July 26, 2004

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 INTEGRATED INSPECTION REPORT 05000271/2004003

Dear Mr. Thayer:

On June 30, 2004, the US Nuclear Regulatory Commission (NRC) completed an inspection at your Vermont Yankee Nuclear Power Station (VY). The enclosed report documents the inspection findings which were discussed on July 12, 2004, with members of your staff.

The 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 finding of very low safety significance (Green) which was also determined to involve a violation of NRC requirements. Because of the very low safety significance and because the finding was entered into your corrective actions program, the NRC is treating it as a non-cited violation (NCV), consistent with Section VI.A of the NRC's Enforcement Policy. If you contest this non-cited violation, 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, D.C. 20555-0001; with copies to the Regional Administrator Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at the Vermont Yankee Nuclear Power Station.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) 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).

Sincerely,

/RA/

Clifford J. Anderson, Chief
Projects Branch 5
Division of Reactor Projects

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

Enclosure: Inspection Report 05000271/2004003
w/Attachment: Supplemental Information

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

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.	50-271
Licensee No.	DPR-28
Report No.	05000271/2004003
Licensee:	Entergy Nuclear Vermont Yankee, LLC
Facility:	Vermont Yankee Nuclear Power Station
Location:	320 Governor Hunt Road Vernon, Vermont 05354-9766
Dates:	April 1, 2004 - June 30, 2004
Inspectors:	David L. Pelton, Senior Resident Inspector Beth E. Sienel, Resident Inspector E. Harold Gray, Senior Reactor Inspector Todd J. Jackson, Senior Project Engineer James D. Noggle, Senior Health Physicist Larry L. Scholl, Senior Reactor Inspector Keith A. Young, Senior Reactor Inspector Amar C. Patel, Reactor Inspector Jennifer A. Bobiak, Reactor Inspector Thomas P. Sicola, Reactor Inspector
Approved by:	Clifford J. Anderson, Chief Projects Branch 5 Division of Reactor Projects

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SUMMARY OF FINDINGS

IR 05000271/2004003; 04/01/04 - 06/30/04; Vermont Yankee Nuclear Power Station; Refueling and Outage Activities.

This report covered a 13-week period of baseline inspection conducted by resident inspectors. Additionally, announced inspections were performed by regional inspectors in the areas of occupational radiation protection; evaluations of changes, tests, and experiments; in-service inspections; and permanent plant modifications. One Green non-cited violation (NCV) was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, “Significance Determination Process” (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. 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 and Self-Revealing Findings

Cornerstone: Barrier Integrity

(Green) A self-revealing, non-cited violation (NCV) of 10 CFR 50 Criterion XVI was identified in that Entergy personnel did not develop effective corrective actions to prevent recurrence following a 2001 event wherein control room operators did not verify a suction path existed prior to starting the residual heat removal (RHR) system pump being used to support shutdown cooling (SDC) operations which caused the pump to trip. On April 10, 2004, an identical event occurred and again resulted in a trip of the RHR pump being used to support SDC operations.

The finding is greater than minor since it is associated with the Fuel Cladding Configuration Control Attribute of the Barrier Integrity Cornerstone and because it affects the associated Cornerstone objective. The inspectors conducted a SDP Phase 1 screening of the finding in accordance with IMC 0609, Appendix G, “Shutdown Operations Significance Determination Process [SDP].” In accordance with the SDP, the inspectors determined that the finding was of very low safety significance (Green) since the RHR pump was restarted within 15 minutes of being tripped and an adequate SDC thermal margin was maintained as demonstrated by a calculated reactor coolant system (RCS) time-to-boil of greater than 24 hours.

A contributing cause of this finding is related to the Cross-Cutting area of Problem Identification and Resolution. As stated above, Entergy personnel did not develop effective corrective actions to prevent recurrence following a 2001 event wherein control room operators did not verify a suction path existed prior to starting the RHR system pump being used to support SDC operations which caused the pump to trip. Entergy’s corrective actions relied on the operator’s skill to verify a suction path was open prior to restarting the RHR pump rather than proceduralize the step. As a result, an identical event occurred in April 2004 again resulting in a trip of the RHR pump being used to support SDC operations. (Section 4OA3.1)

Summary of Findings (cont'd)

B. Licensee Identified Findings

None.

REPORT DETAILS

Summary of Plant Status

Vermont Yankee Nuclear Power Station entered the inspection period at or near full power. The reactor was shutdown on April 3, 2004, in support of planned refueling outage (RFO) 24. Reactor startup activities began on May 3, 2004, following the completion of RFO 24. The reactor was returned to full power operation on May 8, 2004. On June 18, 2004, an automatic reactor scram occurred as a result of a turbine trip following multiple faults-to-ground on the 22 kilovolt (KV) electrical system. The reactor remained shutdown for the rest of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather (71111.01)

a. Inspection Scope (one sample)

The inspectors reviewed measures established by Entergy for the restoration from cold weather operations. The inspectors reviewed Vermont Yankee Operating Procedure (OP) 2196, "Preparations for Cold Weather Operations," Form VYOPF 2196.02, "Cold Weather Restoration Operations Checklist," discussed the completion of items with operations personnel to confirm the items on the checklist had been completed or were appropriately tracked for completion, and independently walked down portions of the plant to verify selected actions to restore from cold weather operations had been completed appropriately.

b. Findings

No findings of significance were identified.

1R02 Evaluations of Changes, Tests, or Experiments (71111.02)

a. Inspection Scope (eight samples)

The inspectors reviewed the 10 CFR 50.59 safety evaluations or screening evaluations associated with plant modifications being installed during the current refueling outage to support a proposed power uprate. The inspectors assessed the adequacy of the safety evaluations through interviews with the cognizant plant staff and review of supporting documentation to verify the changes were performed in accordance with 10 CFR 50.59 and when required, NRC approval was obtained prior to implementation. The inspectors also reviewed a sample of changes the licensee had evaluated (using a screening process) and determined to be outside of the scope of 10 CFR 50.59, therefore not requiring a full safety evaluation. The inspectors performed this review to determine if Entergy conclusions with respect to 10 CFR 50.59 applicability were appropriate. A listing of the modifications for which associated safety evaluations, safety evaluation

screenings, and other documents were reviewed is provided in the Attachment to this report.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignments

1. Complete Equipment Alignment (71111.04S)

a. Inspection Scope (one sample)

The inspectors performed a complete equipment alignment inspection of the accessible portions of the core spray (CS) system. The inspectors walked down the CS system, both inside and outside of the primary containment, and compared actual equipment alignment to approved piping and instrumentation diagrams, operating procedure lineups, the Vermont Yankee updated final safety analysis report (UFSAR), and the Vermont Yankee design basis document (DBD). The inspectors observed valve positions, the availability of power supplies, and the general condition of selected components to verify there were no unidentified deficiencies. The inspectors also confirmed that licensee-identified equipment problems had been entered into the corrective actions program.

b. Findings

No findings of significance were identified.

2. Partial Equipment Alignments (71111.04)

a. Inspection Scope (four samples)

The inspectors performed four partial system walkdowns of risk significant systems to verify system alignment and to identify any discrepancies that would impact system operability. Observed plant conditions were compared with the standby alignment of equipment specified in the licensee's system operating procedures and drawings. The inspectors also observed valve positions, the availability of power supplies, and the general condition of selected components to verify there were no obvious deficiencies. The inspectors verified the alignment of the following systems:

- The spent fuel pool (SFP) cooling system while the "A" train of the residual heat removal (RHR) system was unavailable to support shutdown cooling on June 6, 2004;
- The "B" train of the standby gas treatment (SBGT) system during planned maintenance on the "A" SBGT fan on June 7, 2004;

- The “A” train of SBGT during planned instrument calibrations on the “B” train of SBGT on June 8; and
- The emergency diesel generators (EDGs), start-up transformers, the diesel oil storage tank (DOST) following the main transformer fire on June 18, 2004.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q)

a. Inspection Scope (nine samples)

The inspectors identified fire areas important to plant risk based on a review of Entergy’s the Vermont Yankee Safe Shutdown Capability Analysis, the Fire Hazards Analysis, and the individual plant evaluation of external events (IPEEE). The inspectors toured plant areas important to safety in order to verify the suitability of Entergy’s control of transient combustibles and ignition sources, and the material condition and operational status of fire protection systems, equipment, and barriers. The following fire areas were inspected:

- Reactor building, 252 foot elevation-S1 cable trays (CFZ-3/4);
- Reactor building, 252 foot elevation-S2 cable trays (CFZ-3/4);
- Reactor building, 252 foot elevation, North (FZ RB3);
- Reactor building, 252 foot elevation, South (FZ RB4);
- Reactor building, 280 foot elevation, Recirc MG set area (SZ RB-MG);
- Turbine building, all elevations (FA TB);
- Torus room, 213 foot elevation, North (FZ RB1);
- Torus room, 213 foot elevation, South (FZ RB2);
- 345 KV relay house.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope (one sample)

The inspectors reviewed Entergy’s established flood protection barriers and procedures for coping with internal flooding in the EDG rooms including Vermont Yankee Off-Normal Procedure (ON) 3148, “Loss of Service Water”; and ON 3158, “Reactor Building High Area Temperature/Water Level.” The inspectors reviewed internal flooding information contained in Entergy’s IPEEE, in the UFSAR, and in the Internal Flooding DBD as it related to the EDG rooms. Finally, the inspectors performed walk-downs of flood vulnerable portions of the EDG rooms to ensure equipment and structures needed

to mitigate an internal flooding event were as described in the IPEEE and the DBD. Additionally, the inspectors reviewed condition reports (CRs) related to internal flooding and the EDG rooms to ensure identified problems were properly addressed for resolution.

b. Findings

No findings of significance were identified.

1R08 Inservice Inspection (71111.08G)

a. Inspection Scope (four samples)

The inspectors assessed the inservice inspection (ISI) activities using the criteria specified in the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI.

The inspectors observed selected in-process non-destructive examination (NDE) activities, reviewed documentation and interviewed personnel to verify that the activities were performed in accordance with the ASME Boiler and Pressure Vessel Code Section XI requirements. The sample selection was based on the inspection procedure objectives and risk priority of those components and systems where degradation would result in a significant increase in risk of core damage. The inspectors reviewed a sample of condition reports and quality assurance audit reports to assess the licensee's effectiveness in problem identification and resolution. The specific ISI activities selected for review included:

- Observation of the ultrasonic testing (UT) manual technique, UT procedure, weld overlay calibration test block, and performance of pre and post examination calibration for UT of the CS system N5A safe-end to nozzle structural weld overlay;
- Review of the computer based UT procedure and observation of its application for the reactor vessel welds and the eddy current (ET) examination method to quantify clad crack shadowing of volumetric vessel weld examinations and the results for the reactor vessel flange-to-vessel weld;
- Observation of the UT examination of a pre-existing reactor vessel weld indication for verification that the indication was appropriately characterized and had not increased in dimension since the previous examination;
- Review of CS system sparger video-visual examination records;
- Review of the inspection scope expansion and disposition of two small linear indications on a standby liquid control system socket weld (SL11-F12); and
- Review of the reactor vessel internals project (BWRVIP-03 Rev 6) procedure and observation of some of the initial visual examinations.

In response to Entergy's extended power up-rate request and recent industry operating experience, the inspectors observed portions of the steam dryer visual testing (VT) type

1 and type 3 examinations and reviewed the documented examination reports. The examination reports documented that cracks were identified on both the internal and external surfaces of the steam dryer. The inspectors reviewed Entergy's corrective actions for these indications to ensure that the actions were appropriate. Specifically, the inspectors reviewed the weld repair activities for the two cracks identified on the external surface of the steam dryer. The inspectors also reviewed the vendor technical reports which justified operation for the next operating cycle at the current maximum licensed power level without repair of the indications identified on internal portions of the steam dryer.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11Q)

a. Inspection Scope (one sample)

The inspectors observed simulator examinations for one operating crew to assess the performance of the licensed operators and the ability of Entergy's Training Department staff to evaluate licensed operator performance. Operating crew performance was evaluated during a simulated main steam line break inside the drywell coincident with a loss of normal power. The inspectors evaluated the crew's performance in the areas of:

- Clarity and formality of communications;
- Ability to take timely actions;
- Prioritization, interpretation, and verification of alarms;
- Procedure use;
- Control board manipulations;
- Oversight and direction from supervisors; and
- Group dynamics.

Crew performance in these areas was compared to Entergy management expectations and guidelines as presented in the following documents:

- Vermont Yankee Administrative Procedure (AP) 0151, "Responsibilities and Authorities of Operations Department Personnel";
- AP 0153, "Operations Department Communication and Log Maintenance"; and
- Vermont Yankee Department Procedure (DP) 0166, "Operations Department Standards."

The inspectors verified that the crew completed the critical tasks listed in the associated simulator evaluation guide (SEG). The inspectors also compared simulator configurations with actual control board configurations. For any weaknesses identified, the inspectors observed the licensee evaluators to verify that they also noted the issues to be discussed with the crew.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q)

a. Inspection Scope (three samples)

The inspectors performed three issue/problem-oriented inspections of actions taken by Entergy in response to the following issues:

- As-found local leakage rate testing (LLRT) failures of the high pressure coolant injection (HPCI) turbine exhaust vacuum breakers;
- Repeat failures of the “C” residual heat removal service water (RHRSW) system pump motor cooling solenoid valve; and
- A trend of unavailability associated with the diesel-driven fire pump.

The inspectors reviewed applicable system maintenance rule scoping documents, system health reports, corrective actions taken in response to the equipment problems, maintenance rule functional failure determinations, and applicable a(1) action plans. In addition, the issues were discussed with the responsible engineer.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessment and Emergent Work Evaluation (71111.13)

a. Inspection Scope (seven samples)

The inspectors evaluated on-line and outage risk management for six planned and one emergent maintenance activities. The inspectors reviewed maintenance risk evaluations, work schedules, recent corrective actions, and control room logs to verify that other concurrent or emergent maintenance activities did not significantly increase plant risk. The inspectors also compared these items and activities to requirements listed in Vermont Yankee AP 0125, "Equipment Release"; AP 0172, "Work Schedule Risk Management - Online"; and AP 0173, “Work Schedule Risk Management - Outage.” The inspectors reviewed the following work activities:

Online Risk:

- Planned maintenance on the service water (SW) system supply to turbine the building valve SW-19B breaker, resulting in Yellow online risk;
- Planned maintenance on the “A” train of SBGT; and
- Emergent work to implement minor modification on average power range monitors (APRMs), resulting in a ½ scram condition and “Yellow” online risk.

Outage Risk:

- Planned realignment and testing of offsite electrical power via the delayed backfeed through the auxiliary and main transformers;
- Planned maintenance resulting in 345 KV 340 line and "1T" breaker being out of service;
- Portions of planned maintenance on electrical buses 2, 4, and 9; and
- Planned performance of reactor pressure vessel leakage testing; considered by Entergy to be a "high risk evolution."

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Non-routine Plant Evolutions (71111.14)

a. Inspection Scope (two samples)

The inspectors assessed the control room operator performance during the following two non-routine evolutions:

- Entry into emergency operating procedure (EOP) 3, "Primary Containment Control," due to average torus temperature exceeding 90 degrees during HPCI system testing on May 26, 2004; and
- Reactor scram following the main transformer fire on June 18, 2004.

Specifically, the adequacy of personnel performance, procedure compliance, and use of the corrective action process were evaluated against the requirements and expectations contained in technical specifications and the following station procedures, as applicable:

- AP 0151, "Responsibilities and Authorities of Operations Department Personnel";
- AP 0153, "Operations Department Communication and Log Maintenance";
- Vermont Yankee DP 0166, "Operations Department Standards;"
- Vermont Yankee OP 105, "Reactor Operations"; and
- OP 2124, "Residual Heat Removal System."

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope (five samples)

The inspectors reviewed five operability determinations prepared by the licensee. The inspectors evaluated the selected operability determinations against the requirements and guidance contained in NRC Generic Letter 91-18, “Resolution of Degraded and Nonconforming Conditions,” as well as procedures AP 0167, “Operability Determinations,” and ENN-OP-104, “Operability Determinations.” The inspectors verified the adequacy of the following evaluations of degraded or non-conforming conditions:

- Flow noise from the “C” RHR system pump discharge orifice;
- Broken 4 KV breaker driving pawl;
- Missing “clam shell” from the control rod drive housing support system;
- Apparent non-conservative flow-biased scram setpoints; and
- Incomplete NDE for lifting and handling gear.

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds (71111.16)

a. Inspection Scope (one sample)

The inspectors reviewed the cumulative effect of operator workarounds on the reliability, availability, and potential mis-operation of systems and the potential to affect the ability of operators to respond to plant transients and events. The inspectors reviewed identified operator burdens, control room deficiencies, disabled or illuminated control room alarms, and component deviations and discussed them with responsible operations personnel to ensure they were appropriately categorized and tracked for resolution. In addition, in-plant and control room tours were performed to identify any workarounds not previously identified in accordance with procure DP 0166, “Operations Department Standards.”

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications

1. Annual Review (71111.17A)

a. Inspection Scope (one sample)

The inspectors performed an annual review of a permanent plant modification involving the installation of an additional main steam safety valve installed during RFO 24. The inspectors reviewed this modification to verify that the design bases, licensing bases, and performance capability of risk significant structures, systems, and components (SSCs) had not been degraded through the modifications. The review evaluated the impact of the modification on power operation at the current licensed power level and potential future operation at an increased power rating. This plant modification was selected for review based on risk insights for the plant and included SSCs associated with the initiating events, mitigating systems and barrier integrity cornerstones. The inspection included a walkdown of the modification, interviews with plant staff, and the review of applicable documents including procedures, Vermont Yankee Design Calculation (VYDC) 2003-013, the modification package, engineering evaluations, drawings, corrective action documents, the UFSAR and Technical Specifications. The inspectors verified that selected attributes were consistent with the current design and licensing bases. These attributes included component safety classification, energy requirements supplied by supporting systems, instrument set-points, and control system interfaces. Design assumptions were reviewed to verify that they were technically appropriate and consistent with the UFSAR. The inspectors verified that selected procedures, calculations and the UFSAR were properly updated with revised design information and operating guidance. The inspectors also verified that the as-built configuration was accurately reflected in the design documentation and that post-modification testing was appropriate.

b. Findings

No findings of significance were identified.

2. Biennial Review (71111.17B)

a. Inspection Scope (six samples)

The inspectors performed a biennial review of selected plant modifications that were being installed during RFO 24. The modifications support a proposed power uprate that is currently under review by the Office of Nuclear Reactor Regulation (NRR). The inspectors reviewed the modifications to verify that the design bases, licensing bases, and performance capability of risk significant SSCs had not been degraded through the modifications. The reviews evaluated the impact of the modifications on power operation at the current licensed power level and potential future operation at an increased power rating. Plant modifications were selected for review based on risk insights for the plant and included SSCs associated with the initiating events, mitigating

systems and barrier integrity cornerstones. The inspection included walkdowns of selected plant systems and components, interviews with plant staff, and the review of applicable documents including procedures, calculations, modification packages, engineering evaluations, drawings, corrective action documents, the UFSAR and Technical Specifications. The inspectors verified that selected attributes were consistent with the current design and licensing bases. These attributes included component safety classification, energy requirements supplied by supporting systems, instrument set-points, and control system interfaces. Design assumptions were reviewed to verify that they were technically appropriate and consistent with the UFSAR. The inspectors verified that selected procedures, calculations and the UFSAR were properly updated with revised design information and operating guidance. The inspectors also verified that the as-built configuration was accurately reflected in the design documentation and that post-modification testing was appropriate. A listing of documents reviewed is provided in the Attachment to this report.

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing (71111.19)

a. Inspection Scope (three samples)

The inspectors reviewed completed documentation for three post-maintenance test (PMT) activities to verify the test data met the required acceptance criteria contained in the licensee's Technical Specifications, UFSAR, and in-service testing program, and that the PMT was adequate to verify system operability and functional capability following maintenance. The inspectors reviewed the PMTs performed after the following maintenance activities:

- Installation of low feedwater pump suction pressure trip modifications in accordance with minor modification (MM) 2003-015;
- APRM flow control trip reference card replacement in accordance with MM 2003-028; and
- Disassembly and repair of HPCI turbine exhaust check valve V23-3 following failed as-found LLRT.

The inspectors verified that systems were properly restored following testing and that discrepancies were appropriately documented in the corrective action process. The inspectors also discussed the PMT results with the responsible engineers.

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities (71111.20)

1. Refueling Outage (RFO) 24

a. Inspection Scope (one sample)

The inspectors evaluated the following outage activities to verify that Entergy considered risk when developing outage schedules; that Entergy adhered to administrative risk reduction methodologies for plant configuration control; and to ensure that Entergy adhered to their operating license, Technical Specification requirements, and approved procedures:

- Review of the Outage Plan - The inspectors reviewed the RFO 24 shutdown risk assessment to verify that Entergy addressed the outage's impact on defense-in-depth for the five shutdown critical safety functions; electrical power availability, inventory control, decay heat removal, reactivity control, and containment. Adequate defense-in-depth was verified for each safety function and / or where redundancy was limited or not available, the existence of appropriate planned contingencies, to minimize the overall risk, was verified. Consideration of operational experience was also verified. The daily risk up-date, accounting for schedule changes and unplanned activities were also periodically reviewed;
- Monitoring of Shutdown Activities - The inspectors observed the shutdown of the reactor plant including reactor plant cooldown and transition to shutdown cooling operations. As soon as practical following the shutdown, the inspectors performed walkdowns of the primary containment;
- Electrical Power - The inspectors reviewed the status and configuration of safety-related buses throughout RFO 24. The inspectors ensured the electrical lineups met the requirements of Technical Specification and the outage risk control plan. The inspectors performed frequent walkdowns of affected portions of the electrical plant including startup transformers, the auxiliary transformer, and the emergency diesel generators;
- Decay heat removal (DHR) System Monitoring - The inspectors monitored decay heat removal status on a daily basis. Monitoring included daily reviews of residual heat removal system alignment, reviews of spent fuel pool cooling system alignment, and reviews of reactor coolant system (RCS) time-to-boil calculations and results;
- Inventory Control - The inspectors performed daily RCS inventory control reviews including reviews of available injection systems and flow paths to ensure consistency with the outage risk plan. The inspectors also ensured that operators maintained reactor vessel and/or refueling cavity levels within established ranges;
- Reactivity Control - The inspectors observed reactivity management actions taken by control room operators during refueling evolutions including procedure place keeping, communications with refueling floor personnel, the monitoring of source range nuclear instrumentation, and the monitoring of individual control rod positions;

- Containment Closure - The inspectors performed a torus internal cleanliness walkdown following completion of outage activities. The inspectors performed a primary containment closeout walkdown prior to final containment closure. Finally, the inspectors ensured secondary containment was maintained as required by Technical Specifications;
- Refueling Activities - The inspectors observed portions of refueling operations, including fuel handling and accounting in the reactor vessel and spent fuel pool. The inspectors also performed an independent core reload verification of approximately 34% of the core; and
- Heatup and Startup Activities - The inspectors observed portions of the heatup and startup of the reactor plant following the completion of RFO24.

The inspectors also verified that Entergy identified problems related to refueling activities and entered them into their corrective actions program.

b. Findings

Introduction: A very low safety significance (Green), self-revealing, non-cited violation (NCV) of 10 CFR 50 Criterion XVI was identified in that Entergy personnel did not develop effective corrective actions to prevent recurrence following a 2001 event wherein control room operators did not verify a suction path existed prior to starting a residual heat removal (RHR) system pump being used to support shutdown cooling (SDC) operations which caused the pump to trip. On April 10, 2004, an identical event occurred and again resulted in a trip of the RHR pump being used to support SDC operations.

Description: On April 10, 2004, control room operators realigned vital alternating current (AC) power from its normal power supply to the backup power supply to support planned maintenance on a vital AC motor generator. The reactor plant was in the refueling mode of operation at that time. In preparation for the vital AC realignment, operators temporarily secured the RHR system, which was running in the SDC mode of operation. One of the automatic actions that occurred during the vital AC alignment was the closure of the RHR pump suction valve V10-17 from a Group 4 containment isolation signal. Once the realignment of the vital AC power was completed, operators reset the expected partial Group 4 containment isolation signal, but did not recognize that this partial Group 4 containment isolation signal resulted in the closure of RHR system valve V10-17, isolating the suction path used for RHR system support of SDC. Operators subsequently attempted to reinitiate the RHR system in accordance with Vermont Yankee Operating Procedure (OP) 2124, “Residual Heat Removal System,” Section J, “Short Term Shutdown Cooling Shutdown and Startup.” When the “B” RHR pump was started, the pump’s breaker immediately tripped open due to a designed electrical interlock requiring valve V10-17 to be open to provide a suction path for the RHR system. Operators investigated the cause of the pump breaker trip, identified that no suction path existed since valve V10-17 had closed, re-opened valve V10-17, and successfully restarted the “B” RHR pump within 15 minutes of the breaker trip.

SDC thermal margin was maintained throughout this event via continued operation of the spent fuel pool cooling system along with a calculated RCS time-to-boil value of greater than 24 hours.

In the apparent cause report for this event, Entergy identified that a nearly identical event had occurred during a refueling outage in May 2001. At that time, operators had performed a planned realignment of the vital AC power but did not recognize that valve V10-17 had closed which resulted in a trip of the "C" RHR pump breaker when operators attempted to reinitiate the RHR system. Entergy documented this previous event in event report (ER) 2001-01228. Corrective actions assigned at that time included discussions at shift supervisor meetings and the counseling of involved operators. In the apparent cause report, Entergy also concluded that the corrective actions taken to address the May 2001 event were insufficient to have prevented recurrence of the nearly identical April 2004 event. Specifically, no corrective actions were assigned to address the fact that OP 2124, Section J, did not specifically require operators to verify an adequate RHR system flow path to and from the reactor existed prior to reinitiating system operation.

Analysis: The performance deficiency associated with this finding is that Entergy personnel did not assign effective corrective actions to prevent recurrence as required by VY Administrative Procedure 0009 following a May 2001 trip of the "C" RHR pump which occurred when operations did not recognize that RHR system valve V10-17 had gone closed during a realignment of vital AC power. As a result, a similar event occurred in April of 2004 involving a trip of the "B" RHR pump resulting from operators again failing to recognize the closure of valve V10-17 during a realignment of vital AC power. The finding is greater than minor since it is associated with the Fuel Cladding Configuration Control Attribute of the Barrier Integrity Cornerstone and because it affects the associated Cornerstone objective. Specifically, the April 2004 trip of the "B" RHR pump, used to support SDC operations, reduced the assurance that the fuel cladding would protect the public from radio nuclide releases caused by accidents or events. The inspectors conducted a SDP Phase 1 screening of the finding in accordance with IMC 0609, Appendix G, "Shutdown Operations Significance Determination Process [SDP]." The inspectors determined that Entergy did not meet Item I.C. of Table 1, "BWR [Boiling Water Reactor] Refueling Operation with RCS Level > 23'" since the finding resulted in Entergy not having at least one RHR loop operating to support SDC. However, the inspectors also determined that the finding did not degrade Entergy's ability to recover SDC since the "B" RHR pump was restarted within 15 minutes of being tripped and an adequate thermal margin was maintained via a calculated RCS time-to-boil of greater than 24 hours. Therefore, in accordance with IMC 0609, Appendix G, the finding was of very low safety significance (Green).

A contributing cause of this finding is related to the Cross-Cutting area of Problem Identification and Resolution. As stated above, Entergy personnel did not develop effective corrective actions to prevent recurrence following a 2001 event wherein control room operators did not verify a suction path existed prior to starting the RHR system pump being used to support SDC operations which caused the pump to trip. Entergy's corrective actions relied on the operator's skill to verify a suction path was open prior to

restarting the RHR pump rather than proceduralize the step. As a result, an identical event occurred in April 2004 again resulting in a trip of the RHR pump being used to support SDC operations.

Enforcement:

10 CFR 50, Appendix B, Criterion XVI states, in part, that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. Vermont Yankee AP 0009, "Event Reports," Revision 12, describes Entergy's requirements for the identification and correction of conditions adverse to quality including determining the cause(s) of the event and assigning corrective actions that prevent recurrence. Contrary to the above, in May 2001, Entergy did not assign effective corrective actions that prevent recurrence following a May 2001 trip of the "C" RHR pump which occurred when operators did not recognize that RHR system valve V10-17 had closed due to an expected partial Group 4 containment isolation during the realignment of vital AC power. As a result, a similar event occurred in April of 2004 involving the trip of the "B" RHR pump resulting from operators again failing to recognize the closure of valve V10-17 during a realignment of vital AC power. Because the finding is of very low safety significance and has been entered into the licensee's Corrective Actions Program (CR 2004-01005), this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy: **NCV 0500271/2004003-01, Ineffective Corrective Actions Assigned Following a May 2001 Trip of the "C" RHR System Pump During SDC Operation**.

2. Forced Outage Following the Main Transformer Fire of June 18, 2004.

a. Inspection Scope (partial sample)

The inspectors evaluated the following forced outage activities to verify that Entergy considered risk when developing outage schedules; that Entergy adhered to administrative risk reduction methodologies for plant configuration control; and to ensure that Entergy adhered to their operating license, Technical Specification requirements, and approved procedures:

- Review of the Outage Plan - The inspectors reviewed the shutdown risk assessment to verify that Entergy addressed the outage's impact on defense-in-depth for the five shutdown critical safety functions; electrical power availability, inventory control, decay heat removal, reactivity control, and containment. The daily risk up-date, accounting for schedule changes and unplanned activities were also periodically reviewed;
- Monitoring of Shutdown Activities - The inspectors observed the shutdown of the reactor plant including reactor plant cooldown activities and transition to shutdown cooling operations. As soon as practical following the shutdown, the inspectors performed walkdowns of the primary containment;
- DHR System Monitoring - The inspectors monitored decay heat removal on a daily basis. Monitoring included daily reviews of residual heat removal system

alignment, reviews of spent fuel pool cooling system alignment, and reviews of RCS time-to-boil calculations and results; and

- Inventory Control - The inspectors performed daily RCS inventory control reviews including reviews of available injection systems and flow paths to ensure consistency with the outage risk plan. The inspectors also ensured that operators maintained RCS level within established ranges.

The inspectors also verified that Entergy identified problems related to the forced outage and entered them into their corrective actions program.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope (eight samples)

The inspectors observed surveillance testing to verify that the test acceptance criteria specified for each test was consistent with Technical Specification and UFSAR requirements, was performed in accordance with the written procedure, the test data was complete and met procedural requirements, and the system was properly returned to service following testing. The inspectors observed selected pre-job briefs for the test activities. The inspectors also verified that discrepancies were appropriately documented in the corrective action program. The inspectors verified that testing in accordance with the following procedures met the above requirements:

- OP 4031, “Type B and C Primary Containment Leak Rate Calculations and Evaluations”;
- OP 4100, “ECCS Integrated Automatic Initiation Test”;
- OP 4114, “Standby Liquid Control [SLC] System Surveillance,” Section C, “Flow Test Directly into the Reactor Vessel,” and Section I, “SLC Explosive Charge Continuity Check”;
- OP 4121, “Reactor Core Isolation Cooling System Surveillance,” Section B, “RCIC Injection Check Valve (RCIC-22) Test”;
- OP 4142, “Vernon Tie and Delayed Access Power Source Backfeed Surveillance”;
- OP 4424, “Control Rod Scram Testing and Data Reduction,” Section B, “Single Rod Scrams Using ERFIS Data Collection”;
- OP 4430, “Reactivity Anomalies/Shutdown Margin Check,” Section 1, “Strongest Control Rod Withdrawn Subcritical Check; and
- Special Test Procedure (STP) 2003-004, “Power Ascension Test Procedure.

b. Findings

No findings of significance were identified.

1R23 Temporary Modifications (71111.23)

a. Inspection Scope (two samples)

The inspectors reviewed the following temporary modifications (TMs) to ensure that the modifications did not adversely affect the availability, reliability, or functional capability of any risk-significant structures, systems, and components:

- TM 2003-039, "Bottom Head Drain Line Freeze Seal"; and
- TM 2003-022, "Vibration Monitoring Equipment Installation on MS & FW Piping."

The inspectors compared the information in the TM packages to Entergy's TM requirements contained in AP 0020, "Control of Temporary and Minor Modifications." The inspectors also walked down accessible portions of these TMs to verify that required tags and markings were applied and that the TMs were properly maintained. The inspectors also reviewed a sample of TM-related problems identified in the Entergy's corrective action program to verify that they had identified and implemented appropriate corrective actions.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope (one sample)

On June 17, 2004, the inspectors observed an operating crew evaluate a simulator-based event using the station emergency action levels (EALs) during licensed operator requalification training activities. The inspectors discussed the performance expectations and results with the lead instructor and operations training manager. The inspectors focused on the ability of licensed operators to perform event classification and make proper notifications in accordance with the following station procedures and industry guidance:

- AP 0153, Operations Department Communications and Log Maintenance";
- AP 0156, "Notification of Significant Events";
- AP 3125, "Emergency Plan Classification and Action Level Scheme";
- DP 0093, "Emergency Planning Data Management";
- OP 3540, "Control Room Actions During an Emergency"; and
- Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 2.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control to Radiologically Significant Areas (71121.01)

a. Scope (fourteen samples)

The inspectors conducted inspections to verify that Entergy was properly implementing physical, engineering, and administrative controls for access to high radiation areas, and other radiologically controlled areas, and that workers were adhering to these controls when working in these areas. Implementation of the access control program was reviewed against the criteria contained in 10 CFR 20, Technical Specifications, and approved Entergy procedures. The inspectors conducted independent radiation surveys and observed work area conditions, reviewed radiation surveys of these areas, and reviewed electronic dosimetry set points and other exposure controls specified in the radiation work permits (RWPs) that provided the access control requirements for the following radiologically significant work activities:

- Steam dryer underwater welding modifications;
- Drywell shielding installation;
- Drywell in-service inspection of core spray nozzle N5A;
- Drywell safety relief valve maintenance;
- Drywell main steam isolation valve maintenance; and
- Feedwater heater replacement modifications

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls (71121.02)

Inspection Scope (four samples)

The inspectors reviewed Entergy's As Low As Reasonably Achievable (ALARA) Program performance against the requirements of 10 CFR 20.1101(b). The inspectors reviewed aspects of the implementation of exposure reduction requirements based on ALARA planning for the five highest exposure outage tasks. The ALARA-related work activities observed are listed in Section 2OS1 above. In addition, the following ALARA inspection activities were conducted:

- Independent shielding effectiveness radiation surveys conducted in the drywell;
- Observation of closed circuit television equipment and tele-dosimetry use in the drywell was conducted with respect to drywell remote health physics work surveillance capability and technical specification requirements; and

- Feedwater heater bay source term location was reviewed relative to worker occupancy areas.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES (OA)

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope (two samples)

The inspectors sampled Entergy submittals for the performance indicators (PIs) listed below for the period from April 2003 to March 2004. The PI definitions and guidance contained in NEI 99-02 and AP 0094, "NRC Performance Indicator Reporting," were used to verify the accuracy and completeness of the PI data reported during this period.

Barrier Integrity Cornerstone

- Reactor Coolant System Specific Activity; and
- Reactor Coolant System Leakage.

The inspectors reviewed selected operator logs, plant process computer data, condition reports, and monthly operating reports for the period April 1, 2003, through March 31, 2004.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

1. Routine Review of Identification and Resolution of Problems

a. Inspection Scope

The inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify they were being entered into Entergy's corrective action system at an appropriate threshold and that adequate attention was being given to timely corrective actions. Additionally, in order to identify repetitive equipment failures and/or specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into Entergy's corrective action program. This review was accomplished by reviewing selected hard copies of condition reports (a listing of CRs reviewed is included in the Attachment to this report) and/or by attending daily screening meetings.

b. Findings

No findings of significance were identified.

2. Semi-Annual Trend Review

a. Inspection Scope

As required by Inspection Procedure 71152, "Identification and Resolution of Problems," the inspectors performed the semi-annual trend review to identify trends, either licensee or NRC identified, that might indicate the existence of a more significant safety issue. Included within the scope of this review were:

- CRs generated from January through May 2004;
- Corrective maintenance backlog listings from January through May 2004;
- The corrective action program 3rd and 4th quarter, 2003 trend report; and
- Daily review of main control room operator logs.

b. Findings

No findings of significance were identified.

3. Cross-Reference to PI&R Findings Documented Elsewhere

Section 1R20.1 describes a finding wherein Entergy personnel did not develop effective corrective actions to prevent recurrence following a 2001 event wherein control room operators did not verify a suction path existed prior to starting the RHR system pump being used to support SDC operations which caused the pump to trip. Entergy's corrective actions relied on the operator's skill to verify a suction path was open prior to restarting the RHR pump rather than proceduralize the step. As a result, an identical event occurred in April 2004 again resulting in a trip of the RHR pump being used to support SDC operations.

4OA3 Event Followup (71153)

1. Main Transformer Fire and Reactor Plant Scram

a. Inspection Scope (1 sample)

The inspectors evaluated Entergy's response to a main transformer fire and resultant reactor plant scram that occurred on June 18, 2004. The inspectors immediately responded to the main control room to observe reactor plant parameters, to evaluate individual safety system responses, and to evaluate licensed operator responses to the event. The inspectors evaluated the response of the reactor plant and the licensed operators against Entergy approved operating procedures, abnormal operating procedures, and emergency operating procedures. The inspectors evaluated Entergy's classification of the event (i.e., Unusual Event) in accordance with approved EAL

procedures to ensure notifications were made to NRC and state/county governments as required. The inspectors also evaluated the ability of Entergy's fire brigade and automatic fire protection systems to extinguish the main transformer fire in a safe and timely manner.

The NRC Region I Office dispatched two inspectors, each a specialist in the areas of electrical and fire protection systems, to assist the resident inspectors with event follow-up activities. The inspectors monitored Entergy's efforts in determining the root cause of the event; monitored Entergy's efforts for the recovery, replacement, and repair of the effected portions of the 22KV electrical system; and monitored Entergy's reactor plant restart preparation activities.

b. Findings

Entergy has identified that the root cause of the main transformer fire relates to weaknesses with the preventive maintenance performed on the 22 KV electrical system. Because additional information is needed to determine if these issues are more than minor, they are considered to be an unresolved item (URI) pending completion of the inspectors review of Entergy's root cause analysis: **URI 0500271/2004003-02, Weaknesses Identified with the Preventive Maintenance Performed on the 22 KV Electrical System Resulted in Main Transformer Fire.**

4OA5 Other Activities

1. Temporary Instruction (TI) 2515/156, "Offsite Power System Operational Readiness."

a. Inspection Scope

The inspectors collected and reviewed information pertaining to the Vermont Yankee offsite power system as it related to the requirements of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants"; 10 CFR 50.63, "Loss of All Alternating Current Power"; offsite power operability; and corrective actions. The inspectors also reviewed this data against the requirements of 10 CFR 50, Appendix A, General Design Criterion 17, "Electric Power Systems," and the Vermont Yankee Technical Specifications. This information was forwarded to NRR for further review. A listing of documents reviewed is included in the Attachment to this report.

b. Findings

No findings of significance were identified.

4OA6 Meetings, including Exit

Resident Exit

On July 12, 2004, the resident inspectors presented the inspection results to Mr. Kevin Bronson and members of his staff. The inspectors asked whether any materials

examined during the inspection should be considered proprietary. No proprietary information was identified.

Meeting with the State of Vermont Public Service Board

On June 28, 2004, Region I and NRR staff met with the Vermont State Public Service Board (PSB) regarding Vermont Yankee's request for a 20% extended power uprate. The NRC staff discussed the NRC's power uprate review process and details regarding a planned pilot engineering inspection slated for Vermont Yankee in August 2004.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel:

J. Thayer	Site Vice President
K. Bronson	General Plant Manager
J. Allen	Design Engineering
P. Corbett	Maintenance Manager
J. Dreyfuss	Project Engineering Manager
J. Devincentis	Licensing Manager
W. Fadden	Design Engineering
J. Geyster	Radiation Protection Superintendent
D. Giorowall	Programs Supervisor
Dennis Girrior	Programs Supervisor
S. Goodwin	Mechanical Design Department Manager
M. Gosekamp	Superintendent of Operations Training
M. Hamer	Licensing
D. Johnson	Design Engineering
Dave King	ISI Coordinator
R. Morissette	Principal As Low As Reasonably Achievable (ALARA) Engineer
M. Pletcher	Radiation Protection Supervisor - Instruments
P. Rainey,	Design Engineering
B. Renny	Supervisor, Access Authorization
K. Stupak	Technical Training
C. Wamser	Operations Manager
R. Wanczyk	Director of Nuclear Safety

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

0500271/2004003-01 NCV	Ineffective Corrective Actions Assigned Following a May 2001 Trip of the “C” RHR System Pump During SDC Operation (Section 1R20.1)

Opened

0500271/2004003-02 URI	Weaknesses Identified with the Preventive Maintenance Performed on the 22 KV Electrical System Resulted in Main Transformer Fire (Section 4OA3.1)

LIST OF DOCUMENTS REVIEWED

Section 1R02: Evaluation of Changes, Tests, or Experiments

Power Uprate Modifications

TM 2003-022	Vibration Monitoring Equipment Installation on MS [Main Steam] & FW [Feedwater] Piping
MM 2003-015	Reactor Feed Pump Suction Pressure Trip
MM 2003-016	Reactor Recirculation System Runback"
MM 2003-026	AST [Alternate Source Term] Component Modification (OG-779 Installation)
MM 2003-028	APRM Flow Control Trip Reference Card Replacement
MM 2003-039	NSSS [Nuclear Steam Supply System]/BOP [Balance of Plant] Instrumentation Upgrades
MM 2003-054	381 Line Overload Relay Setting
VYDC 2003-013	Installation of Additional Main Steam Safety Valve

Section 1R08: Inservice Inspection

Procedures

ENN-NDE 9.29, Rev 0 for UT of structural overlay (weld N5A)
PDI-UT-8, Rev B. Generic Procedure for UT of Weld Overlaid Austenitic Pipe Welds
ISI - 254, Rev 5, for remote ISI of RPV Welds
NE 8048, Rev 1 - In Vessel Visual Inspection

Drawings

ISI-PPV-103, Rev 3. Reactor Vessel
ISI-SLC-Part 4, Rev 3. SLC Piping ISO
D-7983-621 Rev G. UT/ET clad crack calibration block
6D30047, Rev 0, Wesdyne Calibration Standard PDI-01

Miscellaneous Reports

QA (Quality Assurance) Audit Report AR-2003-22b&c, dated 11/13/2003
GE (General Electric) RICSIL No. 050 of 4/23/1990, and GE SIL NO. 539, dated 11/5/1991
GE Reports INR-VYR24-04-01R2, 02R2, 03, & 04R1 on Steam Dryer Visual Indications
GE Nuclear Engineering (GENE) 0000-0028-0130-01, Revision 3, dated April 2004 on Steam Dryer Unit End Plate Indications - Vermont Yankee R24
GENE-0000-0028-0130-02, Revision 3, dated April 2004 on Steam Dryer Drain Channel Indications - Vermont Yankee R24

Section 1R17: Permanent Plant Modifications

Power Uprate Modifications

MM 2003-015	Reactor Feed Pump Suction Pressure Trip
MM 2003-016	Reactor Recirculation System Runback
MM 2003-026	AST Component Modification (OG-779 Installation)
MM 2003-028	APRM Flow Control Trip Reference Card Replacement
MM 2003-039	NSSS/BOP Instrumentation Upgrades
MM 2003-054	381 Line Overload Relay Setting

Calculations

Vermont Yankee Calculation (VYC) 0693A Rev. 2 APRM Neutron Monitoring Trip Loops
VYC-2269 Rev. 0 Feedwater and Condensate Hydraulic Model Analysis
VYC-2309 Rev. 0 Steam Drain Line MS-189-D3 Check Valve Addition

License Amendment Documents

BVY 03-23	License Amendment Proposal for ARTS/MELLLA
BVY 03-39	Technical Specification Proposed Change # 257 (ARTS/MELLLA)
GE-NE-0000-0020	Entergy Nuclear Operations Incorporated Vermont Yankee Nuclear Power
GE-NE-1500-0001	Station MELLLA+ Transient Analysis
NEDO-33090	Safety Analysis Report for Vermont Yankee Nuclear Power Station Constant Pressure Power Uprate

NRC NRR Safety Evaluation for License Amendment No. 219 to DPR-28

Specifications/Procedures

AP 5226 Rev. 5	Calibration of Switchyard Breaker Failure Relays
VYSP-FS-074	Specifications for Safety Valves
VY IPE Vol 2	Individual Plant Examination for SRV/SV Reclosure

Section 4OA2.1: Routine Review of Problem Identification and Resolution

Condition Reports

2002-2581	RBCCW pumps failed to restart within time limit during ECCS [emergency core isolation cooling] test
2002-2584	ECCS test data was accepted as satisfactory when some data was outside of acceptance criteria
2003-1509	The “C” RHRSW pump cooling water supply solenoid valve failed to open as required on pump start
2003-2321	No indicated cooling flow upon “C” RHRSW pump start
2004-0700	While troubleshooting a 4KV breaker on Bus-2-7, the breaker driving pawl broke
*2004-0840	Incorrect status of Decay Heat Removal was logged on the Critical Outage Systems Status Form
*2004-0845	NRC resident question on RHR procedure wording
2004-0879	HPCI V23-845 failed IST testing
2004-0892	Water level in the reactor cavity exceeds limits during cavity floodup

*2004-0897	Incorrect start dates used in ORAM-Sentinel for alternate DHR capability determinations
2004-0918	Adverse trend - main steam isolation valve Appendix J test failures
2004-0942	HPCI V23-846 failed IST testing
2004-0955	As-found condition of V2-80 included a galled stem
2004-0968	Unsuccessful decon of diver
2004-0981	An observation was made from below vessel that a piece of control rod drive housing support (shoot-out steel) was missing
2004-0986	Instructions for RWP not adhered to
2004-0998	RHR-46A allowed to overflow while working on the valve
2004-1005	B RHR pump trip during restart due to no suction path
2004-1017	V2-13-3 failed Appendix J local leak rate test
2004-1058	Flow noise from RO-10-105C, “C” RHR pump discharge orifice
2004-1091	Rad survey maps indicate need to perform alpha survey
2004-1117	Flow noise from “C” RHR pump discharge orifice
2004-1160	ASME rejectable indication on SLC weld
2004-1190	Weld electrodeoven left unlocked and unattended
*2004-1339	Two fuel segments could not be confirmed in storage container
2004-1409	“A” RBCCW did not start within the allowed ECCS start time
2004-1426	ECCS test exceptions
2004-1428	Reactor water clean up pump started with no suction path
2004-1548	P-8-1A leaking oil from upper bearing reservoir area
2004-1653	Excessive overtime approved without documentation
2004-1665	Potentially non-conservative scram setpoint values
*2004-1916	#2 fan room has inadequate hose stream coverage due to modification to fan room door
*2004-1928	Slight leakage on “B” SBGT demister loop seal piping union
2004-1989	Generator Ground alarm came in
2004-2015	Reactor Scram
2004-2017	Notification of Unusual Event (NOUE) declared due to plant fire and automatic reactor scram
2004-2019	Main transformer fire
*2004-2022	Discrepancy in post scram rod position indication
*2004-2023	Torus-to-drywell vacuum breaker indicating lights and alarm indicate breakers may have cycled during the scram/transformer trip
*2004-2045	Repeat of P-8-1A leaking oil from upper bearing reservoir area
2004-2074	Failure to make timely notification of States upon declaration of unusual event on June 18, 2004

*Inspector-identified issues.

Section 4OA5.1: Temporary Instruction (TI) 2515/156, “Offsite Power System Operational Readiness.”

Procedures

Vermont Yankee Operating Procedure Form (VYOPF) 0150.03, “CRO [Control Room Operator] Round Sheet
AP 0172, “Work Schedule Risk Management - On Line”
ISO New England Master/Satellite Procedure #1, “Nuclear Plant Transmission Operations,” Revision 0
ISO New England Master/Satellite Procedure #2, “Abnormal Conditions Alert,” Revision Dated 11/19/01

Licensee Event Reports (LERs)

Vermont Yankee Nuclear Power Station LER 87-008-00, “Loss of Normal Power During Shutdown Due to Routing All Off-Site Power Sources Through One Breaker”
Vermont Yankee Nuclear Power Station LER 84-022-00, “Diesel Generator Lockout Trip of Both Generators”

Maintenance Rule Documents

NRC Maintenance Rule Program Website Frequently Asked Questions (FAQs)
Vermont Yankee 10CFR50.65 NRC Maintenance Rule SSC Basis Document, “345K Volts AC Electrical (345KV)”
Vermont Yankee 10CFR50.65 NRC Maintenance Rule SSC Basis Document, “115K Volts AC Electrical (115KV)”

Operational Experience Documents

JA Fitzpatrick Operational Experience (OE) 16822, “Reactor Scram due to Grid Instability”
Significant Operating Experience Report (SOER) 9901, “Loss of Grid”

Miscellaneous Documents

Control room operator logs dated 8/17/87
VYC-1088, “Vermont Yankee 4160/480 Volt Short Circuit/Voltage Study,” Revision 3

LIST OF ACRONYMS

AC	Alternating Current
ADAMS	Automated Document Access Management System
ALARA	As Low As Is Reasonably Achievable
AP	Vermont Yankee Administrative Procedure
APRMs	Average Power Range Monitors
ASME	American Society of Mechanical Engineers
CFR	Code of Federal Regulations
CR	Condition Report
CRO	Control Room Operator
CS	Core Spray
CY	Calendar Year
DBD	Design Basis Document
DHR	Decay Heat Removal
DOST	Diesel Oil Storage Tank
DP	Vermont Yankee Department Procedure
EALs	Emergency Action Levels
ECCS	Emergency Core Cooling System
EDGs	Emergency Diesel Generators
ET	Eddy Current Testing
EOP	Emergency Operating Procedure
ER	Event Report
FAQ	Frequently Asked Question
FW	Main Feedwater System
GE	General Electric
GENE	General Electric Nuclear Engineering
HPCI	High Pressure Coolant Injection
IMC	Inspection Manual Chapter
IPEEE	Individual Plant Examination External Events
IR	Inspection Report
ISI	Inservice Inspection
IST	Inservice Testing
KV	Kilovolt
LER	Licensee Event Report
LLRT	Local Leakage Rate Testing
MM	Minor Modification
MS	Main Steam System
NCV	Non-Cited Violation
NDE	Nondestructive Examination
NEI	Nuclear Engineering Institute
NOUE	Notice of Unusual Event
NRC	Nuclear Regulatory Commission
NRR	NRC Office of Nuclear Reactor Regulation
OE	Operating Experience
ON	Vermont Yankee Off-Normal Procedure
OP	Vermont Yankee Operating Procedure

PI	Performance Indicator
PMT	Post Maintenance Testing
PSB	Public Service Board
QA	Quality Assurance
RCS	Reactor Coolant System
RCIC	Reactor Core Isolation Cooling
RFO	Refueling Outage
RHR	Residual Heat Removal
RHRSW	Residual Heat Removal Service Water
RPS	Reactor Protection System
RWP	Radiation Work Permit
SBGT	Standby Gas Treatment
SDC	Shutdown Cooling
SDP	Significance Determination Process
SEG	Simulator Evaluation Guide
SEN	Significant Event Notification
SFP	Spent Fuel Pool
SLC	Standby Liquid Control
SOER	Significant Operating Experience Report
SSC	Structures, Systems and Components
STP	Special Test Procedure
SW	Service Water
TI	Temporary Instruction
TM	Temporary Modification
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
UT	Ultrasonic Testing
VT	Visual Examination Testing
VY	Vermont Yankee
VYC	Vermont Yankee Calculation
VYDC	Vermont Yankee Design Calculation
VYOPF	Vermont Yankee Operating Procedure Form