October 5, 1998

Mr. Gregory A. Maret
Director of Operations
Vermont Yankee Nuclear Power Corporation
185 Old Ferry Road
Brattleboro, Vermont 05301

SUBJECT: NRC SPECIAL INSPECTION REPORT NO. 50-271/98-09 - REPLY TO LICENSEE RESPONSE TO NOTICE OF VIOLATION

Dear Mr. Maret:

This refers to your August 10, 1998, correspondence, in response to our letter, dated July 10, 1998, regarding the Vermont Yankee nuclear power plant. Two violations were identified as noted in the subject special inspection and we have reviewed your response to those violations in accordance with NRC Inspection Manual Procedures 92901, Follow up - Plant Operations, and 92903, Follow up - Engineering. Your stated corrective actions to address the two violations appear to be acceptable and will be reviewed in a future inspection.

The first violation (A) dealt with two plant operating procedures that were not properly prepared and approved; specifically OT 3114, Reactor High Level, and OP 2134, 480 and Lower Voltage AC System. We concur with your assessment of the causes in that the procedures were too general, they did not have specific precautions, operating parameters were not properly monitored. The corrective actions were focused on enhancing these procedures and providing additional briefings on these problems for the operating crews and, in particular, the shift supervisors. We note that you have efforts in progress to improve operating procedures.

The second violation (B) dealt with your failure to take prompt or comprehensive action to correct the identified deficiencies (weakness in maintenance trending program) relative to the "D" RHR pump and Bus 1 feeder breaker overcurrent relays. We concur with your assessment of the causes in that there was a failure to enter into the corrective action process the identified weakness in the maintenance trending program. An additional cause was a weak calibration/surveillance procedure that did not ensure adjustments to the relays when at the limit of the acceptance ranges. Corrective actions focused on putting the issue into your corrective action process, enhancing the engineering review of work orders and test results, and upgrading the Administrative Controls for the conduct of Surveillance, Corrective and Preventive Maintenance Program.

IE01

Also, you provided additional information related to correspondence contained in our report which discussed a non-cited violation (NCV). The violation was considered in reference to Technical Specifications (TS) 4.7.A.1 for failure to continuously monitor and log torus pool temperatures every 5 minutes upon actuation of the Safety Relief Valves (SRVs) during the event. You concluded that no violation existed. Your basis was that you considered the heat addition to the torus to be terminated as soon as the SRV was closed and therefore the need to record the temperature was also terminated. We agree that the heat addition was terminated for each SRV when it was closed; however, the heat addition event was ongoing during the plant transient and consisted of 12 cycles of the SRVs for reactor temperature and pressure control from 2:36 a.m. until 6:01 a.m. on June 9, 1998. We agree that little benefit would be gained from the recording of torus pool temperatures every 5 minutes by an operator when the information is readily available from the strip charts or the computer. This assumes that the operators were monitoring these temperatures for corrective action with respect to abnormal or emergency operating procedures (we have no information to the contrary). Because TS 4.7.A.1 did not specify how the temperature was to be recorded we concur that no violation of TS 4.7.A.1 occurred.

However, we noted that procedure OP 2122, Revision 17 specifically required the temperature to be recorded every 5 minutes in the Operations Log. This was not performed every 5 minutes between 4:15 a.m. and 5 a.m. on June 9, 1998; and, in addition, temperatures were not recorded for two SRV lifts at 4:45 and 4:55 a.m. Accordingly we consider this a violation of TS 6.8.1 which requires that procedures, such as OP 2122 be properly implemented. Discussions between your staff and the Region 1 staff, indicate that you concur in this assessment. Because this issue is considered licensee-identified that is being corrected and because the failures to record were of low safety significance and not indicative of a programmatic problem, we consider the item to be a minor violation (against TS 6.8.1 and OP 2122). Your letter indicated some opportunities for improvement in this area with respect to clarifying procedural expectations concerning the method of logging this temperature in the future and consideration of a revision of TS 4.7.A.1. Accordingly, the plant issues matrix (PIM) concerning this item will be withdrawn.

Thank you for informing us of the corrective and preventive actions documented in your letter. We appreciate your cooperation.

Sincerely,

James T. Wiggins, Director
Division of Reactor Safety

Docket No. 50-271

cc:
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VERMONT YANKEE
NUCLEAR POWER CORPORATION

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August 10, 1998
BVY 98-124

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

References: (a) Letter, USNRC to VYNPC, "NRC Integrated Inspection Report 50-271/98-09 and Notice of Violation", NVY 98-96, dated July 10, 1998

(b) Letter, VYNPC to USNRC, "Licensee Event Report 98-016", BVY 98-101, dated July 9, 1998

Subject: **Vermont Yankee Nuclear Power Station**
License No. DPR-28 (Docket No. 50-271)
Reply to a Notice of Violation - NRC Inspection Report No. 50-271/98-09

This letter is written in response to Reference (a), which documents the findings of an inspection conducted between June 9 and June 19, 1998. Two (2) Severity Level IV violations are identified in the report and our response to each violation is provided below.

VIOLATION A

Technical Specifications Paragraph 6.5, Plant Operating Procedures, Section A., requires detailed written procedures, involving both nuclear and non-nuclear safety,... covering areas listed below shall be prepared and approved. Paragraph 6.5, Section A.3., lists, Actions to be taken to correct specific and foreseen potential malfunctions of systems or components, suspected primary system leaks and abnormal reactivity changes.

Contrary to the above, as of June 9, 1998, the following two procedures were not properly prepared and approved:

1. **Procedure OT 3114, Reactor High Level, Revision 9, did not direct or alert the operators to place reactor feedwater pump's breaker control switches in pull to lock to prevent an inadvertent start of more than one pump on bus 1. Automatic restart of two reactor feedwater pumps on bus 1 was a known (or foreseen) malfunction. This resulted in a subsequent automatic restart of two reactor feedwater pumps on bus 1 and caused a loss of associated vital busses and a challenge to the emergency diesel generator.**

2. **Procedure OP 2143, 480 and Lower Voltage AC System, Revision 39, did not contain instructions to alert the operator that re-energizing bus 6 would result in a restart of the turbine generator auxiliary oil pump. Automatic restart of the**

auxiliary oil pump on re-energizing bus 6 was a known (or foreseen) malfunction. This resulted in a restart of the auxiliary oil pump which resulted in a high steam flow due to turbine bypass valves opening and subsequent actuation of the reactor protection system and a automatic steam line isolation.

This is a severity level IV Violation.

RESPONSE

(1) Reason For The Violation

Vermont Yankee does not contest this violation.

The first part of the violation resulted from inadequate procedural control that should have required placing a second standby feedwater pump in the PULL-TO-LOCK position to prevent a simultaneous automatic start of multiple feedwater pumps. The simultaneous automatic start of two feedwater pumps caused the tripping of bus 1 due to the starting currents required for both pumps from the same bus.

The second part of the violation also resulted from inadequate procedures in that during recovery of a 480 volt bus, the turbine auxiliary oil pump was allowed to automatically restart without verifying the appropriate pressure regulator setpoint. This allowed the turbine bypass valves to ramp open in accordance with the pressure regulator setting and caused a high steam flow isolation.

The root cause of these events was that the procedures governing the equipment operation were too general and in both cases did not contain appropriate precautions about the automatic restart potential for the equipment.

Contributing causes were that operating parameters were not effectively monitored in the case of the pressure regulator setpoint and that self-checking was not effectively applied in the case of re-energizing the auxiliary oil pump bus.

(2) Corrective Steps That Have Been Taken And The Results Achieved

OT-3114, "Reactor High Level" and OP-2172, "Feedwater System" were revised to allow only a single feedwater pump in the STANDBY mode at one time.

OP-2143, "480 and Lower Voltage AC System..." was revised to control the re-energization of the auxiliary oil pump.

The Operations Manager provided expectations to the operating crews concerning lessons learned from this event and procedure changes made to prevent recurrence.

(3) Corrective Steps That Will Be Taken To Avoid Further Violations

At the next Shift Supervisor meeting, a conservative approach to de-energizing and re-energizing busses will be emphasized to control the re-energization of the busses and startup of systems and equipment in a more controlled manner. This is expected to be completed by September 4, 1998.

Additionally, as reported in our Licensee Event Report (Reference b) for this event, we will be reviewing the design of our feedwater pump automatic start logic and developing specific loss of bus procedures.

(4) Date When Full Compliance Will Be Achieved

Full compliance was achieved on June 12, 1998 when changes to procedures OP-2143, OP-2172 and OT-3114 were completed.

VIOLATION B

10 CFR Part 50 Appendix B, Criterion XVI, Corrective Action, states that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition.

Contrary to the above, on or before June 9, 1998, the licensee failed to take prompt or comprehensive action to correct identified deficiencies or preclude repetition as demonstrated by the following. The three relay calibrations performed in November 1997 for the 'D' RHR pump overcurrent relays and in December 1997 for the three Bus 1 feeder breaker overcurrent relays identified that the timing on all three phases were out of tolerance low. The only corrective actions was to reset the device.

This is a Severity Level IV violation.

RESPONSE

(1) Reason For The Violation

Vermont Yankee does not contest this violation.

This violation resulted from Vermont Yankee's failure to enter the corrective action process for an identified weakness in the maintenance trending program.

For the equipment in question, Maintenance Engineering review of the surveillance readings was performed, the readings evaluated for operability and entered into the equipment history records. However, due to a weakness in our trending program, we failed to note the trend that multiple relays were experiencing similar problems and failed to initiate corrective actions beyond the adjustment of the relays. Additionally, the procedures in place for calibration of these relays have been determined to have a weakness in that they do not require adjustment of the relays if they are near the edge of their allowable range.

(2) Corrective Steps That Have Been Taken And The Results Achieved

An Event Report (ER) was initiated when this weakness was identified. Investigations are in progress under this ER and will look for similar conditions and other potential areas where entry into the corrective action process should have occurred and determine what corrective actions are required beyond those already in progress.

A review of the event and interim guidance for enhanced engineering review of work orders and test results was provided to the Electrical and Controls (E&C) Maintenance staff on August 5, 1998.

(3) Corrective Steps That Will Be Taken To Avoid Further Violations

A procedure revision to AP-0310 "Surveillance, Preventative and Corrective Maintenance Program" is being prepared that will:

* incorporate improvements in the Maintenance Engineering review of work orders and surveillance testing and requirements for trending

* require entry into the corrective action process for any negative trends identified

* require relay/instrument adjustments if settings are near the edge of their allowable range

This procedure change is expected to be completed by September 30, 1998.

(4) Date When Full Compliance Will Be Achieved

Full compliance was achieved when the ER was initiated on June 12, 1998 and when the interim guidance was provided to E&C Maintenance Engineering staff on August 5, 1998.

Additional Information

On page 5 of your inspection report (Reference a) you list a non-cited violation (NCV 50-271/98-09-02) because of our "failure to continuously monitor and record torus temperature readings every five minutes as required by Technical Specifications 4.7.A.1."

Vermont Yankee Technical Specification (TS) section 4.7.A.1 states in part:

> "Whenever there is indication of relief valve operation which adds heat to the suppression pool, the pool temperature shall be continually monitored and also logged every 5 minutes until the heat addition is terminated."

This issue has been reviewed for 10CFR50.73 reportability and we have determined that a condition prohibited by TS did not exist because the heat addition was terminated when the SRV was closed. Consequently, logging the temperature was no longer required. We have benchmarked other facilities that have similar TS requirements, with regard to when the heat addition is considered terminated and our findings are consistent with the other plants. Our records show that no SRV was open for longer than 3 minutes and thus the logging requirement terminated with closure of the valve. During the short periods when the SRVs were open, the suppression pool temperature was continually monitored using Control Room recorders, the Safety Parameter Display System (SPDS) and by the operating crew.

We did, however, identify opportunities for improvement in this area with respect to clarifying expectations and methods for logging this temperature in the future. We will be evaluating procedure enhancements in support of this temperature logging.

In conclusion, we are not planning to submit a Licensee Event Report for this issue, as a condition prohibited by the TS.

We trust that the enclosed information is responsive to your concerns, however, should you have any questions or require additional information, please contact us.

Sincerely,

VERMONT YANKEE NUCLEAR POWER CORPORATION

Gregory A. Maret
Director of Operations

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