January 26, 2005

Mr. Jay K. Thayer
Site Vice President
Entergy Nuclear Operations, Inc.
Vermont Yankee Nuclear Power Station
P.O. Box 0500
185 Old Ferry Road
Brattleboro, VT 05302-0500

SUBJECT: VERMONT YANKEE NUCLEAR POWER STATION - NRC TRIENNIAL FIRE PROTECTION INSPECTION REPORT 05000271/2004010

Dear Mr. Thayer:

On December 17, 2004, the NRC completed a triennial fire protection inspection at your Vermont Yankee Nuclear Power Station facility. The enclosed report documents the inspection findings that were discussed on December 17, 2004 with Mr. William Maguire, General Manager for Plant Operations and other members of your staff.

This inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations, and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

This report documents one NRC-identified finding of very low safety significance (Green). The finding was determined to involve a violation of NRC requirements. However, because of the very low safety significance and because it was entered into your corrective action program, the NRC is treating this finding as a non-cited violation (NCV) consistent with Section VI.A of the NRC Enforcement Policy. If you contest the NCV in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Vermont Yankee Nuclear Power Station.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARs) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

We appreciate your cooperation. Please contact me at 610-337-5146 if you have any questions regarding this letter.

Sincerely,

/RA/

John F. Rogge, Chief
Electrical and Fire Protection Branch
Division of Reactor Safety

Docket No. 50-271
License No. DPR-28

Enclosure: NRC Inspection Report 05000271/2004010
w/Attachment: Supplemental Information

cc w/encl:
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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No:	50-271
License No:	DPR-28
Report No:	05000271/2004010
Licensee:	Entergy Nuclear Operations, Inc.
Facility:	Vermont Yankee Nuclear Power Station
Location:	546 Governor Hunt Rd. Vernon, VT 05354
Inspection Period:	November 29, 2004 - December 3, 2004 December 13-17, 2004
Inspectors:	Keith Young, Senior Reactor Inspector, DRS (Team Leader) John Richmond, Reactor Inspector, DRS Timothy O'Hara, Reactor Inspector, DRS Jennifer Bobiak, Reactor Inspector, DRS
Approved by:	John F. Rogge, Chief Electrical and Fire Protection Branch Division of Reactor Safety

Enclosure

SUMMARY OF FINDINGS

IR 05000271/2004010; 11/29/2004 - 12/17/2004; Vermont Yankee Nuclear Power Station; Triennial Fire Protection Inspection.

The report covered a two-week team inspection by specialist inspectors. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. NRC-Identified Findings

Conerstone: Mitigating Systems

- Green. The team identified a non-cited violation (NCV) of 10 CFR 50, Appendix R, Section III.G.3 involving the failure to ensure electrical isolation of the normal control power source for the reactor core isolation cooling (RCIC) steam supply line isolation valve (MOV 13-15) during a control room or cable vault fire.

  This finding is greater than minor because it affected the Mitigating System Cornerstone of equipment reliability, in that closure of the RCIC supply line isolation valve could result in RCIC being unavailable during a fire in the control room or cable vault. Because of the low likelihood of occurrence of a fire in the control room or cable vault that could damage the RCIC supply line isolation valve control power source cable, there are no significant ignition sources in the areas that the cable is routed, and there was no actual loss of post-fire safe shutdown capability. This finding is of very low safety significance. (Section 1R05.8)

B. Licensee-Identified Violations

None

REPORT DETAILS

Background

This report presents the results of a triennial fire protection inspection conducted in accordance with NRC Inspection Procedure (IP) 71111.05, “Fire Protection.” The objective of the inspection was to assess whether Entergy Nuclear Operations, Inc. has implemented an adequate fire protection program and that post-fire safe shutdown capabilities have been established and are being properly maintained at the Vermont Yankee Nuclear Power Station (VYNPS) facility. The following fire areas (FAs) were selected for detailed review based on risk insights from the VYNPS Individual Plant Examination (IPE)/ Individual Plant Examination of External Events (IPEEE):

- (FA RB, Fire Zone RB4)
- (FA ASD, Fire Zone FZ3)
- (FA FA4)
- (FA FA8)
- (FA FA9)

This inspection was a reduced scope inspection in accordance with the March 6, 2003, revision to IP 71111.05, “Fire Protection.” Issues regarding equipment malfunction due to fire-induced failures of associated circuits were not inspected. Criteria for review of fire-induced circuit failures are currently the subject of a voluntary industry initiative. The definition of associated circuits of concern used was that contained in the March 22, 1982, memorandum from Mattson to Eisenhut, which clarified the requests for information made in NRC Generic Letter 81-12.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems

1R05 Fire Protection

1. Fire Area Boundaries and Barriers

a. Inspection Scope

The team walked down accessible portions of the selected fire areas to observe material condition and the adequacy of design of fire area boundaries, fire doors, and fire dampers. The team reviewed engineering evaluations, as well as surveillance and functional test procedures for selected items. The team also reviewed the licensee submittals and NRC safety evaluation reports (SERs) associated with fire protection features at VYNPS. Additionally, the team reviewed the design and qualification testing of selected barriers and reviewed surveillance procedures for structural fire barriers, penetration seals and structural steel. These reviews were performed to ensure that the passive fire barriers were properly maintained and met the licensing and design bases as described in the licensee submittals, NRC SERs, and the VYNPS Updated Final Safety Analysis Report (UFSAR).

b. Findings

No findings of significance were identified.

2. Post-Fire Safe Shutdown Lighting and Communications

a. Inspection Scope

The team observed the placement and coverage area of eight-hour emergency lights and the 125VDC emergency lighting system throughout the selected fire areas to evaluate their adequacy for illuminating access and egress pathways and any equipment requiring local operation for post-fire safe shutdown. The team also reviewed preventive maintenance procedures and various documents, including the vendor manual and completed surveillance tests, to determine if adequate surveillance testing and periodic battery replacements were in place to ensure reliable operation of the emergency lights.

The team reviewed radio repeater location, power sources and preventive maintenance procedures to ensure fire department and operator communications could be maintained for fire fighting and post-fire safe shutdown conditions.

b. Findings

No findings of significance were identified.

3. Programmatic Controls

a. Inspection Scope

During tours of the facility, the team observed the material condition of fire protection systems and equipment, the storage of permanent and transient combustible materials, and control of ignition sources. The team also reviewed the procedures that controlled hot-work activities and combustibles at the site. Additionally, the team reviewed a sample of hot work permits and transient combustible control permits. These reviews were accomplished to ensure that Entergy Nuclear Operations, Inc. was maintaining the fire protection systems, controlling hot-work activities, and controlling combustible materials in accordance with the UFSAR, administrative procedures and other fire protection program procedures.

b. Findings

No findings of significance were identified.

4. Fire Detection Systems and Equipment

a. Inspection Scope

The team reviewed the adequacy of the fire detection systems in the selected plant fire areas. This included a walkdown of the systems and review of the type of installed detectors as shown per location drawings. The team also reviewed licensee submittals and the NRC SERs associated with the selected fire areas. These reviews were performed to ensure that the fire detection systems for the selected fire areas were installed in accordance with the design and licensing bases of the plant. Additionally, the team reviewed fire detection surveillance procedures to determine the adequacy of the fire detection component testing and to ensure that the detection system would function as required.

b. Findings

No findings of significance were identified.

5. Fixed Fire Suppression Systems

a. Inspection Scope

Carbon Dioxide and Sprinkler Systems

The team reviewed the adequacy of the cable vault battery room (FA ASD, Fire Zone FZ3) automatic high pressure total flooding carbon dioxide (CO_2) system by performing walkdowns of the system and the fire area envelope. The team also reviewed the design and installation, NFPA 12, “Standard on Carbon Dioxide Extinguishing Systems,” calculations that verified concentration and hold times and the adequacy of surveillance procedures. Completed surveillance procedures were also reviewed to ensure periodic testing of the system was being accomplished. These reviews were performed to ensure that the high pressure total flooding CO_2 system met the design and licensing bases as described in the licensee submittals, NRC SERs and the UFSAR and that the system could perform its intended function in the event of a fire in this area.

The team reviewed the adequacy of the switchgear room (east) (FA FA4) automatic low pressure total flooding carbon dioxide (CO_2) system by performing walkdowns of the system and the fire area envelope. The team also reviewed the design and installation, NFPA 12, “Standard on Carbon Dioxide Extinguishing Systems,” calculations that verified concentration and hold times and the adequacy of surveillance procedures. Completed surveillance procedures were also reviewed to ensure periodic testing of the system was being accomplished. These reviews were performed to ensure that the high pressure total flooding CO_2 system met the design and licensing bases as described in the licensee submittals, NRC SERs and the UFSAR and that the system could perform its intended function in the event of a fire in this area.

The team reviewed the adequacy of the emergency diesel generator rooms (FA FA8 and FA9) manual closed head sprinkler system by performing walkdowns of the system. The team also reviewed the design and installation, NFPA 13, "Standard for the Installation of Sprinkler Systems," and the adequacy of surveillance procedures. Completed surveillance procedures were also reviewed to ensure periodic testing of the system was being accomplished. These reviews were performed to ensure that the sprinkler system met the design and licensing bases as described in the licensee submittals, NRC SERs and the UFSAR and that the systems could perform their intended function in the event of a fire in these areas.

b. Findings

No findings of significance were identified.

6. Manual Fire Suppression Capability

b. Inspection Scope

The team walked down selected standpipe systems and observed portable extinguishers to determine the material condition of the manual fire fighting equipment and verify locations as specified in the pre-fire plans and fire protection program documents. The team reviewed electric and diesel fire pump flow and pressure tests to ensure that the pumps were meeting their design requirements. The team also reviewed the fire main loop flow tests to ensure that the flow distribution circuits were able to meet the design requirements. The team inspected the fire brigade's protective ensembles, self-contained breathing apparatus (SCBA), and various fire brigade equipment to determine operational readiness for fire fighting.

The team reviewed pre-fire plans and smoke removal plans for the selected fire areas to determine if appropriate information was provided to fire brigade members and plant operators to identify safe shutdown equipment and instrumentation, and to facilitate suppression of a fire that could impact safe shutdown.

The team performed in-plant walk downs to evaluate the physical configuration of electrical raceway and safe shutdown components in the selected fire areas to determine whether water from an inadvertent fire suppression system pipe rupture or from manual fire suppression activities in the selected areas could cause damage that could inhibit the ability to safely shutdown the plant.

The team reviewed fire brigade initial training and continuing training course materials to verify appropriate training was being conducted for the station fire fighting personnel. Additionally, the team reviewed selected fire drills and critiques to ensure that drills were being conducted in risk significant areas.

The team reviewed the qualifications of several fire brigade leaders and members to ensure that they had met and maintained the requirements to be fire brigade leaders and members.

b. Findings

No findings of significance were identified.

7. Safe Shutdown Capability

a. Inspection Scope

The team reviewed VYNPS's Fire Hazards Analysis (FHA), Safe Shutdown Capability Analysis (SSCA), and UFSAR to determine the methods and equipment that Entergy Nuclear Operations, Inc. used to achieve safe shutdown following postulated fires. The team assessed the adequacy of the selected systems for reactivity control, reactor coolant makeup, reactor heat removal, process monitoring, and associated support system functions. In addition, the team evaluated VYNPS's fire response procedures, alarm response procedures and operating procedures for the selected fire areas to assess the methods and equipment used to achieve safe shutdown following a fire. The team's review included piping and instrumentation drawings (P&ID) for post-fire safe shutdown systems to identify required components for establishing flow paths, to identify equipment required to isolate flow diversion paths, and to verify whether appropriate components were included in the alternate safe shutdown equipment list. The team performed field walkdowns to evaluate whether alternate safe shutdown equipment was adequately protected from the effects of fires.

The team evaluated selected safe shutdown components and their power and control circuits to determine whether proper isolation and alternate power sources were provided for those components to verify whether alternate shutdown control would be affected by fire-induced circuit faults, in the event of a fire affecting the control room or cable vault. The team's evaluation included the Vernon Tie Line power supply from the Vernon Hydro station, which provides independent power to two trains of safe shutdown equipment through manually operated switches. In addition, the team reviewed selected alternate shutdown equipment surveillance tests to assess whether periodic testing was adequate to demonstrate component operability and to verify whether such tests satisfied the applicable surveillance requirements.

Post-fire safe shutdown procedures were evaluated to determine if appropriate information was provided to plant operators to identify protected equipment and instrumentation and whether recovery actions specified in post-fire shutdown procedures considered manpower needs for performing required actions. The team also reviewed training lesson plans, qualification practical factors, and job performance measures for alternative shutdown actions, discussed training with licensed operators, reviewed selected alternate safe shutdown equipment tests, reviewed the adequacy of shift manning, and evaluated the accessibility of the alternative shutdown operating stations and required manual action locations.

Specific procedures reviewed for safe shutdown from outside the control room included:

- OP-3126, "Shutdown Using Alternate Shutdown Methods"
- OP-3122, "Loss of Normal Power"

The team performed a walkdown of procedures for a main control room fire, evacuation, and plant shutdown form outside the main control room. In addition, the team observed a demonstration, by licensed operators, of a transfer of plant control to alternate safe shutdown panels, and a simulated plant shutdown to hot standby conditions. The team primarily focused on the portion of the procedures associated with achieving stable hot shutdown conditions, within the time frames assumed in the safe shutdown thermal hydraulic analysis. The team evaluated the approximate time for critical steps, such as establishing makeup flow to the reactor vessel, to assess the ability of operators to maintain plant parameters within the required limits.

b. Findings

No findings of significance were identified.

8. Safe Shutdown Circuits

a. Inspection Scope

The team reviewed cable routing for post-fire safe-shutdown components to confirm that cables subject to fire damage in the five selected fire areas were identified and adequately addressed. The team also reviewed cable raceway drawings for a sample of components required for post-fire safe shutdown to verify that cables were routed as described in the cable routing documentation.

The team reviewed circuit breaker coordination studies to ensure equipment needed to conduct post-fire safe shutdown activities would not be impacted due to a lack of coordination. The team confirmed that coordination studies had addressed multiple faults due to fire. Additionally, the team reviewed a sample of circuit breaker maintenance and records to verify that circuit breakers for components required for post-fire safe shutdowns were properly maintained in accordance with procedural requirements.

The team reviewed the electrical isolation capability of selected equipment needed for post-fire safe shutdown to ensure that such equipment could be operated locally or from the alternate shutdown panels, if needed. The team also reviewed surveillance test procedures and test records for the alternate shutdown control transfer switches and alternate power supplies, to ensure that functionality of the transfer switches and alternate power sources were adequately demonstrated.

Due to the issuance of Change Notice 00-020 to Inspection Procedure 71111.05, “Fire Protection,” the team did not review associated circuit issues during this inspection.

This change notice has suspended this review pending completion of an industry initiative in this area.

b. Findings

Introduction. A Green non-cited violation (NCV) was identified in that VYNPS did not ensure electrical isolation of the normal control power source for the reactor core isolation cooling (RCIC) steam supply line isolation valve (MOV 13-15) in the event of a control room or cable vault fire. This deficiency could allow for the spurious closure of motor-operated valve (MOV) 13-15 if a fire were to occur in the control room or cable vault and the use of alternate safe shutdown capability from the RCIC remote shutdown panel was implemented. This condition could have caused the RCIC system to be unavailable to control reactor water level.

Description. MOV 13-15 is a steam admission isolation and containment isolation valve. Control power source circuits for the valve are provided for normal and alternate safe shutdown operation. During normal operation, with the control room manned, MOV 13-15 is normally in the open position and can only be operated from the control room. During a control room or cable vault fire, it may be necessary to evacuate the control room. With the control room evacuated, a transfer switch on the RCIC remote panel transfers control of the valve to the RCIC remote shutdown panel. The transfer switch is intended to isolate the alternate safe shutdown RCIC control power source circuits from a potential electrical fault in the control room or cable vault during a fire in these areas.

During this inspection, the team identified that the RCIC remote panel transfer switch did not isolate the control room RCIC control power source circuits when in the “Emergency” position. One conductor from a seven-conductor cable could not be isolated, therefore the potential existed that MOV 13-15 could spuriously close during a control room or cable vault fire.

Subsequent investigation, by VYNPS, revealed that a plant modification, completed in 1997, had not been appropriately implemented. A jumper wire had been left in the RCIC remote transfer switch panel terminal strip which prevented isolation of the RCIC control power source circuits in the control room. If the RCIC control power source circuits were installed as required, control power would be properly isolated and potential for a spurious closure of MOV 13-15 would not occur during a control room or cable vault fire.

VYNPS initiated condition report CR-VTY-2004-03762 to evaluate corrective actions for this deficiency. Upon discovery of this condition, the following compensatory measures were put into place: (1) all additional transient combustibles were restricted from the main control room and the cable vault, (2) a roving fire watch was initiated in the cable vault, (3) maintenance activities for fire detection and suppression systems in the main control room and the cable vault had been delayed pending resolution of the condition. Additionally, VYNPS conducted an extent of condition review and developed plans to correct the observed deficiency.

On December 22, 2004, VYNPS completed modifications to the RCIC remote transfer switch panel to ensure that isolation of the affected circuit could be accomplished during a control room or cable vault fire.

Analysis. This finding potentially affected the Mitigating Systems Cornerstone by degrading the operability, availability, reliability and function of the RCIC system during a postulated fire in the control room or cable vault in which alternate safe shutdown strategies would be necessary. This condition is more than minor because, if left uncorrected, it could become a more significant safety concern by rendering the RCIC system unavailable to perform its intended function during an alternate safe shutdown fire event.

This finding was screened using Manual Chapter 609, Appendix F, Fire Protection Significance Determination Process, dated May 28, 2004. The team entered the identified performance deficiency into Phase I of Appendix F for evaluation. Step 1.1, Assign a Finding Category, requires the assignment of a finding category from Table 1.1.1, Examples of Finding Category. The team selected a finding category of "Post-fire Safe Shutdown," because of the following elements: (a) systems or functions relied upon for post-fire safe shutdown and, (b) circuit failure modes and effects (e.g., spurious operation issues). In Step 1.2, Assignment of a Degradation Rating, the team assigned a "moderate" degradation of the observed deficiency because it could have impacted performance and/or reliability of the RCIC system for a control room or cable vault fire. The team determined that the finding could not be screened to Green in Step 1.3, Initial Qualitative Screening. In Step 1.4, Initial Quantitative Screening, the team assigned a duration of 1.0 because the condition existed for greater than 30 days. Additionally, the team used an estimated fire frequency of 8E-3 for the control room and 6E-3 for the cable vault. The team then performed a screening check as required by Task 1.4.3. This was accomplished by summing the affected fire area frequencies and multiplying them by the duration factor. This yielded an approximate delta core damage frequency (CDF) of 14E-3. Since this value is greater than or equal to the corresponding value in Table 1.4.3 for the assigned finding category of 1E-6 (Post-fire safe shutdown), the deficiency does not screen to Green and a Phase 2 analysis must be conducted.

In Phase II, Step 2.1, Independent Safe Shutdown Path Screening, the team identified an independent safe shutdown path. Since this deficiency was associated with the safe shutdown path and no credit can be given for manual actions, the team determined the unavailability factor in Task 2.1.2, to equal 1.0. Step 2.1.4, Screening Check, states that if the identified safe shutdown path was assigned an unavailability factor of 1.0 from Task 2.1.2 or 2.1.3, then proceed to Step 2.2, Fire Damage State Determination. The team determined that all fire damage states in Task 2.2 should be considered. Step 2.3, Fire Scenario Identification and Ignition Source Screening, requires a screening analysis to eliminate fire ignition sources that cannot spread fire and cannot cause damage to one or more components/cables in the fire areas of concern. The team determined that ignition sources in the control room are not a threat to the RCIC control source power cable in that it mostly consists of low voltage components and wiring. Ignition sources in the cable vault consists of two reactor protection system motor generator sets and two

24 volt battery chargers. The distance from the reactor protection system motor generator sets to the cable of concern is greater than forty feet. The distance from the 24 volt battery chargers is greater that twenty feet. The team determined that these distance placed the RCIC control power source cable a significant distance from the zone of influence of the potential ignition sources. Task 2.3.4, Fire Ignition Screening, states that if the ignition sources cannot affect the component or cable of concern, they should be screened out. Based on this analysis, the team determined that the routing of the RCIC control power source cable was not near ignition sources that could have induced electrical faults that could potentially close the RCIC steam supply line isolation valve during a control room or cable vault fire. Task 2.3.5, Finding Screening Check states if all fire ignition sources screen out in Task 2.3.4, the Phase II analysis is complete and the finding should be assigned a significance of Green.

Enforcement. VYNPS relies on alternate safe shutdown capability for a fire in the control room or cable vault. 10 CFR 50, Appendix R, Section III.G.3 requires in part that an "Alternative of dedicated shutdown capability and its associated circuits, independent of cables, systems or components in the area, room, zone under consideration should be provided." Contrary to this requirement, the normal RCIC control power source wiring for RCIC MOV 13-15 could not be properly isolated from the control room during a fire in control room or cable vault. During a control room or cable vault fire, MOV 13-15 could spuriously close causing RCIC to become unavailable. This condition is a violation of 10 CFR 50, Appendix R, Section III.G.3, because control of MOV 13-15 was not independent of the fire area of concern. Because this condition is of very low safety significance and had been entered into VYNPS's corrective program (CR-VTY-2004-03762) for resolution, this violation is being treated as an NCV, consistent with Section VI.A of the Enforcement Policy. Additionally, VYNPS implemented appropriate compensatory actions upon discovery of the issue and the condition was corrected in a timely manner. **(NCV 05000271/2004010-01, Failure to Provide Isolation of Normal Control Power Source for RCIC Steam Supply Line Isolation Valve.)**

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems

1. Corrective Actions for Fire Protection Deficiencies

a. Inspection Scope

The team reviewed the open corrective maintenance work orders for fire protection and safe shutdown equipment, selected condition reports (CRs) for fire protection and safe shutdown issues and recent VYNPS fire protection program and system health reports to evaluate the prioritization for resolving fire protection related deficiencies and the effectiveness of corrective actions. The team also reviewed recent Quality Assurance (QA) Audits and self-assessments of the fire protection program to determine if the licensee was identifying program deficiencies and implementing appropriate corrective actions.

b. Findings

No findings of significance were identified.

4OA6 Meetings, Including Exit

1. Exit Meeting Summary

The team presented their preliminary inspection results to Mr. William Maguire, General Manager for Plant Operations, and other members of the VYNPS staff at an exit meeting on December 17, 2004. The team confirmed that proprietary information was not provided or examined during the inspection.

ATTACHMENT: SUPPLEMENTAL INFORMATION

ATTACHMENT

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

W. Maguire, General Manager Plant Operations
D. Amidon, EFIN Team
J. Boothroyd, Coordinator, Safety and Fire Protection
J. Callahan, Design Engineering Manager
L. Casella, Supervisor, Fire Protection
J. Devincentis, Manager, Licensing
J. Dreyfuss, Engineering Director
B. Hall, Quality Assurance
M. Harris, Operations Shift Manager
D. Jeffries, System Engineer
P. Johnson, Senior Principal Engineer (Appendix R)
J. Lynch, Senior Associate Engineer
M. Palionis, PRA Engineer
W. Pittman, Supervisor, Shift Operations
J. Rogers, Supervisor - Design Engineering
P. Rose, Supervisor, Control Supervisor
M. Smaga, Jet Team Member
M. Teras, Systems Engineering Manager
J. Twarog, Supervisor - Operations
R. Vibert, Design Engineering Supervisor
R. Wanczyk, Director, Nuclear Safety
C. Wamser, Operations Manager
G. Wierzbowski, System Engineering Manager
T. White, QA Manager

NRC

W. Lanning, Director, Division of Reactor Safety
J. Rogge, Chief, Electrical and Fire Protection Branch, Division of Reactor Safety
D. Pelton, Senior Resident Inspector, Vermont Yankee Nuclear Power Station
B. Sienel, Resident Inspector, Vermont Yankee Nuclear Power Station

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

NONE

Open and Closed

05000271/2004010-01	NCV	Failure to Provide Isolation of Normal Control Power Source for RCIC Steam Supply Line Isolation Valve (Section 1R05.8)

Closed

NONE

Discussed

NONE

LIST OF DOCUMENTS REVIEWED

Fire Protection Licensing Documents

VY Individual Plant Examination External Events, June 1998
VY Updated Final Safety Evaluation Report, Rev. 18
VY Fire Hazards Analysis, Appendix B, Rev. 5
VY Safe Shutdown Capability Analysis, Rev. 7
VY Fire Protection Commitment Reference Manual, Rev. 1
PP 7011, VY Fire Protection and Appendix-R Program, Rev. 1
NRC Safety Evaluation Report, Fire Protection SER of the Fire Hazards Survey, January 13, 1978
NRC Safety Evaluation Report, January 22, 1980
NRC Safety Evaluation Report, February 20, 1980
NRC Safety Evaluation Report, October 24, 1980
NRC Safety Evaluation Report, Safety Evaluation for Appendix R to 10 CFR Part 50, Items III.G.3 and III.L, January 13, 1983
NRC Safety Evaluation Report, Safety Evaluation for Appendix R 10 CFR Part 50, Items III.G.3 and III.L, (Supplemental) July 24, 1984
Letter to Vermont Yankee, Vermont Yankee Fire Protection Review Evaluation of Design Details and Incomplete Items, April 15, 1980
Letter to Vermont Yankee, Exemption Pertaining to Requirement For Fixed Fire Suppression in the Control Room, May 10, 1982
Letter to Vermont Yankee, Exemption From Appendix R to 10 CFR 50 Concerning Automatic

Fire Suppression, Separation, and Repairs, December 1, 1986
Letter to Vermont Yankee, Issuances of Exemptions to 10 CFR 50, Appendix R, Section III. J Emergency Lighting and Section III.G.2.a, Separation, June 26, 1989
Letter to Vermont Yankee, Alternative Testing Method for Cable Vault CO_2 Fire Suppression System for Vermont Yankee Nuclear Power Station, November 29, 1990
Letter to Vermont Yankee, Vermont Yankee Nuclear Power Station (Revocation of 8 Hour Emergency Lights in Areas of Reactor Building Exemption), August 30, 1995
Letter to Vermont Yankee, Vermont Yankee Nuclear Power Station (Fire Resistant Cables Exemption), June 5, 1997
Letter to Vermont Yankee, Vermont Yankee Nuclear Power Station, (ADS/LPCI Exemption), August 12, 1997
Letter to Vermont Yankee, Removal of Fire Rating on Control Room (Floor)/Cable Vault (Ceiling) Electrical Penetration barrier, Re- Designation of control Room, Cable Vault and Battery Room Into Single Fire Area at VY Nuclear Power Station, September 2, 1998
TIA, February 17, 1999, Proposed TIA for Acceptability of CO_2 Total Flooding Fire Suppression System Testing Without Full Discharge Test
Letter Dated November 17, 1999, Proposed TIA Regarding the Acceptability of CO_2 Total Flooding Fire Suppression Systems Testing Without Full Discharge Test

Calculations/Engineering Evaluations

DP0078, Combustible Loading Evaluations, Rev. 2
Fire Protection Engineering Evaluation B.1, Reactor Building Floors - Appendix R Barrier Requirements, September 18, 1996
Fire Protection Engineering Evaluation B.2, Reactor Building EL. 252' Adequacy of Pre-action Sprinkler coverage, October 7, 1996
Fire Protection Engineering Evaluation B.4, Evaluation of Drywell Ante Room in Fire Zone RB-4 - Adequacy of Separation from FZ RB-3, June 21, 1996
Fire Protection Engineering Evaluation B.5, BVY 95-77, Removal of Fire Railing on Control Room (Floor)/Cable Vault (Ceiling) Electrical Penetration Barrier, Re-designation of Control Room, Cable Vault, and Battery Room Into Single Fire Area, July 13, 1995
Fire Protection Engineering Evaluation B.8, Control Building 248'6" Evaluation - 1 Hour Fire Barrier Separating the East and West Switchgear Rooms, September 25, 1996
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OP-4142, Vernon Tie and Delayed Access Power Source Backfeed Surveillance, Rev. 7

OP 4339, Surveillance of Fire Protection Detectors/Instruments, Rev. 10
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OP-4124.08, dated April 30, 2004
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OP 4103.09, Monthly Fire Equipment Data Sheet, Completed March 2004
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G-191160, Flow Diagram Instrument Air System, Sh. 2, Rev.15
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G-191324, Cable Vault Arrangement Switchgear Room Conduit and Trays, Sh. 1, Rev. 46
G-191328, Fire Protection Conduit Control Building
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5920-11024, MH-23 Man way Fire Barrier, Rev. 1
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B191301, Sh. 1179, Control Wiring Diagram, RCIC Logic System, Sh. 1, Rev. 17
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B191301, Sh. 1182, Control Wiring Diagram, RCIC Logic System, Sh. 3 & Turbine Trip, Rev. 18
B191301, Sh. 1183, Control Wiring Diagram, RCIC System Isolation Valves & Misc. Rev. 7
B191301, Sh. 1184, Control Wiring Diagram, RCIC Instrumentation, Sh. 1, Rev. 21
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B191301, Sh. 1186, Control Wiring Diagram, RCIC Gland Seal Vac Tank Condensate Pump P-213-1A, Rev. 10
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B191301, Sh. 1189, Control Wiring Diagram, RCIC Steam Supply Line Isolation Valve V13-16, Rev. 18
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B191301, Sh. 1191, Control Wiring Diagram, RCIC Pump Discharge Valve V13-20, Rev. 14
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B191301, Sh. 1193, Control Wiring Diagram, RCIC Minimum Flow Bypass To Supp. Chamber Valve V13-27, Rev. 15
B191301, Sh. 1194, Control Wiring Diagram, RCIC Test Bypass To Condensate Storage Tank Valve V13-30, Rev. 14
B191301, Sh. 1195, Control Wiring Diagram, RCIC Pump Suction From Suppression Chamber Valve V13-39, Rev. 15
B191301, Sh. 1196, Control Wiring Diagram, RCIC Pump Suction From Suppression Chamber Valve V13-41, Rev. 17
B191301, Sh. 1197, Control Wiring Diagram, RCIC Steam To Turbine Valve V13-131, Rev. 17
B191301, Sh. 1198, Control Wiring Diagram, RCIC Pump Turbine LO Cooling Supply Valve V13-132, Rev. 14
B191301, Sh. 1199, Control Wiring Diagram, RCIC Annunciators, Rev. 26
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B191301, Sh. 1254, Control Wiring Diagram, RHR System Relay Logic System "B", Sh. 6, Rev. 27
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B191301, Sh. 1257, Control Wiring Diagram, RHR System, Rev. 12
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B191301, Sh. 1260, Control Wiring Diagram, Suppression Pool To Pump Suction Valve V10-13B, Rev.15
B191301, Sh. 1261, Control Wiring Diagram, Suppression Pool To Pump Suction Valve V10-13D, Rev. 12
B191301, Sh. 1264, Control Wiring Diagram, Recirc Supply To Pump Suction Valve V10-15B, Rev. 15
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B191301, Sh. 1268, Control Wiring Diagram, RHR Pump Minimum Flow Bypass Valve V10-16B, Rev. 18
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B191301, Sh. 1274, Control Wiring Diagram, Containment Spray Outboard Injection Valve V10-26B, Rev. 11
B191301, Sh. 1276, Control Wiring Diagram, Containment Spray Inboard Injection Valve V10-31B, Rev. 11
B191301, Sh. 1278, Control Wiring Diagram, Suppression Chamber Spray Bypass Valve V10-34B, Rev. 12
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B191301, Sh. 1282, Control Wiring Diagram, RHR Pump Discharge Valve V10-65A, Rev. 10
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B191301, Sh. 1296, Control Wiring Diagram, RHR Pump P-10-3C (P10-1C), Rev. 11
B191301, Sh. 1302, Control Wiring Diagram, RHR Pump P-10-3D (P10-1D), Rev. 7
B191301, Sh. 1303, Control Wiring Diagram, RHR Reactor Shutdown Cooling Isolation Valve V10-18 (Inboard), Rev. 14
B191301, Sh. 1304, Control Wiring Diagram, RHR Discharge To Radwaste Isolation Valve V10-66 (Inboard), Rev. 8
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PFP-RB-6, Reactor Building South, May 1, 2003
PFP-TB-5, Diesel Rooms, May 1, 2003

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MG-1-1A
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2003-041 2003-060 2004-36 2004-59 2004-60 2004-88

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Technical Requirements Manual (TRM), Rev. 19
Transient Combustible Evaluations 2004-046, 2004-047, 2004-049, 2004-053
Safety Related 4.16 KV/480 Volt System, 8/11/03
Vendor Manual, LightGuard (Appendix R Lights)
480 Volt Motor Control Center PM Basis E066, for MCC-9B-11KL and MCC-8B-7F

LIST OF ACRONYMS USED

ASD	Alternate Safe Shutdown
CDF	Core Damage Frequency
CFR	Code of Federal Regulations
CO_2	Carbon Dioxide
CR	Condition Report
DRS	Division of Reactor Safety
FA	Fire Area
FHA	Fire Hazards Analysis
IP	Inspection Procedure
IPE	Individual Plant Examination
IPEEE	Individual Plant Examination of External Events
IR	Inspection Report
MOV	Motor Operated Valve
NCV	Non Cited Violation
NFPA	National Fire Protection Association
NRC	Nuclear Regulatory Commission
PAR	Publicly Available Records
P&ID	Piping and Instrumentation Drawing
QA	Quality Assurance
RCIC	Reactor Core Isolation Cooling
SCBA	Self-Contained Breathing Apparatus
SDP	Significance Determination Process
SER	Safety Evaluation Report
SSCA	Safe Shutdown Capability Analysis
TRM	Technical Requirements Manual
UFSAR	Updated Final Safety Analysis Report
VDC	Volts Direct Current
VYNPS	Vermont Yankee Nuclear Power Station