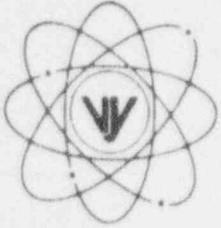


# VERMONT YANKEE NUCLEAR POWER CORPORATION



Ferry Road, Brattleboro, VT 05301-7002

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

March 12, 1996  
BVY 96-24

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

- References:
- (a) License No. DPR-28 (Docket No. 50-271)
  - (b) Letter, USNRC to VYNPC, "Notice of Violation (NRC Inspection Report No. 50-271/95-26)", dated 2/13/96.
  - (c) Letter, USNRC to VYNPC, NVY 96-01, "NRC Inspection Report No. 50-271/95-26", dated 12/22/95.
  - (d) Letter, VYNPC to USNRC, BVY 95-127, "Reportable Occurrence No. LER 95-014, Supplement 2", dated 11/20/95.
  - (e) Letter, USNRC to VYNPC, NVY 86-240, "Exemption From Appendix R to 10 CFR 50 Concerning Automatic Fire Suppression, Separation, and Repairs", dated 12/1/86.
  - (f) Letter, VYNPC to USNRC, BVY 96-04, "Appendix R Supplemental Information", dated 1/15/96.

**Subject:** Reply to a Notice of Violation - NRC Inspection Report No. 50-271/95-26

This letter is written in response to Reference (b) which documents that certain activities within the Vermont Yankee 10CFR50 Appendix R Program were not conducted in full compliance with NRC requirements. One Severity Level III violation and one Severity Level IV violation were identified as a result of an NRC inspection (Reference (c)) conducted from October 23, 1995 through November 9, 1995.

## VIOLATION A:

10 CFR 50.48(a) requires, in part, that each operating nuclear power plant must have a fire protection plan that satisfies Criterion 3 of Appendix A to 10 CFR Part 50. This fire protection plan must describe specific features necessary to implement the program and the means to limit fire damage to structures, systems, or components important to safety so that the capability to safely shut down the plant is ensured.

10 CFR 50.48(b) requires, in part, that all nuclear power plants licensed prior to January 1, 1979, shall satisfy the applicable requirements of Appendix R to 10 CFR Part 50, including specifically the requirements of Section III.G, fire protection of safe shutdown capability.

10 CFR Part 50, Appendix R, Section III.G.1 requires that fire protection features shall be provided for structures, systems and components important to safe shutdown. These features shall be capable of limiting fire damage so that; a) one train of systems necessary to achieve and maintain hot shutdown conditions from either the control room or emergency control

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station(s) is free of fire damage; and b) systems necessary to achieve and maintain cold shutdown from either the control room or emergency control station(s) can be repaired within 72 hours.

Appendix R, Section III.G.2 requires, in part, that except as provided in paragraph G.3 of this section, where cables or equipment, including associated non-safety circuits that could prevent operation or cause maloperation due to hot shorts, of redundant trains of systems necessary to achieve and maintain hot shutdown conditions are located within the same fire area outside of primary containment, one of the means, specifically in Section III.G.2, of ensuring that one of the redundant trains is free of fire damage shall be provided.

The Licensee's safe shutdown capability analysis (SSCA), part of their fire protection plan, requires the use of redundant trains of the reactor core isolation cooling (RCIC) system and the automatic depressurization system (ADS) safety relief valve system to support safe shutdown of the plant in the event of a fire in the control room, cable vault, and reactor building fire zone RB-3. In the event of a fire in the reactor building fire zone RB-3, credit is taken for the repair of one ADS valve to depressurize the vessel and achieve cold shutdown within 72 hours.

Contrary to the above, on and prior to July 1995, fire protection features were not provided for structures, systems and components important for safe shutdown, in that, the SSCA selected RCIC system and ADS components important to safe shutdown were not provided with an acceptable means, as listed in Appendix R, Section III.G.2, to ensure that the redundant trains remained free of fire damage. The RCIC system and the ADS circuits were not adequately protected from maloperation due to hot shorts or fire as necessary to achieve and maintain hot shutdown and cold shutdown conditions. In addition, repair of systems necessary to achieve and maintain cold shutdown from either the control room or emergency control station(s) could not occur within 72 hours in the event of a fire in the reactor building fire area RB-3. Specifically:

- a) Cables (C1752ASIIB, C1753ASIID, C1754ASIIB and C1755ASIID) associated with all four ADS safety relief valves were routed through the control room, cable vault and reactor building fire area RB-3 without suitable fire barriers to protect the safe shutdown equipment. In the event of a fire in the control room, cable vault or RB-3 fire area, a hot short in the ADS control cables could have inadvertently actuated an ADS valve, which would have prevented the use of the RCIC system as planned and credited in the SSCA to support safe shutdown of the plant either from the control room or from the RCIC alternate shutdown panel.
- b) Emergency power supply and control cables for the RCIC steam supply line isolation valve (V13-15) were routed in fire area RB-3 without suitable fire barriers to protect the safe shutdown equipment. In the event of a fire in RB-3, the RCIC steam line isolation valve could malfunction or could be damaged as a result of spurious operation due to sustained hot shorts that could have prevented the use of the RCIC system as planned and credited in the SSCA to support safe shutdown of the plant either from the control room or from the RCIC alternate shutdown panel.
- c) In the event of a fire in the reactor building fire area RB-3, the wiring and terminals of the ADS valve (SRV-71A), located in the same fire zone could have been damaged and thereby prevented the use of this ADS valve as planned and credited in the SSCA to depressurize the vessel and achieve cold shutdown within 72 hours.

This is a Severity Level III violation.

Response to Violation A:

Vermont Yankee does not contest this violation. As described in Reference (d), Vermont Yankee self-identified these weaknesses in our Appendix R Safe Shutdown Capability Analysis (SSCA).

Reason for Violation A:

The root causes of this violation are:

1. Weaknesses in original SSCA due to inadequate design verification.
2. Lack of understanding of Appendix R requirements.

Short Term Corrective Actions Taken For Violation A:

1. Compensatory measures were promptly instituted. These actions included: fire watches, enhanced management control of hot work, enhanced sensitivity and control of transient combustibles and ignition sources, and issuance of a standing order which provided operators with an awareness of Appendix R vulnerabilities and guidance for operator response to particular fire scenarios.
2. Four multi-disciplined response teams were established.
  - An Evaluation Team performed technical and operability evaluations of emergent issues.
  - A Self Assessment Team performed a general review the SSCA to promptly identify any other areas of potential non-compliance with Appendix R.
  - A Root Cause Investigation Team performed a root cause evaluation for the identified Appendix R non-compliance items.
  - An Appendix R Project Team was formed and is currently performing a design verification of the entire Appendix R Safe Shutdown Capability Analysis (SSCA). In addition, members of the Appendix R Project Team are performing Appendix R reviews for all design changes and modifications.

Long Term Corrective Actions That Are Being Taken For Violation A:

1. The Safe Shutdown Capability Analysis is being design verified and rewritten to strengthen and clarify the Appendix R design basis documentation. The updated SSCA will be issued prior to startup from the Fall 1996 refueling outage. Appendix R training will be provided to engineers responsible for designing, reviewing, or implementing modifications by the end of 1996. Until such training is completed, members of the Appendix R Project Team will continue to perform Appendix R reviews for all design changes and modifications.
2. Vermont Yankee intends to achieve full compliance with Appendix R requirements, without the need for compensatory measures by startup from the Fall 1996 refueling outage. This action includes design changes, analysis, exemption approvals, and enhanced operating procedures as necessary.
3. A Lead Project Engineer for the Fire Protection and Appendix R Improvement Programs has been assigned by the Vice President of Engineering to directly manage these programs, addressing ownership, coordination, and oversight.

VIOLATION B:

10 CFR 50.48(b) requires, in part, that all nuclear power plants licensed prior to January 1, 1979, shall satisfy the applicable requirements of Appendix R to 10 CFR Part 50 including, specifically, the requirements of Section III.G, fire protection of safe shutdown capability.

10 CFR Part 50, Appendix R, Section III.G.1.a requires that fire protection features shall be provided for structures, systems and components important to safe shutdown. These features shall be capable of limiting fire damage so that one train of systems necessary to achieve and maintain hot shutdown conditions, from either the control room or emergency control station(s) is free of fire damage.

The Licensee requested and was granted an exemption from the requirements of Section III.G.1 and III.G.2 of Appendix R, for hot shutdown repairs. The exemption allows, in part, the replacing of fuses of RHR and RCIC systems that could be blown due to a fire in the cable spreading area. Procedures for replacing the fuses are contained in Licensee Procedure OP-3126.

Contrary to the above, as of November 9, 1995, the fire protection features provided for systems and components important to safe shutdown were not capable of remaining free of fire damage, in that several fuses could be blown due to fire in the cable spreading area. The licensee's Procedure OP-3126 identified replacing several fuses in addition to those in the RCIC and RHR systems for hot shutdown repairs in the event of a fire. For those additional fuses, the exemption was not authorized. Specifically, Appendix F of Procedure OP-3126, Revision 13, identifies additional fuses for replacement other than those permitted by the exemption. The additional fuses include the following: (1) air recirculation units (RRU-5 and RRU-7, in MCC-9B); (2) diesel fuel oil transfer pump (P92-1A, in MCC-9C); and (3) MOV supplying service water to the turbine building, which must close to ensure service water is not diverted from the emergency diesel generators (SW-20, in MCC-9D); and the "A" diesel generator room exhaust fan (TEF-2, in MCC-9C).

This is a Severity Level IV violation.

Response to Violation B:

Vermont Yankee does not contest this violation. The additional fuses in question are fuses in support circuits necessary for RCIC and RHR System operation. Vermont Yankee's intent to replace fuses on all circuits needed to support RCIC and RHR System operation was not explicitly reflected in the NRC's Safety Evaluation Report (Reference (e)) which approved the exemption request.

Reason For Violation B:

The apparent causes are: (1) misinterpretation by Vermont Yankee that the NRC approval, per Reference (e), matched the intended scope of submitted request; and (2) inadequate communication during exemption request/approval process.

Short Term Corrective Actions Taken For Violation B:

Per Reference (f), Vermont Yankee has confirmed that the technical basis for NRC acceptance of Vermont Yankee's fuse replacement strategy was based on a 20 minute fuse replacement duration which includes all fuses necessary for operation of the RCIC and RHR Systems. Therefore, there is no adverse impact on the safe shutdown analysis.



Long Term Corrective Actions That Are Being Taken For Violation B:

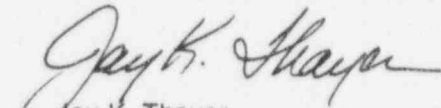
1. Design changes to eliminate reliance on fuse replacement, for achieving and maintaining hot shutdown, are being prepared for implementation prior to startup from the Fall 1996 refueling outage. After implementation of these design changes, Vermont Yankee intends to request withdrawal of the subject exemption.
2. Licensing documentation supporting all Appendix R Exemptions is being reviewed for accuracy and consistency as part of the Appendix R Project Team's work scope to assure compliance with Appendix R prior to startup from the Fall 1996 refueling outage.
3. Line organization self assessment of SERs in other programs (EQ, IST and Appendix J) is planned. Additionally, Quality Assurance will provide heightened sensitivity in this area by including SER implementation in the scope of the above program audits. Completion is expected by 12/31/96.
4. Vermont Yankee will review the process for submitting licensing requests and reviewing NRC SERs to identify any improvements that would ensure completeness of communications. Completion is expected by 12/31/96.

Vermont Yankee intends to achieve full compliance with 10 CFR 50, Appendix R requirements prior to startup from our Fall 1996 refueling outage.

We trust that the enclosed information is satisfactory; however, should you have any questions or desire additional information on this matter, please do not hesitate to contact us.

Sincerely,

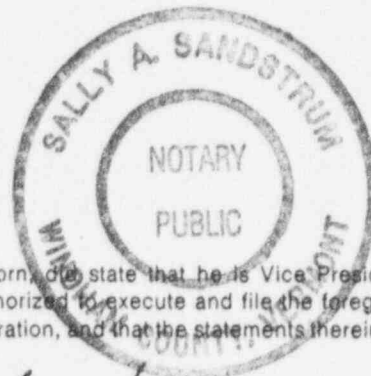
Vermont Yankee Nuclear Power Corporation

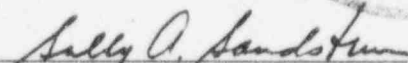
  
Jay K. Thayer  
Vice President, Engineering

cc: USNRC Region I Administrator  
USNRC Resident Inspector - VYNPS  
USNRC Project Manager - VYNPS

STATE OF VERMONT     )  
                              )ss  
WINDHAM COUNTY     )

Then personally appeared before me, Jay K. Thayer, who, being duly sworn, did state that he is Vice President, Engineering, 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.



  
Sally A. Sandstrum, Notary Public  
My Commission Expires February 10, 1999