September 17, 1998

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

SUBJECT: NRC INTEGRATED INSPECTION REPORTS 50-271/97-11, 50-271/97-12, 50-271/98-04 AND NOTICES OF VIOLATION

Dear Mr. Maret:

This letter refers to several letters from you that were written in response to the subject inspection reports and associated Notices of Violation, including: your January 10, 1998 correspondence responding to our December 23, 1997 letter; your March 9, 1998 correspondence responding to our February 6, 1998 letter; and your July 2, 1998 correspondence responding to our June 4, 1998 letter.

Thank you for informing us of the corrective and preventive actions documented in your letters. These actions will be examined during future inspections of your licensed program.

Your cooperation with us is appreciated.

Sincerely,

Original Signed By: R. Summers

Curtis J. Cowgill, III, Chief
Reactor Projects Branch 5
Division of Reactor Projects

Docket No. 50-271

cc w/o cy of Licensee Response Letter:
R. McCullough, Operating Experience Coordinator - Vermont Yankee
G. Sen. Licensing Manager, Vermont Yankee Nuclear Power Corporation

cc w/cy of Licensee Response Letter:
D. Rapaport, Director, Vermont Public Interest Research Group, Inc.
D. Tefft, Administrator, Bureau of Radiological Health, State of New Hampshire
Chief, Safety Unit, Office of the Attorney General, Commonwealth of Massachusetts
D. Lewis, Esquire
G. Bisbee, Esquire
J. Block, Esquire
T. Rapone, Massachusetts Executive Office of Public Safety
D. Katz, Citizens Awareness Network (CAN)
M. Daley, New England Coalition on Nuclear Pollution, Inc. (NECNP)
State of New Hampshire, SLO Designee
State of Vermont, SLO Designee
Commonwealth of Massachusetts, SLO Designee

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VERMONT YANKEE
NUCLEAR POWER CORPORATION

185 Old Ferry Road, Brattleboro, VT 05301-7002
(802) 257-5271

July 2, 1998
BVY 98-92

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

Reference: (a) Letter, USNRC to VYNPC, NRC Inspection Report 50-271/98-04 and Notice of Violation, NVY 98-80, dated June 4, 1998

Subject: **Vermont Yankee Nuclear Power Corporation**
License No. DPR-28 (Docket No. 50-271)
Reply to a Notice of Violation – NRC Inspection Report 50-271/98-04

This letter is written in response to Reference (a), which documents the findings of an inspection conducted from March 15 to May 2, 1998. The inspection identified two violations of regulatory requirements. Our response to the violations is provided below.

VIOLATION A

Technical specification 6.5, "Plant Operating Procedures," section A, states that, "Detailed written procedures. . .covering areas written below shall be prepared and approved. All procedures shall be adhered to." Item 6 of the listed areas is, "surveillance and testing requirements." Technical specification 4.10, "Auxiliary Electrical Power Systems Surveillance Requirements," section A.2, "Battery Systems," includes the requirement to conduct performance tests of the main station batteries.

Contrary to the above, on April 1, 1998, while performing the approved written procedure for conduct of the "A" main station battery performance test, Operating Procedure OP 4215, "Main Station Battery Performance/Service Test," the procedure was not adhered to, in that steps 5.3, 5.4, and 5.5 were not performed in the sequence that was required by the procedure.

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

RESPONSE:

Reason For The Violation:

Vermont Yankee does not contest this violation. Personnel error resulted in the failure to sequentially follow the steps, as written, in a Technical Specification required surveillance

procedure. Specifically, two steps of the procedure were performed but not signed off and procedural steps were implemented simultaneously and out of sequence. This is contrary to AP 0037 "Plant Procedures" which requires that a "continuous-use" procedure be in hand during performance of the procedure. AP 0037 also requires reading each step prior to performing that step, performing each step in the sequence specified, and where required, signing off each step before proceeding to the next step. This procedural noncompliance resulted in a direct short of the "A" main station battery bank.

Corrective Steps That Have Been Taken and the Results Achieved:

In response to this event, a level-one event report (the highest event level per Vermont Yankee's corrective action program procedure) was generated. A task force was formed to investigate the event and to perform the root cause evaluation. In addition, work on energized electrical equipment was suspended, pending an assessment of the event.

The evaluation documented in the event report detailed several corrective actions. However, with regard to the procedural noncompliance, management met with the workers on site iterating the requirement for procedural adherence by providing examples of the safety consequences of failing to adhere to procedures. In addition, on-site electricians read and signed INPO SER-2-98 regarding recurring electrical shock events in the industry.

Vermont Yankee's first line supervisors were provided with a copy of the INPO Human Performance Fundamentals "Leadership Tool Kit". This tool kit, when incorporated into departmental work processes, would reduce the chance of human error.

Following the above actions, the remainder of the work on energized electrical equipment and personnel risk significant work received additional management oversight and was performed without incident.

It should be noted that in addition to the above corrective actions, the procedures utilized for testing the main station and ECCS battery banks were revised to provide greater clarity and information to the workers. They were also revised to provide a more rigorous structure to the steps that make the connections to and from the battery terminals. These procedure changes were made and reviewed by the workers prior to the surveillance procedures being used for the remaining battery tests during the refueling outage.

Corrective Steps That Will Be Taken to Avoid Further Violations:

The corrective actions described above are complete and are considered sufficient to prevent further recurrence of such an event.

Date When Full Compliance Will Be Achieved:

Full compliance was achieved on April 4, 1998, when the recharge of the "A" main station battery was completed in accordance with approved procedures.

VIOLATION B

The Vermont Yankee Physical Security Plan, section 4.3, "Vital Area Barriers," paragraph k, states that, "All entrances to Vital Areas. . . are locked or guarded. . ."

Contrary to the above, on March 31, 1998, an entrance pathway to the reactor building vital area was identified that was neither locked nor guarded.

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

RESPONSE:

Reason For The Violation:

Vermont Yankee does not contest this violation. The reason for the violation has been the acceptance of the subject configuration as a suitable vital area barrier and as such was not considered an entrance.

The basis for Vermont Yankee's long standing acceptance of the barrier configuration was founded on the following aspects, unique to this barrier:

1. The barrier, by reason of its operational purpose, design and remote location, is not intended for use as a normal point of access into, or out of, the vital area.
2. In its fixed configuration, the barrier, comprised of a solid steel plate weighing several hundred pounds, presents neither an opening nor a penetration through which personnel or material can pass.
3. The physical appearance of the barrier is that of a sealed steel enclosure and, in its fixed configuration, does not offer to the observer a location for normal passage, as through a doorway or window.
4. The access pathway leading to the barrier was felt to be tortuous in nature. The barrier is located on the inboard side of an elevated shelf, approximately fourteen feet above floor level. The barrier is not visible from floor level. It can only be seen when the observer is on the shelf within several feet of the barrier itself. This is due to low lighting conditions and obstructions between the barrier and the outboard edge of the shelf. The barrier is reached after gaining access to the elevated shelf, crossing the shelf in a crouched position, in close quarters, with a low ceiling overhead and, all the while, straddling a variety of obstructions.
5. Once the barrier is reached, there is limited space for maneuvering. The heavy steel plate must be separated away from its mount, removed and re-positioned to effect an opening.
6. Lastly, during plant operation, the area approaching and surrounding the barrier for some distance is environmentally and radiologically hazardous.

Vermont Yankee agrees that during periods of non-operation environmental and radiological hazards are not sufficiently present to be counted as a deterrent to barrier access. Vermont Yankee also agrees that a compromise of the barrier, were it achieved via the difficult process of removing and repositioning of the steel plate, would provide an opening sufficient enough to permit access to the vital area.

Corrective Steps That Have Been Taken and the Results Achieved:

Compensatory actions, in accordance with plant security procedures, were initiated on April 1, 1998, immediately upon identification of the barrier's potential vulnerability. Compensatory measures remained in place during the installation of an additional barrier which surrounds the existing barrier. The additional barrier, which satisfies the requirements of Vermont Yankee's Physical Security Plan, represents an increased impediment to unauthorized access and is a significant enhancement to the existing barrier. The development of these long term corrective actions were discussed with the inspector prior to their completion and before the relief of compensatory measures on May 26, 1998.

Corrective Steps That Will Be Taken to Avoid Further Violations:

The installation of an additional barrier surrounding the existing barrier provides a significant enhancement and an on-going deterrence against unauthorized access.

Date When Full Compliance Will Be Achieved:

Vermont Yankee achieved full compliance on April 1, 1998, when compensatory measures were initiated, following identification of the potential vulnerability of the barrier. On May 26, 1998 upon installation of an additional permanently installed barrier, compensatory measures were relieved.

We trust that the enclosed information is responsive to your concerns. Should you have any questions, please contact Mr. Thomas B. Silko at (802) 258-4146.

Sincerely,

VERMONT YANKEE NUCLEAR POWER CORPORATION

Michael A Balduzzi for

Gregory A. Maret
Director of Operations

cc: US. NRC Region 1 Administrator
USNRC Resident Inspector – VYNPS
USNRC Project Manager – VYNPS
Vermont Department of Public Service

VERMONT YANKEE
NUCLEAR POWER CORPORATION

185 Old Ferry Road, Brattleboro, VT 05301-7002
(802) 257-5271

March 31, 1998
BVY 98-49

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

Reference: (a) Letter, USNRC to VYNPC, NRC Inspection Report 50-271/97-12 and Notice of Violation, NVY98-29, dated March 3, 1998

Subject: **Vermont Yankee Nuclear Power Station**
License No. DPR-28 (Docket No. 50-271)
Response to Notice of Violation: NRC Inspection Report 50-271/97-12

This letter is written in response to reference (a), which documents that certain of our activities were not conducted in full compliance with NRC requirements. This violation, classified as Severity Level IV, was identified during a NRC inspection conducted from December 7, 1997 to January 24, 1998. Our response to the violation is provided below.

Statement of Violation (50-271/97-12)

Vermont Yankee Technical Specification 6.5.A "Plant Operating Procedures," states that detailed written procedures shall be prepared, approved and adhered to including fire protection program implementing procedures. The Vermont Yankee Safe Shutdown Capability Analysis, revision 5, dated November 19, 1996, identified the High Pressure Coolant Injection (HPCI) system as a safe shutdown system, and indicated that the wall that separates the HPCI room from the torus room shall be maintained as a fire barrier in accordance with Appendix A of Branch Technical Position APCSB 9.5-1, "Guidelines for Fire Protection for Nuclear Power Plants."

Contrary to the above, the HPCI room Appendix A fire barrier was found to be inoperable on January 13, 1998, in that the closure mechanism for the associated automatic self-closing fire door was inoperable and the door would not close.

RESPONSE

Reason for the Violation

Vermont Yankee Nuclear Power Corporation does not contest this violation. The cause of this violation was an inadequate design of the automatic self-closing fire door. This door was installed during original construction. The drop weight and cable attached to the back of the door provides motive force to pull the HPCI room door to a closed position when a fusible link is activated. The

cable passes from the door through a pulley to the weight. The cable was observed by a NRC inspector to be out of the pulley and resting on the pulley axle.

Trouble shooting of this door on January 13, 1998 determined the most likely cause of the cable coming off the pulley was the combination of pushing the door further open than the normal full open position, the closure cable length and the size of the cable clamping devices. When the door was pushed further open than its normal full open position, the short cable run to the pulley allowed the closest cable clamp to contact the pulley and ride up on the pulley rim. Once in this position it could easily fall out of the pulley and come to rest on the pulley axle. This rendered the door automatic closure mechanism inoperative.

The automatic feature of the HPCI fire door is tested semi-annually in accordance with the applicable surveillance procedure and was last tested satisfactorily in October 1997.

Immediate Corrective Actions Taken and Results Achieved

(1) Following discovery, the HPCI door was tested to determine if the door would self-close in the as-found condition. The door failed to shut. Troubleshooting was initiated to determine the cause and possible corrective actions. Once the cable was placed back into the pulley, the door closed properly.

(2) Immediate corrective action included attempts to replicate the condition causing the cable to jump the pulley. This involved pushing the door past the full open position. After several trials, it was noted that it took one particular orientation of the large cable clamps riding up on the pulley to cause the cable to fall out of the pulley.

(3) Paint was applied to the floor to indicate that this door is a fire door and should not be interfered with or blocked in any way.

(4) The Fire Protection Engineer determined that there were no other fire doors with this type of automatic closing mechanism in the plant.

(5) The failure mechanism that caused the door to become inoperable was discussed with the fire protection staff. This information was provided to increase awareness about off normal conditions that could be observed and prevented during routine fire protection tours.

Actions Taken to Prevent Recurrence

The existing cable clamps will be replaced with smaller, more streamlined crimped cable clamps. This smaller clamp will easily be able to travel up into the cable pulley without causing the cable to jump out of the track. Free travel of the door past the full open position is needed to reset the door after testing activities or following door actuation. The smaller clamps will provide

additional travel distance without the risk of the cable jumping out of the track. The new cable clamps will be installed by May 14, 1998.

Date When Full Compliance Will Be Achieved

Compliance was achieved on January 13, 1998 when the cable was placed back in the pulley and the HPCI fire door was verified to perform its intended function.

Should you have any questions about this matter please contact this office.

Sincerely,

VERMONT YANKEE NUCLEAR POWER CORPORATION

Donald A. Reid
Senior Vice President, Operations

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

VERMONT YANKEE
NUCLEAR POWER CORPORATION

185 Old Ferry Road, Brattleboro, VT 05301-7002
(802) 257-5271

January 22, 1998
BVY 98-05

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

References: (a) Letter, USNRC to VYNPC, NRC Inspection Report 50-271/97-11 and Notice of Violation, NVY 97-185, dated December 23, 1997
(b) VY LER 97-023, "A Component Failure in the Main Generator Protection Circuitry Results in a Reactor Scram", BVY 97-178, dated December 23, 1997

Subject: **Vermont Yankee Nuclear Power Station**
License No. DPR-28 (Docket No. 50-271)
Response to a Notice of Violation - NRC Inspection Report 50-271/97-11

This letter is written in response to reference (a), which documents that certain of our activities were not conducted in full compliance with NRC requirements. This violation, classified as Severity Level IV, was identified during an NRC inspection conducted from October 31 to December 6, 1997. Our response to the violation is provided below.

Statement of Violation (50-271/97-11-01)

Technical Specification 6.5, "Plant Operating Procedures," states that detailed written procedures, involving both nuclear and non-nuclear safety, shall be prepared, approved, and adhered to covering the areas of preventive and corrective maintenance operations which could have an effect on the safety of the reactor.

Contrary to the above, plant auxiliary operators were implementing an unapproved (by Vermont Yankee) Vermont Electric Power Company (VELCO) switching order on November 25, 1997 to open the 345 KV Scobie Line No. 379-3 disconnects when at 6:48 A.M. an automatic reactor scram resulted from the manipulation of the disconnects while the line was energized per the switching sequence.

RESPONSE

Reason for the Violation

Vermont Yankee does not contest this violation. The sequence of events that led to an automatic reactor scram started with the cited violation. The failure of a non-safety related turbine protection device actually caused the scram when it failed to properly reset after the electrical transient induced by the manipulation of the electrical disconnects in the switchyard.

The contributing causes to the event in the switchyard are as follows:

1. The responsibility of the Control Room Shift Supervisor to oversee switchyard activities was not well defined. Excessive reliance was placed on the technical expertise of the Vermont Electric Company (VELCO) to provide an appropriate switching sequence without any explicit VY review and approval. These process deficiencies resulted in a missed opportunity to review the switching sequence and question the appropriateness of uncoupling the motor operated disconnect drive motor.

2. There was a lack of knowledge and understanding on the part of the plant operations staff about some of the potential risks involved in the uncoupling or coupling of motor operated disconnects.

Corrective Steps That Have BeenTaken And The Results Achieved

1. The operations staff placed the plant in a normal shutdown configuration.

2. An inspection of the affected motor operated disconnect was performed to determine if the arc had caused any equipment damage. The inspection revealed no equipment damage.

3. The Operations Manager made a presentation of the particulars of the event to all crews.

4. Agreements were reached with VELCO for the Vermont Yankee control room to obtain advance copies of VELCO tagouts for normal maintenance and routine operations for review and concurrence.

5. An operating standard on switchyard operations has been implemented. It defines Vermont Yankee management's expectations for the level of reviews, oversight, and authority the Vermont Yankee Shift Supervisor is expected to exhibit over switchyard activities. It also provides the expectations for pre-job briefs and communications requirements for switchyard activities.

Corrective Steps That Will Be Taken To Avoid Further Violations

In addition to implementing an operating standard for the switchyard and reaching agreement on advanced notice for switching with VELCO, the following actions will be taken:

1. Vermont Yankee will incorporate the Switchyard Operations Standard into the 345 and 115 KV operating procedures. Expected completion date is March 15, 1998.

2. Vermont Yankee will conduct Auxiliary Operator refresher training on the motor operated disconnect motor uncoupling and locking evolution. The training will

include a discussion on the potential impact of operating disconnects when one side of the disconnect is energized. Vermont Yankee will also ensure that Auxiliary Operator initial training includes this issue. Expected completion date is July 1998.

3. Vermont Yankee has conducted discussions with VELCO about the practice of uncoupling the motors from motor operated disconnects and locking the operating mechanisms. Since the objective is to achieve personnel safety, reliance on the strict control imposed by the Vermont Yankee danger tagging system may be a logical alternative to physically uncoupling and locking the mechanisms. An evaluation will be performed to identify options which may make uncoupling unnecessary. Expected completion date is September 1998.

Date When Full Compliance Will Be Achieved

Full compliance will be achieved on March 15, 1998 when the 345 and 115 KV operating procedures are revised to incorporate the Switchyard Operations Standard.

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

Donald A. Reid
Senior Vice President, Operations

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