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FVY 84-79

REPLY TO:
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July 7, 1984

U.S. Nuclear Regulatory Commission
Office of Inspection & Enforcement
Region I
631 Park Avenue
King of Prussia, PA 19406

Attention: Mr. Richard W. Starostecki, Director
Division of Project and Resident Programs

References: a) License No. DPR-28 (Docket No. 50-271)
b) Letter, USNRC to VYNPC, dated 6/8/84 and Inspection Report No. 84-08, Appendix A (Notice of Violation)

Dear Sir:

Subject: Response to Inspection Report 84-08

This letter is written in response to Reference b), which indicates that certain of our activities were not conducted in full compliance with Nuclear Regulatory Commission requirements. These alleged violations were identified as a result of an inspection conducted by your Mr. W.J. Raymond during the period of April 3 - May 7, 1984.

Information is submitted as follows in answer to the alleged violations contained in the Appendix to your letter.

DISCUSSION

As a result of the inspection conducted April 3 - May 7, 1984, and in accordance with the revised NRC Enforcement Policy (10 CFR 2, Appendix C), published in the Federal Register on March 8, 1984 (49 FR8583), the violations discussed below were identified. The following discussion is pertinent to Items A and B below.

Reactor water level exceeded the high level trip setpoint during the recovery from a reactor scram on April 16, 1984, which caused a trip signal to be sealed in on the high pressure coolant injection (HPCI) system trip-throttle valve. The HPCI isolation logic remained in the tripped condition after reactor

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level decreased below the trip setting, even though the 'HPCI High Level Shutdown' annunciator on the main control board had cleared. The logic remains in the tripped condition until the logic reset pushbuttons are depressed. However, the reset pushbuttons were not depressed during the scram recovery operations.

Plant operators noted that the HPCI trip-throttle valve did not open upon demand during the performance of a valve operability test on April 20, 1984. The valve subsequently opened after the HPCI high water level reset pushbutton was depressed. The operators concluded that there had been no problem with HPCI operability since a reactor vessel low water level trip signal would override the high water level isolation on the trip-throttle valve and provide for HPCI operation in response to an accident condition.

On April 25, 1984, after subsequent operator review and discussion of the actions taken during the April 20, 1984 valve test, it was realized that a problem could have existed with HPCI operability. The HPCI operability question was evaluated by licensee management and it was determined that the High Drywell Pressure initiation circuitry of HPCI was invalidated (locked out) from the time of the high level trip on April 16, 1984 until the logic reset pushbutton was depressed on April 20, 1984. The licensee reported to the NRC Duty Officer on April 25, 1984 that the HPCI high drywell pressure initiation circuit had been inoperable from April 16-20, 1984.

Item A Technical Specification 3.5.E requires that the HPCI system be operable during reactor operations above 150 psig. Technical Specification 3.2 requires for the HPCI system to be considered operable that the system be capable of automatically initiating in response to conditions of low reactor vessel water level and high drywell pressure.

Contrary to the above, the HPCI system was inoperable from about 8:30 a..m. on April 16, 1984 until about 4:45 a.m. on April 20, 1984, in that the system was incapable of automatically starting upon receipt of a high drywell pressure initiation signal.

This is a Severity Level IV Violation (Supplement I.D.).

RESPONSE

The initial discovery of the hi-level reset problem was during a HPCI system surveillance on the midnight shift on April 20, 1984. The operating crew depressed the logic reset, completed the surveillance and concluded that the HPCI lo-lo water level initiation would have occurred automatically as expected. The loss of the hi-drywell pressure intiation was not apparent to the crew at this time.

The shift engineer on this crew was relieved from the shift on Monday, April 23, 1984, to attend a training course. During the training, the subject of the HPCI surveillance difficulties was discussed. The logic was examined and it was noticed that there may have been a problem with the hi-drywell initiation part of the logic. On April 24, the shift engineer was instructed by the Operations engineer to verify the exact problem encountered during the HPCI surveillance with his shift supervisor at the earliest opportunity (the morning of April 25).

Discussion with the shift supervisor substantiated the doubt about HPCI operability and a PRO was written. The ensuing investigation revealed that the HPCI system would not have auto-started from a high drywell pressure signal from April 16 to April 20, 1984. The lo-lo water level HPCI initiation, however, would have occurred as designed. This was due to not resetting the hi-level HPCI turbine trip logic after scram recovery operations on April 16, 1984.

This problem was not identified during the period between SCRAM and startup because:

1. HPCI initiation setpoints were not reached and HPCI was never running, so operator attention was not focused on this panel.

2. There is nothing specific on the alarm typer that shows a need for the HPCI reset to be depressed.

3. The portion of the logic dealing with the hi-drywell initiation and the hi-level trip reset switch was not obvious, making indirect indications difficult to interpret.

4. The "HPCI hi-level trip" annunciator on CRP 9-3 energized during the scram recovery operations but cleared as soon as level dropped below the high level setpoint.

Thus, after the plant was stabilized and the alarm cleared, there was no apparent indication that the HPCI initiation logic was degraded. The only evidence was the "RFP MTR BKR OPEN" alarm message on the alarm typer which trips HPCI, RCIC and FW at the same setpoint and from the same instruments.

Concerning the time from reactor startup to April 20th, the problem was not discovered due to the omission of some beginning steps in the startup procedure, OP 0100. The startup was from a hot, pressurized condition, which made most of the early steps in the procedure non-applicable.

a) CORRECTIVE STEPS THAT HAVE BEEN TAKEN AND THE RESULTS ACHIEVED

1) Logic reset pushbutton was depressed to reset the HPCI hi-level turbine trip logic on April 20, 1984.

2) OP 3100, Reactor Emergency Scram Procedure, was modified to ensure that all logic resets are accomplished in accordance with the requirements of OP 0100, Reactor Startup to Criticality.

b) CORRECTIVE STEPS THAT ARE BEING UNDERTAKEN TO AVOID FURTHER VIOLATIONS

1) OP 3140, Alarm Response, is in review now and the "HPCI hi-level trip' annunciator response will contain instructions to depress the HPCI logic pushbutton.

2) A department memo has been issued stressing the importance of detailed and complete log entries to ensure ease and integrity of shift turnover. This memo also stresses the expeditious reporting requirements of 10 CFR 72 for all licensed operators. In addition, a detailed discussion of this violation will be held at the next shift supervisors' meeting.

3) There may be an operator unfamiliarity with a portion of the HPCI logic. To resolve this concern, our operations training department will review this LER and the associated logic configuration as part of the 1984 operator requalification program.

4) The Control Room Design Review Committee will consider this event as part of their Human Factors Analysis of our control room design in accordance with our previous NUREG 0737 Supplement 1 commitment.

We are confident that the above stated actions are sufficient to prevent further problems of this nature.

Item B Technical Specification 6.5.A requires that written procedures governing reactor startup operations be implemented and followed. Technical Specification 6.5.D allows temporary changes to be made to approved operating procedures provided certain controls are followed regarding review and documentation of the changes.

Procedure OP 0100, Reactor Startup to Criticality, Revision 14, was written pursuant to Technical Specification 6.5.A to specify the steps required to achieve reactor criticality. Step 4 of OP 0100 requires that the Reactor High Water Level Isolation logic for the HPCI system be reset prior to taking the reactor critical.

Contrary to the above, the reactor was taken critical at 8:30 p.m. on April 16, 1984 without resetting the Reactor High Water Level Isolation logic as required by Step 4 of OP 0100 and no temporary change to OP 0100 was processed in accordance with established administrative controls. Failure to reset the isolation logic resulted in the violation discussed in Item A above.

This is a Severity Level IV Violation (Supplement I.D.).

RESPONSE

During plant startup on April 16, 1984 the HPCI hi-level trip logic was not reset as required by step 4 of VY OP 0100, "Reactor Startup to Criticality". The step was omitted because startup was from a hot pressurized condition making most of the early steps inappropriate and there was no apparent indication that the HPCI system had degraded. Deviation from the procedure step sequence at the discretion of supervisory personnel is permitted under a provision of OP 0100.

As a corrective measure, on May 22, 1984, a memo was issued to highlight the subject events and stress the need for strict attention to procedural details. This memo was reviewed and signed by all Operations Personnel.

In addition, in order to prevent future recurrence, OP 0100 is being revised to 1) include a specific sign-off for resetting all logic push-buttons per step 4 of the procedure, and 2) clarify the circumstances and provisions which allow certain deviations from the approved procedure. This revision will be completed and in effect by October 1984.

Item C Technical Specification 6.5 requires that written procedures governing reactor operations be implemented and followed. Procedure OP 2145, Revision 7, was written pursuant to Technical Specification 6.5 to provide instructions to operate the 125 VDC Distribution system during normal plant operations. Appendix A of OP 2145 requires that the circuit breaker for vessel head spray valve RHR-33 on distribution panel DC-2A be OPEN, and that circuit breaker #12 on distribution panel DC-2D for the startup transformer fire protection circuit be OPEN.

Contrary to the above, the following discrepancies were identified between the breaker alignment required by OP 2145 and the actual breaker positions in the plant: the circuit breaker for RHR-33 on DC-2A was found in the CLOSED position at 1:00 p.m. on May 4, 1984; and the circuit breaker for the startup transformer fire protection system on DC-2D was found in the CLOSED position at 4:30 p.m. on May 7, 1984

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This is a Severity Level V Violation (Supplement I.E.).

RESPONSE

A review of the DC breakers identified in the Notice of Violation has concluded that the breakers, although mispositioned when compared with Appendix A of OP 2145, Revision 7, were correctly positioned for normal operability. Misalignment of the breakers has no operational safety significance.

The discrepancy apparently arose from an inadvertent change in the breaker alignment which occurred when OP 2145 was updated to Revision 7. As a corrective action, Vermont Yankee Procedure OP 2145 will be revised to require that the subject breakers be listed as closed. Further, Appendix A of OP 2145 will be thoroughly reviewed to ensure the Appendix states the proper lineup. This revision will be completed and in effect by September 1984.

We trust that this information will be satisfactory; however, should you have any questions or desire additional information, please contact us.

Very truly yours,

VERMONT YANKEE NUCLEAR POWER CORPORATION

Warren P. Murphy
Vice President and
Manager of Operations

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