VERMONT YANKEE
NUCLEAR POWER CORPORATION

Proposed Change No. 122

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REPLY TO:
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November 2, 1984
FVY 84-129

United States Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Office of Nuclear Reactor Regulation
Mr. Harold R. Denton, Director

References:
(a) License No. DPR-28 (Docket No. 50-271)
(b) Letter, USNRC to VYNPC, dated June 3, 1977
(c) Letter, YAEC to USNRC, WYR 80-83, dated July 24, 1980
(d) Letter, VYNPC to USNRC, FVY 84-46, dated May 15, 1984

Subject: Degraded Grid Protective System - Proposed Technical Specification Changes

Dear Sir:

Pursuant to Section 50.59 of the Commission's Rules and Regulations, Vermont Yankee Nuclear Power Corporation hereby proposes the following modification to Appendix A of the Operating License:

Proposed Change:

Replace Pages 34a, 61, 66, and 67 with the attached revised Page 34a, 61, 66, and 67 and add the attached new Pages 49b and 60a to the Vermont Yankee Technical Specifications. These changes incorporate the required setpoints and tolerances, limiting conditions for operation, and the surveillance requirements for the Degraded Grid Protective System.

Reason for Change:

In July 1976, Millstone Unit No. 2 reported that several motors failed to start due to a degraded grid voltage condition. As a result of that incident, the NRC requested that all nuclear facilities investigate their vulnerability to a degraded grid voltage condition as it pertains to plant operation and equipment failures.

Vermont Yankee Nuclear Power Corporation determined that the degraded voltage condition which occurred at Millstone was a combination of events pertinent to the auxiliary system of Millstone and its load-dispatching facilities. They were not typical of, nor were they applicable to, the transmission grid or auxiliary electric system at Vermont Yankee. However, in

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response to the NRC Staff position on the Emergency Power Systems for Operating Reactors provided by letter dated June 3, 1977 [Reference (b)]; Yankee Atomic Electric Company, on behalf of Vermont Yankee, proposed plant modifications necessary to mitigate the effects of grid degradation on safety-related electrical equipment. These modifications were discussed in our letter of July 24, 1980 [Reference (c)].

By letter dated May 15, 1984, [Reference (d)], Vermont Yankee committed to provide a request for amendment to our operating license to address the setpoints and tolerances, limiting conditions for operation, and surveillance testing for the Degraded Grid Protective System.

Basis for Change:

To meet the commitments of Reference (c) and assure that safety-related electrical equipment will not be subjected to sustained degraded voltage, a safety class second-level Degraded Grid Protective System has been installed, incorporating the following features:

(1) Automatic disconnection from the off-site power source during degraded voltage conditions coincident with an Emergency Safeguard Feature (ESF) actuation signal.

(2) Operator action in response to a degraded voltage condition during non-accident conditions.

(3) Coincident logic to prevent spurious trips due to relay malfunction.

(4) A time delay to prevent spurious trips due to short duration transients.

The Degraded Grid Protective System incorporates voltage relays on 4160 Volt Emergency Buses 3 and 4. These relays are set to actuate at the minimum voltage required to insure operation of safety-related equipment. A time delay relay has been installed for each undervoltage relay to eliminate spurious pickup due to short duration transients on the grid and the auxiliary system.

Operation of the system shall be as follows:

(1) If the voltage drops below the required 3700 volts $\pm$ 40 volts setpoint for safe operation of safety class equipment for ten seconds, either relay will actuate an alarm to alert the operator of a degraded voltage condition. Upon receiving the alarm, the operator will contact the Rhode Island, Eastern Massachusetts, and Vermont Energy Control (REMVEC) system's operator to request an assessment of the degraded voltage condition. Based upon this assessment and an estimate of the duration of the degraded condition, the operator will decide whether to disconnect the off-site power. The operator's procedures have been reviewed for applicability to IE Information Notice No. 84-69: Operation of Emergency Diesel Generators.

(2) In addition to (1) above, if an ESF signal is initiated in conjunction with low voltage below the relay setpoint for ten seconds, the off-site power will be automatically disconnected. This will initiate a no-voltage condition on the emergency bus which automatically starts the diesel generator and load sequences the ESF loads.

For this protective function, the relay contacts are to be connected in a two-out-of-two coincident logic scheme to assure that failure of one relay will not cause actuation of this system.

Safety Considerations:

The changes proposed add undervoltage relays to monitor the voltage on the 4160 volt emergency buses and as such constitute an additional limitation and control not presently included in the Vermont Yankee Technical Specifications. These changes were requested by NRC and are not considered to constitute an unreviewed safety question as defined in 10CFR50.59(a)(2).

The addition of the undervoltage relays to monitor the voltage on the 4160 volt emergency buses enhances the safety of the plant in the following ways:

(1) Degraded grid voltage during normal plant operation will actuate an alarm in the Control Room. The operator will contact the Rhode Island, Eastern Massachusetts, and Vermont Energy Control (REMVEC) system's operator to request an assessment of the degraded grid condition, and to take the appropriate action to restore normal plant voltage. Should restoration fail, the operator will disconnect the off-site source according to the operating procedures. Operator action enhances plant safety by allowing the operator to evaluate the conditions and take appropriate action to assure that the plant auxiliary electrical system is connected to the most reliable power supply and that transients on the plant and reactor are minimized.

(2) Degraded grid voltage, in conjunction with an Emergency Safeguards Feature actuation, will automatically disconnect the 4160 volt emergency buses from off-site power. The diesel generator will then start automatically and load sequencing will be initiated. Automatic disconnection of the emergency buses coincident with a degraded voltage conditions enhances plant safety by protecting the ESF equipment from a low voltage condition.

These changes have been reviewed by the Nuclear Safety Audit and Review Committee.

Significant Hazards Consideration:

The Commission has provided guidance concerning the application of the standards for determining whether a "significant hazards" consideration exists by providing certain examples (48FR14870).

One of these examples (ii) states that a change which constitutes an additional limitation, restriction or control not presently included in the Technical Specifications; for example, a more stringent surveillance requirement, does not involve a significant hazard consideration.

As described above, the changes being proposed constitute an additional limitation and control not presently included in the Technical Specifications for Vermont Yankee.

Therefore, we conclude that this Proposed Change does not constitute a significant hazards consideration, as defined in 10CFR50.92(c).

Fee Determination:

In accordance with the provisions of 10CFR170.12, an application fee of $150.00 is enclosed.

Schedule of Change:

This change will be incorporated into the Vermont Yankee Technical Specifications as soon as practicable following receipt of your approval.

We trust that the information provided above 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

JBS/smh
Enclosure
cc: U.S. Nuclear Regulatory Commission
Document Control Desk (40 copies)

Vermont Department of Public Services
120 State Street
Montpelier, Vermont 05602
Attention: Mr. Richard Saudek, Chairman

DIANE M. McCUE
NOTARY PUBLIC
WINDHAM COUNTY, VERMONT

STATE OF VERMONT)
)ss
OF WINDHAM COUNTY)

Then personally appeared before me, Warren P. Murphy, who, being duly sworn, did state that he is a 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
Diane McCue — Notary Public
My Commission Expires