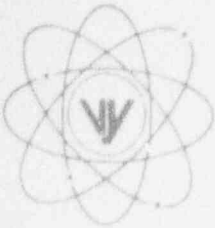


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VERMONT YANKEE NUCLEAR POWER CORPORATION



Ferry Road, Brattleboro, VT 05301-7002

REPLY TO
ENGINEERING OFFICE
580 MAIN STREET
BOLTON, MA 01740
(508) 779-6711

February 9, 1994
BVY 94-18

Director, Office of Enforcement
U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

References: (a) License No. DPR-28 (Docket No. 50-271)
(b) USNRC to VYNPC Notice of Violation and Proposed Imposition of
Civil Penalties - Inspection Report Nos 50-271/93-81 and 93-29,
dated 1/21/94

SUBJECT: Reply to a Notice of Violation - NRC Inspection Report Nos. 50-271/93-81 and 93-29

This letter responds to the subject Notice of Violation.

The violations are of serious concern to Vermont Yankee management. We have implemented a wide scope of corrective actions that have been designed to not only address the specific incidents and findings, but also correct the underlying causes. Many of these initiatives have already been communicated to you in meetings at the Region and onsite as well as summarized in a letter dated January 14, entitled "Recent Improvements at Vermont Yankee."

Since last September's refueling outage, when these events occurred or were discovered, we have had the opportunity to monitor the effectiveness of our actions. We are pleased with the results to date, which demonstrate these initiatives are targeted appropriately and working. However, we recognize that certain aspects of our initiatives have not fully matured and that we need to guard against complacency.

With this in mind, two initiatives that are receiving particular emphasis are our self-assessment programs and procedure adherence policy. We view these two efforts as essential to reinforce our culture for continuous improvement.

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Plant safety has been and continues to be our foremost priority. The actions that we have taken over the last several months are designed to reemphasize our commitment to maintain Vermont Yankee to the highest standards of safety.

We will continue to keep you apprised of our efforts.

As instructed by the Notice enclosed with Reference (b), an electronic transfer has been completed.

Sincerely,

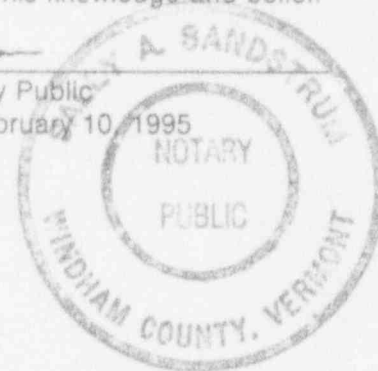
Vermont Yankee Nuclear Power Corporation

Donald A. Reid
Vice President, Operations

STATE OF VERMONT)
) SS
WINDHAM COUNTY)

Then personally appeared before me, Donald A. Reid, who, being duly sworn, did state that he is Vice President, Operations of Vermont Yankee Nuclear Power Corporation, that he is 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.

Sally A. Sandstrum Notary Public
My Commission Expires February 10, 1995



CC USNRC Region 1 Administrator
USNRC Resident Inspector, VYNPS
USNRC Project Manager, VYNPS

ATTACHMENT

VIOLATION:

I. Violations Related to Refueling Activities

- A. Technical Specification 6.5.A.2 requires that written procedures for refueling operations shall be adhered to.

Vermont Yankee Operating Procedure 1101, Revisions 21-23, Management of Refueling Activities and Fuel Assembly Movement, requires, (a) in Section B.10, that the Reactor Engineer and Senior Reactor Operator (SRO) shall visually verify, during fuel handling, closure of the fuel grapple; (b) in Section B.12.c.1, that the Refuel Platform Operator shall attempt to rotate the control console one way and then the other to verify that the fuel assembly is grappled; and (c) in Section A.2.M, that the SRO shall halt any activity in the event of an unusual or abnormal occurrence.

Contrary to the above, on numerous occasions prior to September 10, 1993, procedures were not adhered to during refueling operations, as evidenced by the following examples:

1. on September 3, 1993, during the handling and movement of a fuel assembly, the Reactor Engineer and the Senior Reactor Operator assigned to perform and monitor these activities, did not verify that the fuel grapple was closed prior to the movement of fuel, resulting in the assembly falling off the grapple and back into its core location;
2. on September 3, 1993, and during many of the more than 200 fuel movements between September 1 and September 3, 1993, the Refuel Platform Operator did not rotate the console one way and then the other to verify proper grappling of the fuel assemblies prior to their movement; and,
3. on September 9, 1993, the SRO did not halt a fuel handling activity when an abnormal/unusual occurrence involving a fuel assembly (which was intended to be raised) being lowered to where it struck a core component. (01013)

- B. 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions," requires, in part, that in cases of significant conditions adverse to quality, measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition.

Contrary to the above, between September 1, 1993 and September 3, 1993, while fuel assemblies were being handled and moved as part of the refueling outage, widespread failure to adhere to certain specific procedural requirements was occurring, as described in Items 1 and 2 of Violation A above, and the cause of this significant condition adverse to quality at the facility was not promptly identified and corrected by the licensee to preclude repetition. (01023)

- C. 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings of a type appropriate to the circumstances. Section 13.9.3 of the licensee's Final Safety Analysis Report states, in part, that all supervisors shall hold instructional briefings with members of their staffs prior to executing a refueling procedure in the interests of safety.

Contrary to the above, between September 1 and September 9, 1993, an activity affecting quality, namely handling and movement of fuel assemblies, was not adequately prescribed by documented instructions or procedures of a type appropriate to the circumstances in that the instructions or procedures did not require the individuals to be provided briefings prior to refueling activities. (01033)

These violations are classified in the aggregate as a Severity Level III problem (Supplement I).

RESPONSE

I.A Reason for the Violation

Vermont Yankee does not contest this violation and has determined the cause to be personnel errors in failure to follow procedures. Additionally, failure to reinforce management expectations for refueling activities with specific regard to command-and-control and procedure adherence has been recognized as a contributing cause.

Immediate Corrective Actions Taken

The procedure which governs refueling operations, "Management of Refueling Activities and Fuel Assembly Movement", OP 1101 was revised prior to resuming refueling activities to reflect management's expectations and personnel assignments.

Training was provided to personnel responsible for refueling operations on refueling bridge design improvements, procedure changes, self-checking, procedure adherence, conservative interpretation of procedural guidance and the overall conduct of refueling operations.

Oversight of refueling activities was conducted by line management and Quality Assurance personnel, including the areas of procedure adherence, pre-job briefings, communications, command-and-control and overall conduct of fuel handling activities.

OP 1101 was also used on the Refueling Floor for periodic reference during shift turnover and refueling operations.

These administrative and procedural requirements brought our refueling operations into full compliance and will remain in effect for future refueling operations.

Continuing Corrective Actions

A new company policy, "Requirements for the Use of Procedures", VYP:113 has been developed to clearly state Vermont Yankee's expectations for the use and adherence to station procedures. For example, the policy states that "Use and compliance with procedures is a condition of employment at Vermont Yankee that is expected from every employee." The most significant change to the Vermont Yankee operating philosophy is that implementing procedures will be characterized as Continuous Use, Reference Use or Information Use. This will clearly establish how a procedure is expected to be used (i.e. Continuous Use procedures shall be in hand during implementation and Reference Use procedures should be open in the work area at some time during the performance of the activity). Further, the policy provides guidance on individual personnel responsibilities and what to do if an unforeseen situation not addressed by a procedure should occur. Training and implementation is expected to be completed in March 1994.

I.B Reason for the Violation

Vermont Yankee does not contest this violation and has determined the cause to be lack of thorough corrective actions following the September 3, 1993 event.

At the time of the September 3rd event, a team of three engineering professionals conducted a root cause analysis and determined the root cause to be personnel error and failure to follow procedures. Seven immediate corrective actions were implemented, including a letter from the Plant Manager to all plant personnel reiterating the need for procedural adherence. Although these corrective actions were appropriate, they did not prevent another fuel handling incident from occurring on September 9th.

Immediate Corrective Actions Taken

Following the September 9th event, a separate investigative team, including the Plant Manager, Quality Assurance Director and three other professionals confirmed the root cause of both the September 3rd and the September 9th events to be operator error, but also identified contributing causes of procedural weaknesses, human factors, training and management expectations.

As a result of the two incidents, extensive corrective actions were recommended and implemented in all areas, including additional management and Quality Assurance oversight, prior to resuming fuel handling operations on September 25, 1993. At that time, full compliance was achieved.

Continuing Corrective Actions

The scope of our Quality Assurance surveillances, audit practices and departmental self-assessments have been expanded to include management expectations, communications concerns, training effectiveness, procedure compliance, followup verification, and to include much broader impact assessments.

In addition, we have initiated a Commitment to Excellence Program (CEP) task team to provide recommendations to consolidate and improve our implementation of corrective action processes.

I.C Reason for the Violation

Vermont Yankee does not contest this violation and determined the cause to be an inadequate procedure review which failed to include a review of FSAR Section 13.9.

Immediate Corrective Actions Taken

OP 1101, "Management of Refueling Activities and Fuel Assembly Movement" was revised to include requirements to hold instructional briefings prior to commencing refueling activities. These briefings were held and monitored by management and Quality Assurance personnel prior to resuming refueling operations on September 25, 1993.

Continuing Corrective Actions

Policy VYP:113, "Responsibilities for the Use of Procedures" and AP 0037, "Plant Procedures" also include requirements for pre-job briefings and FSAR reviews. These requirements will be reemphasized in our training associated with VYP:113 and AP 0037 which is expected to be completed in March 1994.

VIOLATION:

II. Violation Involving the Inoperable Alternate Cooling Tower

Technical Specification (TS) Limiting Condition for Operation (LCO) 3.5.D requires, in part, except as specified in TSs LCO 3.5.D.2 and 3.5.D.3, that the alternate cooling tower shall be operable whenever irradiated fuel is in the reactor vessel and reactor coolant temperature is greater than 212 degrees Fahrenheit. TS LCO 3.5.D.3 permits reactor operation for the succeeding seven days following the date the alternate cooling tower subsystem is made or found to be inoperable, providing all other components of the subsystem are operable. If the requirements of TS LCO 3.5.D.3 cannot be met, TS LCO 3.5.D.4 requires the initiation of an orderly shutdown with the placement of the reactor in a cold shutdown condition within 24 hours.

Contrary to the above, for an extended, though indeterminate, period of time between 1989 and September 24, 1993, while the reactor was in the operating mode on several occasions in excess of seven days, the alternate cooling tower system was inoperable because of the buildup of silt in the cooling tower basin and suction pit, thereby completely covering the Residual Heat Removal service water system suction inlet, and the reactor was not shutdown. (02013)

This is a Severity Level III violation (Supplement I).

RESPONSE:

II. Reason for the Violation

Vermont Yankee does not contest this violation. Based upon our root cause analysis this event was a result of our failure to establish the scope and formal inspection criteria for inspection of the cooling tower deep basin and suction pit. Although limited inspections were performed once per cycle since 1989, no formal or documented acceptance criteria were developed and established within the preventative maintenance program.

The Alternate Cooling Tower Subsystem was in full compliance with the Technical Specification requirements prior to startup from the 1993 refueling outage.

Immediate Corrective Actions Taken

The deep basin was drained and all silt and debris within the structure, suction pit, and suction pipe were removed. The maintenance program for the cooling tower deep basin was revised to provide a detailed scope of inspections including the basis for the inspections and references to our license commitments.

An extensive review was performed of the balance of the Alternate Cooling Tower Subsystem to determine if other potential problems existed. One additional potential area of concern, corrosion in the suction pipe, was identified and corrected prior to startup from the refueling outage.

A review of each valve and portion of piping in the Alternate Cooling system was performed to verify that operability was ensured either by maintenance work done during the outage, or by routine operation and testing of applicable portions of the Residual Heat Removal Service Water and Service Water Systems. No additional conditions were noted that would have prevented the system from performing its design function.

Continuing Corrective Actions

A surveillance program has been defined and initiated to determine the rate of silt buildup. The program includes periodic inspection of the deep basin, mapping of silt levels and documentation and removal of any debris found. The initial inspection performed November 30, 1993 revealed minimal silt in the deep basin. Additional inspections are planned for May 94, July 94, and October 94. Based upon the surveillance program results the maintenance program for the cooling tower deep basin will be further enhanced to include conservative inspection frequency requirements based upon the measured rate of silt buildup. Additionally, clear criteria for system operability and silt removal will be included. These enhancements will be completed by December 31, 1994.

Other preventative maintenance programs associated with the alternate Cooling Tower Subsystem are being reviewed to verify adequate definition of inspection scope and acceptance criteria. This effort will be completed by June 1994.

Vermont Yankee will perform functional testing of the Alternate Cooling Tower System. We will provide an update relative to the testing schedule, scope and the test parameters by June 1994.

VIOLATION:

III. Other Violation of NRC Requirements:

10 CFR Part 50, Appendix B, Criterion III, requires that measures be established to assure that the design bases, as defined in 10 CFR 50.2, are correctly translated into specifications, drawings, procedures, and instructions. 10 CFR 50.2 defines design bases as that information which identifies the specific functions to be performed by a component, and the specific range chosen for controlling parameters as reference bounds for design. Criterion III further specifies that design changes, including field changes, be subject to design control measures commensurate with those applied to the original design.

Contrary to the above, from original construction up through October 8, 1993, measures were not established to assure that the design characteristics of the core spray pump suction strainers were correctly translated into specifications or design drawings in that the wrong size strainers were installed in the systems. In addition, design changes were not subjected to design control measures commensurate with the original design in that safety related calculations were based on assumed strainer sizes without verification of the as-built data.

This is a Severity Level IV violations (Supplement I).

RESPONSE:

III. Reason for the Violation

Vermont Yankee does not contest this violation. The root cause of this event has been determined to be a failure to properly verify and document the design of the Core Spray pump suction strainers in 1986 when it was identified that estimated strainer sizes were utilized in the NPSH calculations. Proper data sheets were not prepared or used to record the strainer dimensions, nor was the apparent contradictory information that was gathered properly resolved.

Immediate Corrective Actions Taken

The Core Spray pump suction strainers were replaced with larger strainers having a surface area of 24.4 square feet per penetration by October 14, 1993. All applicable calculations and analyses were updated and as-built engineering drawings of the new strainers were produced.

As built measurements were taken for the strainers associated with the RHR, High Pressure Coolant Injection and Reactor Core Isolation Cooling Systems to verify that these strainers were correctly sized to meet design requirements. All strainers were

correctly sized to meet the system design requirements. Visual inspections were also performed on these strainers and the torus bottom. The strainers were found to be in good condition with no visible debris loading and no debris was found on the torus bottom.

A sample of selected calculations was reviewed to determine if similar problems existed elsewhere. Calculations from the time period of this event were included in the sample. No similar problems were found.

The procedures for preparation of engineering calculations and analysis are being revised to provide specific instructions on obtaining input data. Input data should be obtained directly from verified or QA sources. Where unverified data is used, it will be specifically noted in the calculation or analysis with followup action to verify the data assigned as appropriate. This is expected to be completed by June 15, 1994.