating License [Reference (a)].

Proposed Change

Vermont Yankee proposes to change its Technical Specifications by revising Technical Specification 3.6, "Reactor Coolant System." Specifically, this change consists of a revised Pressure-Temperature (P-T) limit curve in Technical Specification Figure 3.6.1 (Page 111), and the associated Bases (Page 117).

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Reason and Basis For Change

In May 1988, the United States Nuclear Regulatory Commission (NRC) issued Revision 2 to Regulatory Guide 1.99, "Radiation Embrittlement of Reactor Vessel Materials," to be used by the NRC in reviewing submittals regarding P-T limits, and for analyses that require an estimate of the embrittlement of reactor vessel beltline materials. Subsequently, the NRC issued Generic Letter No. 88-11 [Reference (f)] requiring licensees to use the methods described in Revision 2 to Regulatory Guide 1.99 to predict the effect of neutron radiation on reactor vessel materials as required by Paragraph V.A. of 10CFR, Part 50, Appendix G, unless different methods are justified. Vermont Yankee's response to Generic Letter 88-11 [Reference (f)] stated that Vermont Yankee had previously applied the guidance of Regulatory Guide 1.99, Revision 2 to our facility [References (b) and (c)]. This application was approved by NRC in Amendment No. 93 to the Vermont Yankee Technical Specifications [Reference (d)].

Figure 3.6.1 has been revised in this application to reflect the shift in transition temperature for the reactor pressure vessel materials for operation through a cumulative energy output of 4.46×10^8 MWh(t). This change is necessary because the existing curves, which were approved by the NRC in Reference (d), are limited to a cumulative energy output of 1.79×10^8 MWh(t), a value which is expected to be reached by May 1990.

The Figure 3.6.1 limit curves are revised in accordance with 10CFR50, Appendix G [Reference (e)], and NRC's position on radiation embrittlement of reactor vessel materials established in Generic Letter 88-11 [Reference (f)]. The Section 3.6/4.6 A Bases, "Pressure and Temperature Limitations," are revised to reflect the change to the Figure 3.6.1 P-T limit curves. These changes fully comply with the Safety Evaluation Report issued with Reference (d) (the exception being the increased shift due to a greater cumulative energy output).

Safety Considerations

These proposed changes do not present any unreviewed safety questions as defined in 10CFR50.59(a)(2). This proposed change is being submitted in accordance with the requirements of 10CFR50, Appendix G. The new curves represent more restrictive operating limits than the current curves, and thus continue to provide sufficient margin to prevent brittle fracture of reactor coolant boundary material. The revised thermal and pressurization limits do not compromise existing safety objectives, and have been developed in accordance with NRC regulations and the most recent NRC guidance which support these safety objectives.

These changes have been reviewed by the Plant Operations Review Committee (PORC) and the Nuclear Safety Audit and Review Committee (NSARC).

Significant Hazards Consideration

10CFR50.92(c) states that a proposed amendment will not involve a significant hazards consideration if the proposed amendment does not: (i) involve a significant increase in the probability or consequences of an accident previously evaluated; or (ii) create the possibility of a new or different kind of accident from any accident previously evaluated; or (iii) involve a significant reduction in a margin of safety. The discussion below addresses these standards and demonstrates that operating the facility with these proposed changes involves no significant hazards considerations.

i. This proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated because the revised thermal and pressurization limits prohibit conditions where brittle fracture of reactor vessel materials is possible. Accordingly, there will be no increase in the probability or consequences of a previously evaluated accident, since the primary coolant pressure boundary integrity will be maintained consistent with the original safety design basis.

   The RT_{NDT} used to evaluate the new P-T limits for the beltline material was based on the guidance in Regulatory Guide 1.99, Revision 2, which is the latest guidance on RT_{NDT} determinations. The revised P-T limit curves were conservatively generated in accordance with the fracture toughness requirements of 10CFR50, Appendix G, as supplemented by Appendix G to Section III of the ASME Boiler and Pressure Vessel Code.

ii. This proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated because the revised thermal and pressurization limits do not create any new kind of operating mode or introduce any new potential failure mode. Conditions where brittle fracture of primary coolant pressure boundary materials is possible will continue to be avoided.

iii. The proposed revisions do not involve a significant reduction in a margin of safety because the proposed P-T limits still provide sufficient safety margin. The revised P-T limits were established in accordance with current regulations and the latest regulatory guidance on RT_{NDT} determinations. Because operation will be within these limits, the reactor vessel materials will behave in a nonbrittle manner, thus, maintaining the original safety design basis.

Schedule for Changes

We request that your review and approval of these proposed changes be completed within three months of the submittal date. These changes can be incorporated into the Vermont Yankee Technical Specifications within 30 days following receipt of your approval.

We trust that this submittal adequately supports our request; however, should you have any questions in this matter, please contact us.

Very truly yours,

VERMONT YANKEE NUCLEAR POWER CORPORATION

Warren P. Murphy
Vice President and Manager of Operations

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cc: USNRC Regional Administrator, Region I
USNRC Resident Inspector, VYNPS
Vermont Department of Public Service

STATE OF VERMONT)
)ss
OF 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 McCue Notary Public
My Commission Expires February 10, 1991