**UNITED STATES**
**NUCLEAR REGULATORY COMMISSION**
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406-1415

January 28, 2009

Mr. Michael Colomb
Site Vice President
Entergy Nuclear Operations, Inc.
Vermont Yankee Nuclear Power Station
Vernon, VT 05354

SUBJECT: VERMONT YANKEE NUCLEAR POWER STATION –
NRC INTEGRATED INSPECTION REPORT 05000271/2008005

Dear Mr. Colomb:

On December 31, 2008, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Vermont Yankee Nuclear Power Station. The enclosed inspection report documents the inspection results, which were discussed on January 6, 2009, with you and 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.

Based on the results of this inspection, no findings of significance were identified.

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 the 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/ Original Signed By:***

Donald E. Jackson, Chief
Projects Branch 5
Division of Reactor Projects

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

Enclosure: Inspection Report No. 05000271/2008005
w/ Attachment: Supplemental Information

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| DATE | 01/28/09 | | 01/28/09 | |

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION I**

| | |
|---|---|
| Docket No.: | 50-271 |
| License No.: | DPR-28 |
| Report No.: | 05000271/2008005 |
| Licensee: | Entergy Nuclear Operations, Inc. |
| Facility: | Vermont Yankee Nuclear Power Station |
| Location: | 320 Governor Hunt Road<br>Vernon, Vermont 05354-9766 |
| Dates: | October 1 through December 31, 2008 |
| Inspectors: | R. Fernandes, Sr. Resident Inspector, Division of Reactor Projects (DRP)<br>B. Sienel, Resident Inspector, DRP<br>J. Commiskey, Health Physicist, Division of Reactor Safety (DRS)<br>J. Noggle, Senior Health Physicist, DRS<br>S. Barr, Sr. Emergency Preparedness Specialist, DRS<br>T. O'Hara, Reactor Inspector, DRS<br>M. Patel, Reactor Inspector, DRS |
| Approved by: | Donald Jackson, Chief<br>Projects Branch 5<br>Division of Reactor Projects |

## TABLE OF CONTENTS

## SUMMARY OF FINDINGS

IR 05000271/2008005; 10/01/2008 – 12/31/2008; Vermont Yankee Nuclear Power Station; Routine Quarterly Integrated Report.

This report covered a three month period of inspection by the resident inspectors and region based inspectors. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified and Self-Revealing Findings

No findings of significance were identified.

B. Licensee-Identified Violations

None.

## REPORT DETAILS

### Summary of Plant Status

Vermont Yankee (VY) Nuclear Power Station began the inspection period operating at approximately 100 percent power. On October 18, 2008, operators shut down the reactor to support a planned refueling outage (RFO 27). Operators subsequently took the reactor critical on November 9, 2008 following the completion of RFO 27. The reactor was returned to full power operation on November 13, 2008. On December 12, 2008 operators reduced reactor power to approximately 82 percent, as directed by the power grid operator during a winter storm. Following the storm and offsite power line restoration activities, operators returned power to approximately 100 percent on December 14, 2008 where it remained for the rest of the inspection period. Additional power reductions for rod sequence exchange and minor rod pattern adjustments were also conducted as needed throughout the period.

### 1. REACTOR SAFETY

**Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity**

1R01 Adverse Weather Protection (71111.01)

a. Inspection Scope (1 sample)

The inspectors reviewed actions taken by Entergy to prepare the service water (SW), emergency diesel generator (EDG), and high pressure coolant injection (HPCI) systems for cold weather operations. The inspectors reviewed operating procedure (OP) 2196, “Seasonal Preparedness,” and discussed the completion of items with operations personnel to determine if actions for the selected systems had been completed or were being tracked for completion. The inspectors independently walked down applicable portions of the plant, including the condensate storage tank, to determine if selected actions to prepare for cold weather operations had been completed appropriately. The inspectors also reviewed condition reports (CRs) related to cold weather protection of the selected systems to ensure issues were properly addressed for resolution. Additional documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

.1 Partial Equipment Alignment (7111.04Q)

a. Inspection Scope (2 samples)

The inspectors performed partial system walkdowns of risk-significant systems to determine the system alignment, and to identify any discrepancies that could impact system operability. Observed plant conditions were compared to the standby alignment of equipment specified in applicable piping and instrumentation drawings (P&IDs) and

OPs. The inspectors observed valve positions, power supply availability, and the general condition of selected components. Finally, the inspectors evaluated material condition, housekeeping, and component labeling. A list of documents reviewed is provided in the Attachment. The following systems were inspected:

- Fuel pool cooling system while shutdown cooling was inoperable due to planned maintenance during RFO 27; and
- HPCI system while the reactor core isolation cooling (RCIC) system was out of service for planned maintenance.

b. Findings

No findings of significance were identified.

.2 Complete Equipment Alignment (7111.04S)

a. Inspection Scope (2 samples)

The inspectors performed a complete equipment alignment inspection of the accessible portions of two risk significant systems. The inspectors compared the actual system configuration to approved P&IDs, the Updated Final Safety Analysis Report (UFSAR), the system design basis documents, and OPs. The inspectors evaluated whether major system components were properly ventilated, hangers and supports were correctly installed and functional, ancillary equipment was placed so it would not interfere with the operation of system valves, pump oil levels were maintained in the nominal band, and deficiencies had been entered into the corrective action program. In addition, the inspectors evaluated a sample of previously identified deficiencies to determine if they had been properly addressed, and whether open items impacted system operability. A list of documents reviewed is provided in the Attachment. The following systems were inspected:

- Residual Heat Removal (RHR) system; and
- Neutron monitoring system.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q)

a. Inspection Scope (4 samples)

The inspectors identified fire areas based on a review of Entergy's Vermont Yankee Safe Shutdown Capability Analysis, the Fire Hazards Analysis, and the Individual Plant Examination for External Events (IPEEE). The inspectors toured plant areas important to safety to evaluate 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 (FAs) and fire zones (FZs) were inspected:

- Fuel oil storage tank and transfer pump house (fire area12);
- Control room (fire zone [FZ] 1);
- Reactor Building, 213 and 232 foot elevations, “A” emergency core cooling system (ECCS) corner room (FZ RB1); and
- Main and auxiliary transformers (no fire designation).

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07A)

a. Inspection Scope (2 samples)

The inspectors reviewed the results of the thermal performance tests of Reactor Recirculation Units (RRU) 7 and 8. The inspectors discussed the test results with the system engineer and reviewed the completed surveillance data to determine whether test results met acceptance criteria, which considered differences between test and design basis accident conditions. The inspectors also reviewed Entergy’s corrective action program to ensure significant heat exchanger performance problems were appropriately identified and documented and that corrective actions assigned, if any, were appropriate. A list of documents reviewed is provided in the Attachment to this report.

b. Findings

No findings of significance were identified.

1R08 In-service Inspection (ISI) (IP 71111.08)

a. Inspection Scope (1 sample)

The purpose of this inspection was to assess the effectiveness of the licensee’s ISI program for monitoring degradation of the reactor coolant system boundary, risk significant piping system boundaries, and the containment boundary. The inspectors assessed the ISI activities using the criteria specified in the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI and applicable NRC Regulatory Requirements.

The inspectors selected a sample of nondestructive examination (NDE) activities for observation or review, and evaluation for compliance with the requirements of ASME Section XI. Also, the inspectors selected samples of activities associated with the repair/replacement of safety related pressure boundary components. The sample selection was based on the inspection procedure objectives, risk significance and availability. Specifically, the inspectors focused on components and systems where degradation would result in a significant challenge to the integrity of pressure boundary components.

The inspectors performed an observation of portions of one volumetric examination

(ultrasonic) and performed a review of inspection records of a surface examination (liquid penetrant) inspection. In addition, the inspectors performed a documentation review of a magnetic particle surface examination. The selection included the following:

- Ultrasonic Test (UT), volumetric examination, N3B, Nozzle to Vessel Weld;
- UT, volumetric examination, N1A-SE, Nozzle to Safe End Weld;
- UT, volumetric examination, N2K-SE, Safe End to Nozzle Weld;
- Visual Test (VT)-3, 27-10.03-027, feedwater-16 elbow;
- General Visual Exam, Containment Inspection, RFO-27;
- VT-3, Reactor Water Cleanup (RWCU) Component CU-2; and
- Liquid Penetrant Test (PT), surface examination, RR-WB-110 sock-o-let to main line weld.

The inspectors reviewed a sample of reports from the inspection of the reactor containment. The inspectors noted that Entergy had followed their procedural guidance and documented conditions which required evaluation for continued operation.

The inspectors completed a partial review of inspection results of the remote visual examination of the steam dryer conducted during RFO 27. The inspectors reviewed CRs initiated as a result of the dryer examination and noted that all indications were acceptable for continued operation after analysis and evaluation. The inspectors selected a sample of repair/rework activities for review which required the development and implementation of an ASME Section XI repair plan. The inspectors reviewed documentation for the weld repair of an ASME code rejectable indication on a Standby Liquid Control (SLC) system piping weld, and the repair of a valve in the HPCI system which had caused suction pressure alarms during system periodic surveillances. The inspectors reviewed the ASME Section XI plans, work scope, activity sequence, weld filler metal selection, weld procedure specifications and procedure qualification records, welder qualifications, specified non-destructive tests, acceptance criteria and post maintenance testing (PMT).

The inspectors also reviewed rejectable FW system piping support welds which were later accepted “as-is” for continued operation after evaluation. The inspectors walked down the steam tunnel area containing the FW and main steam supports and visually observed the conditions reported in previous inspections. Future inspections of these components are planned and the current condition was reported in CR 2008-4378.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11Q)

a. Inspection Scope (1 sample)

The inspectors observed a simulator-based licensed operator requalification “as found exam” on November 20, 2008. The inspectors evaluated crew performance in the areas of clarity and formality of communications; ability to take timely actions; prioritization, interpretation, and verification of alarms; procedure usage; control board manipulations;

and command and control. Crew performance in these areas was compared to the Instructor Guide for Simulator Scenario LOR-26-601 and Entergy management expectations and guidelines. The inspectors also compared the simulator configuration with the actual control board configuration. Finally, the inspectors observed the Entergy evaluators discuss identified weaknesses with the crew and/or individual crew members, as appropriate.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q)

a. Inspection Scope (3 samples)

The inspectors reviewed Entergy's evaluation of three degraded conditions involving structures, systems and components (SSCs) for maintenance effectiveness. The inspectors reviewed Entergy's implementation of the Maintenance Rule (MR), 10CFR50.65, to determine if the conditions were appropriately evaluated against applicable MR functional failure (MRFF) criteria, as found in Entergy scoping documents and procedures. For each issue, the inspectors reviewed the applicable system health report and/or discussed the issue with the MR Coordinator and responsible system engineer to determine if the condition was appropriately tracked against the system performance criteria and classified in accordance with MR implementation guidance. Documents reviewed during the inspection are listed in the Attachment. The specific conditions reviewed were:

- "B" service water pump motor unscheduled maintenance repair;
- Main steam isolation valve (MSIV) local leakage rate testing (LLRT) failures; and
- Torus vent and purge valves LLRT failures.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)

a. Inspection Scope (1 sample)

The inspectors evaluated online risk management for one emergent maintenance activity. The inspectors reviewed maintenance risk evaluations, maintenance plans, work schedules, and control room logs to determine if concurrent or emergent maintenance activities significantly increased the plant risk. The inspectors also compared the items to the requirements in Administrative Procedure (AP) 0125, "Plant Equipment," and AP 0172, "Work Schedule Risk Management - Online." Additional documents reviewed are listed in the Attachment. The inspectors also walked down areas of the plant containing equipment that was determined to have higher risk significance during the following work activity:

- Troubleshooting stator cooling turbine trip logic.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope (2 samples)

The inspectors reviewed two operability evaluations prepared by Entergy. The inspectors evaluated the operability evaluations against Entergy procedure EN-OP-104, "Operability Determinations," and the guidance contained in NRC Regulatory Issue Summary 2005-20, "Revision to Guidance Formerly Contained in NRC Generic Letter 91-18, Information to Licensees Regarding Two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and on Operability." A list of documents reviewed is provided in the Attachment. The inspectors also discussed the conditions with operators and system and design engineers, as necessary. The inspectors reviewed evaluations of the following degraded or non-conforming conditions:

- "B" Service Water pump motor vibrations following replacement; and
- Three reactor core plate plugs not fully seated.

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18)

.1 Permanent Plant Modifications

a. Inspection Scope (1 sample)

The inspectors reviewed modification EC 2248, "Replacement of V70-1A/B and V70-2A/B," which replaced the "A" and "B" SW pumps' discharge check and gate valves, to ensure it did not adversely affect the availability, reliability, or functional capability of any risk-significant SSCs. The inspectors reviewed the engineering change package and completed PMT package and observed the SW pumps in operation following the installation of the modification. A list of documents reviewed is provided in the Attachment.

b. Findings

No findings of significance were identified.

.2 Temporary Plant Modifications

a. Inspection Scope (1 sample)

The inspectors reviewed temporary modification EC 11321, Removal of Reactor Head Vent Valves" to ensure it did not adversely affect the availability, reliability, or functional capability of any risk-significant SSCs. The inspectors reviewed the engineering change package and completed work order (WO) which installed the modification, walked down the modification installation during containment closeout inspection, and compared the installation and control of the modification to the requirements of Entergy Corporate Procedure EN-DC-136, "Temporary Alterations." A list of documents reviewed is provided in the Attachment.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope (6 samples)

The inspectors reviewed Post-Maintenance Testing (PMT) activities on risk-significant systems. The inspectors either observed the PMT or reviewed completed PMT documentation to determine if the test data met the acceptance criteria contained in the WO, Technical Specifications (TS), UFSAR, and/or the in-service testing program. When testing was directly observed, the inspectors determined whether installed test equipment was appropriate and controlled, and whether the test was performed in accordance with applicable station procedures. The inspectors also reviewed the test activities to determine if the PMT was adequate to ensure system operability and functional capability following maintenance, if the systems were properly restored following testing, and if discrepancies were appropriately documented in the Corrective Action Program (CAP). Additional documents reviewed are listed in the Attachment. The inspectors reviewed the PMTs performed for the following maintenance activities:

- "B" Standby Liquid Control system maintenance;
- Reactor pressure vessel system operational pressure test following RFO 27;
- "B" Emergency Diesel Generator Service Water piping replacement;
- HPCI/RCIC high point vent installation;
- Cooling tower cell 2-1 inspections and member replacement; and
- HPCI 16 steam supply valve motor operator refurbishment.

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope (1 sample)

The inspectors evaluated VY Refueling Outage (RFO) 27 activities to verify that Entergy considered risk when developing outage schedules; adhered to administrative risk reduction methodologies for plant configuration control; and adhered to their operating

license, TS requirements, and approved procedures. A list of documents reviewed is provided in the Attachment. The following activities were inspected:

- Review of the Outage Plan and Daily Shutdown Risk Assessments - The inspectors reviewed the RFO 27 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 assessments, accounting for schedule changes and unplanned activities, were also periodically reviewed to determine whether adequate defense-in-depth was maintained for each safety function when redundancy was limited and that planned contingencies were appropriate;

- 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 walkdown inspections of the primary containment;

- Electrical Power - The inspectors reviewed the status and configuration of safety-related buses throughout RFO 27. The inspectors ensured the electrical lineups met the requirements of Technical Specifications 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 System Monitoring - The inspectors monitored decay heat removal (i.e., shutdown cooling) 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 verified 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, monitoring of source range nuclear instrumentation, and monitoring of individual control rod positions;

- Containment Closure - The inspectors verified proper primary and secondary containment configuration was maintained throughout the outage. The inspectors performed a primary containment "as-found" inspection and a closeout walkdown prior to final containment closure. Finally, the inspectors verified primary and secondary containment had been appropriately reestablished prior to and during startup;

- 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 100 percent of the core;

- Heatup and Startup Activities - The inspectors observed portions of the heatup and startup of the reactor plant following the completion of RFO 27;

- Cooling Tower Cell 2-1 Maintenance – The inspectors observed portions of the maintenance activities associated with the pre-planned replacement of 22 wooden support columns in two of the six sections of the cooling tower cell. The inspectors reviewed deficiencies identified by Entergy during their "as-found" inspections as well as the expanded scope which resulted in 3 additional support columns being replaced. Finally, the inspectors performed a walkdown of cooling tower cell 2-1 after it was placed in service during post maintenance testing.

- Identification and Resolution of Problems - The inspectors also verified that Entergy identified problems related to refueling activities and entered them into their corrective action program.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope (5 samples)

The inspectors observed surveillance testing to determine if the specified acceptance criteria was consistent with Technical Specification and UFSAR requirements, if the test was performed in accordance with the written procedure, if the test data was complete and met procedural requirements, and if the system was properly returned to service following testing. Additional documents reviewed are listed in the Attachment. The inspectors observed selected pre-job briefings for the test activities. The inspectors also checked to determine if discrepancies were appropriately documented in the corrective action program. The inspectors reviewed the following surveillance testing:

- Realignment of electrical power via backfeed through the auxiliary transformer;
- LLRT of RHR 39B, “B” RHR torus spray/cooling isolation valve;
- ECCS integrated automatic initiation testing;
- HPCI actuation logic functional test; and
- HPCI quarterly valve testing (IST).

b. Findings

No findings of significance were identified.

**Cornerstone: Emergency Preparedness**

1EP2 Alert and Notification System (ANS) Evaluation (71114.02)

a. Inspection Scope (1 sample)

An onsite review was conducted to assess the maintenance and testing of the Vermont ANS. During this inspection, the inspectors interviewed emergency preparedness (EP) staff responsible for implementation of the ANS testing and maintenance, and reviewed CRs pertaining to the ANS for causes, trends, and Entergy's corrective actions. The inspectors further discussed the ANS with the assigned technical specialist, reviewing system performance in 2007 and 2008. The inspectors reviewed the ANS procedures and the ANS design report to ensure Entergy's compliance with those commitments for system maintenance and testing. Additionally, the inspectors reviewed changes to the design report and how these changes were captured. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment .02. Planning Standard, 10 CFR 50.47(b)(5) and the related requirements of 10 CFR 50, Appendix E, were used as reference criteria.

b. Findings

No findings of significance were identified.

1EP3 Emergency Response Organization (ERO) Staffing and Augmentation System (71114.03)

a. Inspection Scope (1 sample)

The inspectors conducted a review of Vermont Yankee's ERO augmentation staffing requirements and the process for notifying and augmenting the ERO. This was performed to ensure the readiness of key staff to respond to an event and to ensure timely facility activation. The inspectors reviewed procedures and CRs associated with the ERO notification system and drills, and reviewed records from call-in drills. The inspectors interviewed personnel responsible for testing the ERO augmentation process, and reviewed the training records for the ERO to ensure training and qualifications were up to date. The inspectors further verified a sampling of ERO participation in exercises and drills in 2007 and 2008. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment .03. Planning Standard, 10 CFR 50.47(b)(2) and related requirements of 10 CFR 50, Appendix E, were used as reference criteria.

b. Findings

No findings of significance were identified.

1EP4 Emergency Action Level (EAL) and Emergency Plan Changes (71114.04)

a. Inspection Scope (1 sample)

Prior to this inspection, the NRC had received and acknowledged changes made to the Vermont Yankee Emergency Plan and its implementing procedures. Entergy developed these changes in accordance with 10 CFR 50.54(q), and determined that the changes did not result in a decrease in effectiveness of the Plan. The licensee also determined that the Plan continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR 50. During this inspection, the inspectors conducted a review of Entergy's 10 CFR 50.54(q) screenings for all the changes made to the EALs and all of the changes made to the Plan from October 2007 through September 2008 that could have potentially resulted in a decrease in effectiveness of the Plan. This review of the EAL and Plan changes did not constitute NRC approval of the changes and, as such, the changes remain subject to future NRC inspection. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment .04. The requirements in 10 CFR 50.54(q) were used as reference criteria.

b. Findings

No findings of significance were identified.

1EP5 Correction of Emergency Preparedness Weaknesses (71114.05)

a. Inspection Scope (1 sample)

The inspectors reviewed a sampling of self-assessment procedures and reports to assess Entergy's ability to evaluate their EP performance and programs. The inspectors reviewed a sampling of EP drill reports and CRs from January 2007 through September 2008, initiated by Entergy at Vermont Yankee from drills, self-assessments and audits. Additionally, the inspectors reviewed Vermont Yankee Quality Assurance audits and reports, and the 2007 and 2008 10 CFR 50.54(t) audit reports. This inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment .05. Planning Standard, 10 CFR 50.47(b)(14) and the related requirements of 10 CFR 50 Appendix E were used as reference criteria.

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. Inspection Scope (7 samples)

During October 27 through 31, 2008, the inspectors conducted the following activities to verify that the licensee was properly implementing physical, engineering, and administrative controls for access to high radiation 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 licensee procedures.

(1) Radiation work permits (RWPs) that provide access to exposure significant areas of the plant including high radiation areas were reviewed. Specified electronic personal dosimeter alarm set points were reviewed with respect to current radiological condition applicability and workers were queried to verify their understanding of plant procedures governing alarm response and knowledge of radiological conditions in their work area.

(2) There were no radiation work permits for airborne radioactivity areas with the potential for individual worker internal exposures of >50 mrem Committed Effective Dose Equivalent (CEDE).

The following jobs were reviewed as having engineering controls and Total Effective Dose Equivalent as low as is reasonably achievable (ALARA) evaluations that resulted in expected levels less than the 50 mrem CEDE. At the time of this inspection there were no workers with >50 mrem CEDE.

- RWP 08-103, Reactor Disassembly Cavity Entries
- RWP 08-127, Miscellaneous Valves, MSIV Contingency Repair
- RWP 08-113, Control Rod Drive (CRD) Exchange in the Drywell
- RWP 08-132, RWCU Heat Exchanger work.

(3) During October 27 through 31, 2008, the following radiologically significant work activities were selected; the radiological work activity job requirements were reviewed; and work activity job performance was reviewed with respect to the radiological work requirements.

- Safety Relief Valve (SRV) work in the Drywell
- Refuel floor disassembly activities
- In-vessel visual inspection (IVVI) activities
- Motor Operated Valve (MOV) work activities
- ISI activities
- CRD replacement
- RWCU heat exchanger work

(4) During observation of the work activities listed above, the adequacy of surveys, job coverage and contamination controls were reviewed.

(5) The adequacy of effectively monitoring occupational dose in work areas of significant dose gradients requiring relocation of dosimetry was reviewed for CRD replacement activities.

(6) During observation of the work activities listed above, radiation worker performance was evaluated with respect to the specific radiation protection work requirements and their knowledge of the radiological conditions in their work areas.

(7) During observation of the work activities listed above, radiation protection technician work performance was evaluated with respect to their knowledge of the radiological conditions, the specific radiation protection work requirements and radiation protection procedures.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls (71121.02)

a. Inspection Scope (3 samples)

During October 27 through 31, 2008, the inspectors conducted the following activities to verify that the licensee was properly maintaining individual and collective radiation exposures ALARA. Implementation of the ALARA program was reviewed against the criteria contained in 10 CFR 20.1101(b) and the licensee's procedures.

(1) The following highest exposure work activities for the fall 2008 refueling outage, RFO 27, were selected for review:

- SRV work in the Drywell
- Refuel floor disassembly activities
- IVVI activities
- MOV work activities
- ISI activities
- CRD replacement
- Staging activities, both Drywell and non-Drywell
- Drywell miscellaneous activities: Insulation, Shielding, Snubbers
- RWCU heat exchanger work

(2) With respect to the work activities listed above, these job sites were observed to evaluate if surveys and ALARA controls were implemented as planned.

(3) Radiation worker and radiation protection technician performance was observed during the performance of the work activities listed above to determine whether ALARA principles were demonstrated.

b. Findings

No findings of significance were identified.

**Cornerstone: Public Radiation Safety (PS)**

2PS1 Radioactive Effluents (71122.01)

a. Inspection Scope (3 samples)

During the period December 1 through 17, 2008, the inspectors conducted the following

activities to verify that Entergy's radioactive gaseous and liquid effluent release program complied with the requirements of Technical Specifications, Offsite Dose Calculation Manual (ODCM), and 10 CFR Parts 20 and 50.

(1) The inspectors reviewed the following documents:

- Latest revision and recent changes to the ODCM and applicable effluent and groundwater monitoring procedures;
- The last two annual radiological effluent release reports;
- The most recent Quality Assurance audit of the effluent release program; and the
- UFSAR, Chapter 9.

The radiological effluent controls procedures were reviewed with respect to requirements. A review of plant modifications over the past two years that affect the radiological effluents program were reviewed to ensure effluent releases remain ALARA. A review of effluent monitoring instrumentation changes was performed to evaluate the adequacy of effluent monitoring and radiation monitor setpoint calculations.

The inspectors reviewed the status of the groundwater monitoring program. This included an initial site hydrogeological assessment dated June 30, 2007, which recommended 10 additional monitoring wells, as well as a follow-up annual assessment dated September 2008, that identified significant information and program gaps that remain to be completed. Additional licensee actions will be reviewed in a future NRC Groundwater Protection Initiative inspection (Temporary Instruction [TI] 2515/173, Review of the Implementation of the Industry Ground Water Protection Voluntary Initiative).

The latest two annual radiological effluent release reports were reviewed, which indicated that there were no abnormal or anomalous results identified and no significant changes in reported dose values from previous effluent release reports. These reports were also reviewed with respect to the environmental monitoring program, which did not identify any plant-related radioactivity in the offsite environment or in any onsite groundwater monitoring wells.

(2) The inspectors walked down the following components of the gaseous and liquid discharge systems with respect to material condition and operability: liquid radwaste discharge radiation monitor and flow rate monitor, service water radiation monitor, steam jet air ejector noble gas radiation monitor, auxiliary off gas noble gas monitor, plant stack noble gas monitor and stack flow rate monitor. Recent radiation monitor alarm and setpoint calculations were reviewed for the plant stack, steam jet air ejector, and auxiliary off gas monitors.

On December 2, 2008, the inspectors observed the weekly plant stack gaseous effluent sample collection (particulate, charcoal, tritium, and noble gas). The inspectors reviewed the subsequent laboratory counting and later reviewed the sample analysis results of the December 2nd plant stack sample collection.

There were no liquid effluent releases from Vermont Yankee during the past two years. There were no effluent discharges made with inoperable effluent radiation monitors

requiring compensatory sampling during the past two years.

The inspectors reviewed surveillance test results for high efficiency particulate air and charcoal filtration as applicable, for the following gaseous discharge systems: auxiliary off gas, radwaste building ventilation, and stand by gas treatment.

The plant stack radiation monitor and flow rate monitor calibrations were reviewed that included verification of actual ventilation flow rates with respect to plant program requirements.

The IE Bulletin 80-10 program procedure and results that were used to identify if any non-radioactive systems have become contaminated, were reviewed. These systems included: auxiliary off gas closed loop cooling water, demineralized water tank, house heating boiler, reactor building component cooling water, storm drains, turbine building clean sump, and turbine building closed loop cooling water. No indications of contamination were observed.

Recent effluent radiation monitor and laboratory counting instrument calibration and quality control chart results including any compensatory actions were reviewed for the following: auxiliary off gas monitors (3121A&B, 3123, 3125, 3126, 3127, 3128), service water monitor (17-351), radwaste discharge monitor (17-350), reactor building closed loop cooling water (17-352), house heating boiler monitor (17-1006), cooling tower influent monitor (17-359), plant stack monitors (17-156, 157), four high purity germanium gamma spectroscopy detectors, one liquid scintillation counter, two zinc-sulfide alpha detectors and two Geiger-Mueller beta detectors.

Recent 10 CFR Part 61 analyses of plant waste streams were reviewed to ensure hard-to-detect radionuclides were included as necessary in applicable effluent releases.

Meteorological data contained in the annual effluent release reports was reviewed to verify the adequacy of the highest public dose wind sectors used in the current 10-year average used to support the ODCM methodology of public dose calculations.

The land-use census for 2006 and 2007 were reviewed with respect to ODCM assumptions.

Monthly, quarterly and annual dose calculations were reviewed for 2006 – October 2008 with respect to license requirements.

The inspectors verified that there have been no recorded abnormal radioactive leaks, spills, or abnormal radioactive effluent discharges at Vermont Yankee over the past two years. Groundwater monitoring results were reviewed for the first three quarters of 2008 with no contaminants detected. Inter-laboratory cross-check comparison program results for Vermont Yankee's radio-chemistry laboratory were reviewed for 2008 to verify the quality of effluent sample measurement results.

The inspectors verified that the licensee is maintaining adequate effluent sampling records in their electronic database system to support effluent release and public dose calculation results.

(3) The inspectors reviewed the latest quality assurance audit and nine condition reports applicable to the radioactive effluent release program to verify that Entergy is adequately identifying adverse issues, properly determining operability and reporting requirements, prioritizing resolution commensurate with safety significance, identifying repetitive issues, properly identifying contributing causes, identifying and implementing corrective actions, and considering significant operational experience feedback in their corrective action program. For repetitive deficiencies, the inspectors verified that the quality assurance audit readily identified and addressed these issues.

b. Findings

No findings of significance were identified.

2PS2 Radioactive Materials Processing and Shipping (71122.02)

a. Inspection Scope (6 samples)

During the period October 6 through 9, 2008, the inspectors conducted the following activities to verify that the licensee's radioactive material processing and transportation programs complied with the requirements of 10 CFR 20, 61, and 71; and Department of Transportation (DOT) regulations 49 CFR 170-189.

(1) The inspectors reviewed the solid radioactive waste system description in the UFSAR, the 2007 radiological effluent release report for information on the types and amounts of radioactive waste disposed, and the scope of the licensee's audit program to verify that it meets the requirements of 10 CFR 20.1101.

(2) The inspectors walked-down the liquid and solid radioactive waste processing systems to verify and assess that the current system configuration and operation agree with the descriptions contained in the UFSAR and in the Process Control Program (PCP); and reviewed the status of any radioactive waste process equipment that is not operational and/or is abandoned in place; verified that the changes were reviewed and documented in accordance with 10 CFR 50.59, as appropriate. The inspectors reviewed the current processes for transferring and dewatering of radioactive waste resin and sludge discharges into shipping/disposal containers to determine if appropriate waste stream mixing and/or sampling procedures, and methodology for waste concentration averaging provide representative samples of the waste product for the purposes of waste classification as specified in 10CFR61.55 for waste disposal.

(3) The inspectors reviewed the radio-chemical sample analysis results for each of the licensee's radioactive waste streams, reviewed the licensee's use of scaling factors and calculations with respect to these radioactive waste streams to account for difficult-to-measure radionuclides; verified that the licensee's program assures compliance with 10 CFR 61.55 and 10 CFR 61.56 as required by Appendix G of 10 CFR Part 20; and, reviewed the licensee's program to ensure that the waste stream composition data accounts for changing

operational parameters and thus remains valid between the annual or biennial sample analysis update.

(4) There were no shipments during the week of October 6 through 9, 2008 with no opportunity for the region-based inspectors to observe shipment preparations (packaging, surveying, labeling, marking, placarding, vehicle checks, emergency instructions, disposal manifests, shipping papers provided to the driver, and licensee verification of shipment readiness).

(5) The inspectors sampled the following non-excepted package shipment records and reviewed these records for compliance with NRC and DOT requirements.

- 2008-05, dryer inspection equipment shipment to River Bend NPP on January 28, 2008;
- 2008-17, reactor cleanup resin shipment to Studsvik on April 7, 2008;
- 2008-19, lead blankets and scaffolding shipment to Fitzpatrick NPP on April 15, 2008;
- 2008-29, scrap metal shipment to EnergySolutions on May 21, 2008;
- 2008-48, condensate filter demineralizer filter shipment to EnergySolutions on July 22, 2008; and
- 2008-56, condensate phase separator resin shipment to Energy Solutions on September 9, 2008.

(6) The inspectors reviewed the licensee's Licensee Event Reports, special reports, audits, state agency reports, and self-assessments related to the radioactive material and transportation programs performed since the last inspection and determined that identified problems are entered into the corrective action program for resolution. The inspectors also reviewed CRs written against the radioactive material and shipping programs since the previous inspection.

The inspectors reviewed ten corrective action condition reports that were initiated between October 2007 and October 2008 and were associated with the radwaste transportation program. The inspectors verified that problems identified by these condition reports were properly characterized in the licensee's event reporting system, and that applicable causes and corrective actions were identified commensurate with the safety significance of the radiological occurrences.

b. Findings

No findings of significance were identified.

## 4. OTHER ACTIVITIES [OA]

### 4OA1 Performance Indicator Verification (71151)

a. Inspection Scope (8 samples)

Mitigating Systems Cornerstone

The inspectors sampled Entergy submittals for the three Mitigating Systems Performance Index (MSPI) performance indicators (PIs) for the period from October 1, 2007, through September 30, 2008. The inspectors reviewed selected operator logs, plant process computer data, licensee event reports, maintenance rule out of service logs, criticality data, Consolidated Data Entry MSPI Derivation Reports for the unavailability index and unreliability index for each system, monitored component demands and demand failure data and discussed the PI data with responsible system engineers and licensing personnel. The PI definitions and guidance contained in Nuclear Energy Institute, Inc. (NEI) 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, and AP 0094, "NRC Performance Indicator Reporting," were used to verify the accuracy and completeness of the PI data reported during this period. Additional documents reviewed are listed in the Attachment. The following performance indicators were inspected:

- MSPI, Cooling Water Systems;
- MSPI, Emergency AC Power; and
- MSPI, Residual Heat Removal System.

Emergency Preparedness Cornerstone

The inspectors reviewed data for three EP PIs. The inspectors reviewed the Vermont Yankee PI data, its supporting documentation, and the information Entergy reported from the fourth quarter of 2007 through the third quarter of 2008, to verify the accuracy of the reported data. The review of these PIs was conducted in accordance with NRC Inspection Procedure 71151. Additional documents reviewed are listed in the Attachment. The following performance indicators were inspected:

- Drill and Exercise Performance (DEP);
- ERO Drill Participation; and
- ANS Reliability.

Additionally, the inspectors performed NRC TI 2515/175, Emergency Response Organization, Drill/Exercise Performance Indicator, Program Review; ensured the completeness of the licensee's completed Attachment 1 from the TI; and forwarded that data to NRC Headquarters.

Occupational Radiation Safety Cornerstone

The inspectors reviewed implementation of the licensee's Occupational Exposure Control Effectiveness PI Program. Specifically, the inspectors reviewed CRs and radiologically controlled area dosimeter exit logs for the past four (4) calendar quarters. These records were reviewed for occurrences involving locked high radiation areas, very high radiation areas, and unplanned exposures to verify that all occurrences that met the NEI criteria were identified and reported as performance indicators.

Public Radiation Safety Cornerstone

The inspectors reviewed a listing of relevant effluent release reports for the past four calendar quarters, for issues related to the public radiation safety PI, which measures

radiological effluent release occurrences per site that exceed 1.5 mrem/qtr whole body or 5.0 mrem/qtr organ dose for liquid effluents; 5 mrads/qtr gamma air dose, 10 mrad/qtr beta air dose, and 7.5 mrads/qtr for organ dose for gaseous effluents.

The inspectors reviewed the following documents to ensure the licensee met all requirements of the PI:

a. monthly projected dose assessment results due to radioactive liquid and gaseous effluent releases;
b. quarterly projected dose assessment results due to radioactive liquid and gaseous effluent releases; and
c. dose assessment procedures.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Review of Items Entered into the Corrective Action Program

a. Inspection Scope

The inspectors performed a screening of each item entered into Entergy's corrective action program. This review was accomplished by reviewing printouts of each condition report, attending daily screening meetings, and/or accessing Entergy's database. The purpose of this review was to identify conditions such as repetitive equipment failures or human performance issues that might warrant additional follow-up. In addition, specialist inspectors in the area of radiation safety and in-service inspection examinations reviewed items entered into the corrective action program during the period and the documents reviewed are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

.2 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of Entergy's CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review nominally considered the six-month period of July through December 2008. The inspectors compared their results with the results contained in Entergy's quarterly trend reports, operator logs, and CRs. The corrective actions assigned to address select individual issues were reviewed for adequacy.

b. Findings

No findings of significance were identified.

.3 Annual Sample – Main Turbine Stop Valve Corrective Actions

a. Inspection Scope (1 sample)

The inspectors reviewed actions taken by Entergy following a reactor trip on August 30, 2007 which occurred during troubleshooting activities on the bypass control mechanism of main turbine stop valve number two (TSV-2). This issue was previously documented as finding (FIN) 05000271/2007004-02, "Reactor Scram During Troubleshooting Due to Inadequate Main TSV Preventive Maintenance." The inspectors reviewed the associated CR 2007-3349, quarterly TSV surveillance test results since the scram, and the completed work order for maintenance performed during RFO 27. A list of documents reviewed is included in the Attachment. The inspectors also discussed implemented and additional planned corrective actions and results with the responsible system engineer.

b. Findings and Observations

No findings of significance were identified. The inspectors determined that Entergy has taken appropriate corrective actions to date to prevent recurrence of the binding bypass control mechanism on TSV-2. Corrective actions included periodic lubrication of the mechanism during the previous cycle and establishment of a preventive maintenance task to inspect, lubricate, and rebuild the mechanism, as necessary. There have been no instances of the mechanism binding during quarterly surveillance testing since these corrective actions were implemented.

.4 Annual Sample – Torus In Leakage

a. Inspection Scope (1 sample)

The inspectors reviewed actions taken by Entergy to identify and correct the source of in leakage into the torus. This sample was selected based on a history of torus in leakage, since at least 2005, which necessitates the operation of the safety related RHR pumps to reduce the water level in the torus to maintain its safety function. The inspectors reviewed related CRs and work orders and discussed the current torus in leakage rate as well as past corrective actions with the responsible system engineer. A list of documents reviewed is included in the Attachment.

b. Findings and Observations

No findings of significance were identified. Although the torus in leakage rate continues to vary throughout the operating cycle, the inspectors determined that Entergy has implemented reasonable corrective measures when the in leakage rate increases. Corrective actions include troubleshooting to determine the source of the leakage, performing maintenance on RHR check valves that have been determined to be the source of the leakage, continuing to monitor the torus in leakage rate and issuing CRs and additional corrective actions as warranted.

.5 Annual Sample – Procedure and Document Quality

a. Inspection Scope (1 sample)

The inspectors reviewed Entergy's corrective actions for the increased amount of findings, observations, and condition reports in the area of complete, accurate and up-to-date design documentation and procedures during the last inspection cycle. Entergy documented this trend in CR 2008-2152, Number of NRC Cross-Cutting Inspection Issues has exceeded the Performance threshold. The inspectors reviewed the CR and Entergy's procedure upgrade action plan, attended meetings and interviewed station personnel to evaluate the scope and depth of corrective actions to date.

b. Findings and Observations

No findings of significance were identified. The inspectors determined that Entergy had taken appropriate corrective actions to date to address the procedure and document quality issue. These actions included developing a procedure upgrade action plan and presenting the plan to station personnel at various plant meetings. The procedure upgrade action plan includes the development of a new procedures writer's guide; training of new and existing station personnel; development of model procedures for each department; and a process for prioritizing which procedures will be updated first.

4OA3 Event Follow-up

.1 ALARA Planning and Controls (71121.02)

Elevated Concentration of Airborne Radioactive Material on Refuel Floor

a. Inspection Scope (1 sample)

During the week of October 27, 2008, the inspectors met with licensee representatives to review and discuss the details of an incident that occurred on October 20, 2008. At approximately 18:00 hours (6 pm) refuel floor personnel were removed from the floor due to elevated concentrations of airborne radioactive material during the transfer of the reactor pressure vessel head from the reactor cavity to its storage location on the floor. This review was conducted against the criteria contained in 10 CFR 20.

The inspectors performed a review of documents associated with the activity as well as interviews of knowledgeable personnel. A partial list of documents reviewed include; Radiological Work Permit 08-103 for Reactor Disassembly, Air-sample, contamination, dose rate, and isotopic data, instrument set-point and calibration worksheets, reactor building ventilation data, CRs 2008-4251 and 2008-4258, Health Physics and Operations log book entries.

As a result of this activity, there was no additional exposure to workers or impact to the public.

b. Findings

No findings of significance were identified.

4OA5 Other

.1 Implementation of TI 2515/176 – Emergency Diesel Generator Technical Specification Surveillance Requirements Regarding Endurance and Margin Testing

a. Inspection Scope

The objective of TI 2515/176, "Emergency Diesel Generator Technical Specification Surveillance Requirements Regarding Endurance and Margin Testing," is to gather information to assess the adequacy of nuclear power plant EDG endurance and margin testing as prescribed in plant-specific Technical Specifications. The inspectors reviewed EDG ratings, design basis event load calculations, surveillance testing requirements, and EDG vendor's specifications and gathered information in accordance with TI 2515/176.

The inspector's assessment and information gathered while completing this TI was discussed with licensee personnel. This information was forwarded to the Office of Nuclear Reactor Regulation for further review and evaluation.

b. Findings

No findings of significance were identified.

4OA6 Meetings, including Exit

Exit Meeting Summary

On January 6, 2008, the resident inspectors presented the inspection results to Mr. Michael Colomb, Site Vice President, and other members of the VY staff. The inspectors confirmed that no proprietary information was provided or examined during the inspection.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## SUPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

Entergy Personnel
M. Colomb, Site Vice President
J. Dreyfuss, Director, Nuclear Safety
D. Mannai, Licensing Manager
M. Philippon, Operations Manager
N. Rademacher, Director, Engineering
C. Wamser, General Manager, Plant Operations
S. Wender, Radiation Protection Manager

### LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

None.

Discussed

None.

### LIST OF DOCUMENTS REVIEWED

**Section 1R01: Adverse Weather Protection**
Procedures
OP 2192 Heating, Ventilating, and Air Conditioning System, Rev. 65
OP 2196 Seasonal Preparedness, Rev. 29

Condition reports
CR 2008-5222

**Section 1R04: Equipment Alignment**
Procedures
AP 0173 Work Schedule Risk Management Outage, Rev. 21
OP 2120 High Pressure Coolant Injection System, Rev. 55
OP 2179 Standby Fuel Pool Cooling, Rev. 13
OP 2184 Normal Fuel Pool Cooling System, Rev. 56

Drawings
G-191169, Sheet 1, High Pressure Coolant Injection System Flow Diagram, Rev. 50
G-191169, Sheet 2, High Pressure Coolant Injection System Flow Diagram, Rev. 43
G-191173, Sheet 1, Fuel Pool Cooling & Clean Up System Flow Diagram, Rev. 37
G-191173, Sheet 2, Fuel Pool Cooling & Clean Up System Flow Diagram, Rev. 8

**Section 1R04S: Equipment Alignment**

Procedures

OP 2132 Average Power Range Monitor Channels, Revision 23
OP 2124 Residual Heat Removal System

Drawings

G-191172, Flow Diagram Residual Heat Removal System

Miscellaneous

EC 9158,"Engineering Evaluation Format and Content", Revision 5
UFSAR, "Neutron Monitoring System", Revision 22
Residual Heat Removal Service Water (RHRSW) Pump and Valve Historical Performance Data
Residual Heat Removal System Design Basis Document
Technical Specifications 3.5
UFSAR Section 6.3 Core Standby Cooling Systems

**Section 1R07: Heat Sink Performance**

Condition Reports

2007-1962
2007-2028
2008-2370
2008-3838

Procedures

OP 4181 Service Water/Alternate Cooling System Surveillance, Rev. 68
OPF 4181.10 RRU 7 and 8 Thermal Performance Testing Procedure [RRU 7], tested 11/2/06
OPF 4181.10 RRU 7 and 8 Thermal Performance Testing Procedure [RRU 7], tested 10/9/08
OPF 4181.10 RRU 7 and 8 Thermal Performance Testing Procedure [RRU 8], tested 10/31/06
OPF 4181.10 RRU 7 and 8 Thermal Performance Testing Procedure [RRU 8], tested 09/18/08
OPF 4181.13 RRU 7 & 8 Thermal Performance Test Data Evaluation [RRU 7], tested 10/29/08
OPF 4181.13 RRU 7 & 8 Thermal Performance Test Data Evaluation [RRU 8], tested 10/31/06
OPF 4181.13 RRU 7 & 8 Thermal Performance Test Data Evaluation [RRU 8], tested 09/18/08

**Section 1R08: In-service Inspection**

Condition Reports

CR-VTY-1996-00095
CR-VTY-1995-00271
CR-VTY-1996-00736
CR-VTY-1996-00826
CR-VTY-1998-01975
CR-VTY-2001-01163
CR-VTY-2003-02110
CR-VTY-2003-02250
CR-VTY-2004-00907
CR-VTY-2004-01160
CR-VTY-2004-01876
CR-VTY-2004-02707
CR-VTY-2005-02280
CR-VTY-2006-02008

CR-VTY-2007-04325
CR-VTY-2003-01133
CR-VTY-2004-01917
CR-VTY-2007-01930
CR-VTY-2007-01070
CR-VTY-2008-04378
CR-VTY-2008-04442
CR-VTY-2008-04719
CR-VTY-2008-04444
CR-VTY-2008-04607
CR-VTY-2008-04658
CR-VTY-2008-04724
CR-VTY-2008-04786
CR-VTY-2008-04788
CR-VTY-2008-04851

Examination Procedures
ENN-NDE-10.01, Revision 3, 2/28/07; VT-1 Examination
ENN-NDE-10.02, Revision 3, 2/28/07; VT-2 Examination
ENN-NDE-10.03, Revision 2, 2/28/07; VT-3 Examination
ENN-NDE-10.05, Revision 1, 2/28/07; Radiographic Examination
ENN-NDE-2.10, Revision 3, 3/12/07; Certification of NDE Personnel
ENN-NDE-9.04, Revision 2, 3/14/08; Ultrasonic Examination of Ferritic Piping Welds (ASME Section XI)
ENN-NDE-9.03, Revision 2, 3/14/08; Ultrasonic Examination – ASME Section XI, Appendix III
ENN-NDE-9.05, Revision 1, 3/12/08; Ultrasonic Thickness Examination
ENN-NDE-9.07, Revision 1, 3/14/08; Straight Beam Ultrasonic Examination of Bolts and Studs
ENN-NDE-9.10, Revision 2, 9/5/08; Ultrasonic Examination of Dissimilar Metal Piping (ASME Section XI)
ENN-NDE-9.11, Revision 1, 3/17/08; Manual Ultrasonic Examination of Reactor Pressure Vessel Welds (Section XI, Appendix VIII)
ENN-NDE-9.12, Revision 1, 4/11/08; Manual Ultrasonic Through Wall and Length Sizing of Ultrasonic Indications in Reactor Pressure Vessel Welds
ENN-NDE-9.19, Revision 1, 3/15/08; Ultrasonic Instrument Linearity Verification
ENN-NDE-9.23, Revision 1, 3/14/08; Ultrasonic Examination of Austenitic Piping Welds (ASME Section XI)
ENN-NDE-9.31, Revision 1, 10/8/07; Magnetic Particle Examination (MT) for ASME Section XI
ENN-NDE-9.41, Revision 1, 10/8/07; PT for ASME Section XI
VY-RPT-06-00006, Revision 1, 4/3/08; Reactor Vessel Internals Inspection Program
ENN-EP-5-001, Revision 1, 9/18/08; IWE General Visual Examination
GE-UT-209, Version 18, 1/5/06; Procedure for Automated Ultrasonic Examination of Dissimilar Metal Welds and Nozzle to Safe End Welds

Examination Reports
UT, volumetric examination, N3B, Nozzle to Vessel Weld, 10/30/08
UT, volumetric examination, N1A-SE, Nozzle to Safe End Weld, 10/30/08
UT, volumetric examination, N2K-SE, Safe End to Nozzle Weld, 10/30/08
VT-3, 27-10.03-027, FW-16 elbow, 10/31/08
General Visual Exam, IWE Containment Inspection, RFO-27, 11/3/08
VT-3, RWCU Component CU-2, 10/29/08

PT, surface examination, RR-WB-110 sock-o-let to main line weld, 10/27/08

Engineering Evaluations
GENE 0000-0068-4787, Revision 1, Class III, 10/07; DRF 0000-0068-4783, Evaluation of Vessel Inspection Indications, Steam Dryer Assembly RFO26, Vermont Yankee Generating Station

Work Orders
98-5021
05-000727-001(P), 10/5/05
04-003610-000(P), 10/21/05

Miscellaneous
GE SIL644, Revision 2, 8/30/06

**Section 1R12: Maintenance Effectiveness**
Condition Reports
2008-4282
2008-4246
2008-4300
2008-4303
2008-4326
2008-4546
2008-4578
2008-5145

Procedures
VYOPF 4030.02 Type C Test [LLRT – all MSIVs], tested 10/21/08
VYOPF 4030.02 Type C Test [LLRT – MSIVs], tested 10/22/08
VYOPF 4030.02 Type C Test [LLRT – MSIVs], tested 10/23/08

Miscellaneous
10CFR50.65 Maintenance Rule Interpretation No. 2, MRFF's Associated with the Containment Integrity/Boundary Function, Rev. 6
10CFR50.65 Maintenance Rule Scoping Basis Document – Nuclear Boiler, Rev. 5
10CFR50.65 Maintenance Rule Scoping Basis Document – Primary Containment Atmosphere Control (PCAC), Rev. 2
Design Basis Document for Main Steam System, Rev. 20
Structures, Systems, and Components (SSC) Performance History Report – Nuclear Boiler, 10/1/05-12/5/08
SSC Performance History Report – PCAC, 10/1/05-12/18/08

**Section 1R13: Maintenance Risk Assessments and Emergent Work Control**
B-191301, "Control Wiring Diagram Stator Winding Cooling Water Annunciator", Revision 11
B-191301 Sheet 130, "Control Wiring Diagram Turbine Main Trip SOL MTS 1
CR 2008-5116, "H2/Stator CLG Panel Trouble and 9-7-B-5, SC Turbine Trip Timer Initiated"
WO 172324, Troubleshooting the SC Turbine Trip Timer Initiation

**Section 1R15: Operability Evaluations**
CR 2008-4556 Core Plate Plugs Not Seated

| | |
|---|---|
| CR 2000-3796 | "Inspection Items for Service Water Pump P-1-7B" |
| CR 2008-3852 | "B" Service Water Pump Vibration operability Evaluation |
| WO 165662 | 04 P-7-1B Service Water Pump Overhaul |

Procedures
OP 4181 Service water Pump Capacity Test, Rev 68

**Section 1R18: Plant Modifications**
Drawings
G-191167 "Flow Diagram Nuclear Boiler", Revision 75

Miscellaneous
CR 2008-4364, "During Disassembly of FCV-2-18 Found Actuator Stuck in the Open Position"
CR 2008-4415," Inspection of FCV-2-18 Reveals Severe Steam Erosion of the Valve Body"
Design Basis Document for Main Steam System, Revision 20
Design Verification, "Remove FCV-2-17 and 18 and Cap Line
EC 2248, Replacement of V70-1A/B and V70-2A/B, Rev 1
EC 11321, Remove FCV-2-17/18 and CAP Line
Engineering Change Test (ECT) 2248-01, SW Pump Check and Gate Discharge Valve Replacements, tested 10/25/08
Post Modification Test Plan, "EC 11321 Removal of FCV-2-17 and FCV-2-18

**Section 1R19: Post-Maintenance Testing**

| | |
|---|---|
| EC 3138 | "B" EDG Service Water Piping Replacement |
| EC 9528 | Install Vent Valve on HPCI Torus suction Line |
| OP 4101 | Reactor Pressure Vessel Operational System Leakage Test, Revision 50 |
| VYOPF 4126.02 | ["B"] Diesel Generator Operating Data, tested 10/31/08 |
| VYOPF 4126.13 | ["B"] Diesel Generator Slow Start Operability Test, tested 10/31/08 |
| VYOPF 4126.16 | SW Piping Differential Pressure Test EDG B Operating, tested 10/31/08 |
| VYOPF 4030.02 | Type C Test, V23-16, tested 11/05/08 |
| WO 128071-01 | V23-16; Motor Operator Refurbishment |
| WO 128071-02 | V23-16; Perform Diagnostic Testing per OP 5219 & OP 5220 |
| WO 128291-44 | Ops PMT of Supply/Return Piping/Valves "B" Diesel IA EC-3138 |
| WO 163732-01 | Install Vent Valve on 16" HPCI-4 Per EC 9528 |
| WO 163732-10 | Hydro Test Installed Pipe and Valve; V23-213 |
| WO 163734-08 | Pre-Test Vent Valve Assembly;V13-213 |
| WO 163732-09 | Pre Test Vent Valve Assembly; V23-213 |

**Section 1R20: Refueling and Other Outage Activities**
Condition Reports
2008-3391 NRC resident identified error in risk assessment description for WW 833

Drawings
G-191267 "Flow Diagram Nuclear Boiler Vessel Instrumentation", Sheet 1

Procedures

| | |
|---|---|
| AP 0173 | Work Schedule Risk Management – Outage, Rev. 21 |
| OP 0105 | Reactor Operations/Reactor Startup, Revision 85 |
| OP 2144 | 120/240 VAC Vital Bus, Rev. 25 |
| OP 2184 | Normal Fuel Pool Cooling System, Revision 56 |

OP 4300 Source Range Monitor Functional/Calibration Procedure, Revision 18
OP 5370 I/C LPRM Removal and Replacement, Revision 10
OP 5371 Instrument and Control Routine Outage Activities, Revision 17
PP 7102 Work Management – Outages, Rev. 26
VYOPF 0105.03 Reactor Criticality Check Sheet, Regular and In-Sequence, dated 11/9/08
VYOPF 4430.04 Estimated Critical Eigenvalue Worksheet, dated 11/5/08

Miscellaneous
Vermont Yankee Core Map for Cycle 27
Vermont Yankee Outage Risk Assessment Team Report, Rev. 0

**Section 1R22: Surveillance Testing**

Procedures
OP 4030 Types B and C Primary Containment Leakage Rate Testing, Rev. 72
OP 4100 ECCS Integrated Automatic Initiation Test, Completed 11/5/08
OP 4100 ECCS Integrated Automatic Initiation Test, Rev. 47
OP 4360 HPCI System Actuation Logic Functional/Calibration Test, Rev. 34
VYOPF 4120.02 HPCI Valve Tests, completed 11/09/08
VYOPF 4120.02 HPCI Valve Tests, completed 11/10/08
VYOPF 4030.02 Type C Test, V23-16, tested 10/22/08
VYOPF 4030.07 Test Data Sheet Types B and C Tests, V10-39B, tested 10/27/08
VYOPF 4030.07 Test Data Sheet Types B and C Tests, V10-39B, tested 11/03/08
VYOPF 4031.06 MXPLR and MNPLR Calculations, dated 11/09/08

Miscellaneous
CR 2008-4541 V10-39B (RHR Loop "B" Torus Spray/Cooling Isolation) failed LLRT
CR 2008-4963 ECCS integrated automatic initiation test exceptions
CR 2008-5155 During RFO 27 V10-39B failed LLRT but was never declared operable
EC 11583 Review of Generator Trip Circuitry for OP 4100
EC 11584 Unavailability of HPCI-16,-19, and -20 During OP 4100
VY Primary Containment Leakage Rate Testing (Appendix J) Program Section SEP-APJ-009
VYPC 94-006 10CFR50 Appendix J and Technical Specification Acceptance Criteria, Rev. 5

**Section 1EP2: Alert and Notification System (ANS) Evaluation**

Alerting and Notification System Design Report for the Vermont Yankee Nuclear Power Station (dated September 8, 2006)
Alerting and Notification System Preliminary Report for Vermont Yankee Nuclear Power Station (dated September 22, 2008)
American Signal Corporation, Tempest T-128 Rotational Siren: Installation, Operation, Maintenance, and Parts Manual (Revision F)
AP3553, Administration and Maintenance of the Alert and Notification System (Revision 1)
DP0093, Emergency Planning Data Management (Revision 12)
Vendor Maintenance Procedures and Monthly System Status Reports (January –September 2008)
All siren and tone alert radio Condition Reports dated between January 2007 and September 2008

**Section 1EP3: Emergency Response Organization (ERO) Staffing and Augmentation System**

Emergency Plan, Entergy Vermont Yankee, Table 8.4, Minimum Staffing Requirements for the

Entergy Nuclear Vermont Yankee ERO (Revision 45)
AP 3554, Emergency Plan Teams (Revision 2)
AP 3712, Emergency Plan Training (Revision 21)
OP 3547, Security Actions During an Emergency (Revision 14)
2008 ERO 4-Team Duty Roster (Revision 28)
Emergency Plan Training Program Description (Revision 10)
Emergency Plan Training Program Description, Appendix A, ERO Initial and Continuing Training Program (Revision 17)
ERO Workgroup Qualification Matrix (dated October 8, 2008)
Communication Drill Reports (dated: March 21, 2007; August 14, 2007; March 26, 2008; May 7, 2008; and, September 10, 2008)

**Section 1EP4: Emergency Action Level (EAL) and Emergency Plan Changes**

Emergency Plan, Entergy Vermont Yankee (Revisions 44 and 45)
EN-DC-114, Project Management (Revision 7)
EN-EP-305, Emergency Planning 10 CFR 50.54(q) Review Program (Revision 1)
EN-LI-100, Process Applicability Determination (Revision 7)
AP 0096, Revised Procedure Control Form (Revision 23)
AP 3125, Emergency Plan Classification and Action Level Scheme (Revision 21)
10 CFR 50.54(q) screenings and reviews, dated between October 2007 and September 2008

**Section 1EP5: Correction of Emergency Preparedness Weaknesses**

VY Emergency Planning Corporate Assessment (dated April 2-6, 2007)
VY Quality Assurance Audit Report QA-2007-VY-1, Emergency Plan
VY Quality Assurance Audit Report QA-2008-VY-1, Emergency Plan
VY Quality Assurance Surveillance Report QS-2007-VY-007, Entergy Interface with State and Local Officials
VY Quality Assurance Surveillance Report QS-2008-VY-009, Entergy Interface with State and Local Officials
Emergency Planning Department Snapshot Assessments (for: 4Q 2006; 1-4Q 2007; and, 1Q2008)
VY Emergency Planning Quarterly Trend Reports (1Q and 2Q 2008)
EP Drill Reports (conducted between January 2007 and August 2008)
All EP-related Condition Reports (generated between January 2007 and September 2008)

**Section 2OS: Occupational Radiation Safety**

Condition Reports

CR-HQN-2008-00937, CR-VTY-2008-03546, CR-VTY-2008-04251, CR-VTY-2008-04258, CR-VTY-2008-04335, CR-VTY-2008-04449, CR-VTY-2008-04461, CR-VTY-2008-04474, CR-VTY-2008-04561, CR-VTY-2008-04569, CR-VTY-2008-04573, CR-VTY-2008-04579, CR-VTY-2008-04586, CR-VTY-2008-04589, CR-VTY-2008-04590, CR-VTY-2008-04598, CR-VTY-2008-04599, CR-VTY-2008-04610, CR-VTY-2008-04612, CR-VTY-2008-04613, CR-VTY-2008-04626, CR-VTY-2008-04629, CR-VTY-2008-04630, CR-VTY-2008-04631, CR-VTY-2008-04633, CR-VTY-2008-04638, CR-VTY-2008-04639, CR-VTY-2008-04641, CR-VTY-2008-04647, CR-VTY-2008-04651, CR-VTY-2008-04653, CR-VTY-2008-04654, CR-VTY-2008-04656, CR-VTY-2008-04662, CR-VTY-2008-04669, CR-VTY-2008-04677, CR-VTY-2008-04681, CR-VTY-2008-04690, CR-VTY-2008-04720, CR-VTY-2008-04721

Procedures

EN-RP-101, Rev. 04, Access Control for Radiologically Controlled Areas

EN-RP-104, Rev. 04, Personnel Contamination Events
EN-RP-105, Rev. 04, Radiation Work Permits
EN-RP-108, Rev. 06, Radiation Protection Posting
EN-RP-110, Rev. 05, ALARA Program
EN-RP-131, Rev. 06, Air Sampling
EN-RP-203, Rev. 02, Dose Assessment
EN-RP-208, Rev. 02, Whole Body Counting and In-Vitro Bioassay
EN-RP-303, Rev. 02, Source Checking of Radiation Protection Instrumentation
EN-RP-310, Rev. 02, Operation and Initial Setup of the Eberline AMS-4 Continuous Air Monitor
AP 0518, Rev. 09, Radiation Protection Requirements for the Drywell when the Reactor is Shutdown
AP 1408, Rev. 25, LPRM Removal and Replacement
DP 4582, Rev.03, Operation and Calibration of the Eberline AMS-4 Beta Particulate Air Monitor

Other Documents
Radiation Protection Attention Logs (Electronic Dosimeter Alarms)
Reactor Vessel Nozzle Flush Dose Rates Data
Reactor Building Ventilation Exhaust Air Continuous Air Monitor Calibration and Setpoint Worksheets
Radiation Work Permit transaction logs
EDE ALARA Evaluations
ALARA Committee Reviews

**Section 2PS1: Radioactive Effluents**
Vermont Yankee Nuclear Power Station 2006 Radioactive Effluent Release Report
Vermont Yankee Nuclear Power Station 2007 Radioactive Effluent Release Report
Vermont Yankee Nuclear Power Station Off Site Dose Calculation Manual, Rev. 32
Quality Assurance Audit no. QA-06-2007-VY-1, Effluent and Environmental Monitoring
GZA Site Hydrogeologic Assessment in Support of Entergy GPI at Vermont Yankee, Jan 2007
Entergy white paper, NEI GPI, March 23, 2007
Groundwater Protection Initiative Data Review, GZA GeoEnvironmental, September 2008
Areva Summary Report of Insitu Measurements performed at Vermont Yankee, June 23, 2008

Procedures
EN-CY-108, Rev. 2, Monitoring of Non-Radioactive Systems
EN-RP-113, Rev. 2, Response to Contaminated Spills/Leaks
EN-CY-109, Rev. 2, Sampling and Analysis of Groundwater Monitoring Wells
AP 0654, Rev. 4, Implementation of NRC I E Bulletin 80-10
OP 4605, Rev. 43, Environmental Radiation Sampling and Analysis
OP 4609, Rev. 19, Periodic Evaluation of Off-Site Radiological Devices
OP 4616, Rev. 10, Liquid Process Radiation Monitors
OP 4617, Rev. 20, Calculation of Chemistry Controlled Set-Points
OP 4619, Rev. 13, Plant Stack monitors

Condition Reports

| | | | |
|---|---|---|---|
| VTY-2007-0106 | VTY-2007-4712 | VTY-2008-0990 | VTY-2008-1863 |
| VTY-2008-2034 | VTY-2006-3786 | VTY-2007-4529 | VTY-2008-2058 |
| VTY-2008-3914 | | | |

**Section 2PS2: Radioactive Materials Processing and Shipping**

Quality Assurance Audit no. QA-15-2007-VY-1: VY Radiological Waste Program
QA Surveillance reports: QS-2008-VY-011, 02C-VY-2008-0101, 02C-VY-2008-0017, 02C-VY-2008-0014, 02C-VY-2008-0944, 02C-VY-2008-0939, 02C-VY-2008-0932

Procedures

Process Control Program, EN-RW-105, Rev. 1; Process Control Program, PP-7504, Rev. 6; Scaling Factors, EN-RW-104, Rev. 3; Radioactive Shipping Procedure, EN-RW-102, Rev. 4; 14-170 and 8-120 Cask/Liner Handling Procedure, VY-OPF 2511, Rev. 42

Condition Reports

| | | | |
|---|---|---|---|
| VTY-2007-3825 | VTY-2007-4409 | VTY-2007-4481 | VTY-2007-4522 |
| VTY-2007-4552 | VTY-2008-1662 | VTY-2008-2058 | VTY-2008-3718 |
| VTY-2008-3748 | VTY-2008-3944 | | |

**Section 4OA1: Performance Indicator (PI) Verification**

ANS Reliability PI data, October 2007 - September 2008
AP 0094 NRC Performance Indicator Reporting, Rev. 12
AP 0094 NRC Performance Indicator Reporting, Rev. 14
CR 2007-4452, RHR MSPI unavailability hours error
DEP PI data, October 2007 – September 2008
DP 0093, Emergency Planning Data Management, Rev. 12
EN-LI-114, Performance Indicator Process, Rev. 4
EN-EP-201, Emergency Planning Performance Indicators, Rev. 7
ERO Drill Participation PI data, October 2007 - September 2008
SSC Performance History for EDG, 10/1/07 – 11/21/08
SSC Performance History for RHR, 10/1/07 – 11/21/08
SSC Performance History for RHRSW, 10/1/07 – 11/21/08
SSC Performance History for SW, 10/1/07 – 11/21/08
VY PRA Model Inputs for MSPI – Changes due to PRA Model Update

**Section 4OA2: Identification and Resolution of Problems**

Condition Reports

| | |
|---|---|
| 2005-2013 | Torus in-leakage of 1.5 gpm may be operations burden |
| 2006-2231 | Plant issue not adequately tracked via the corrective action process |
| 2006-2425 | Torus leakage increases from approx 1 gpm in Feb 2006 to 2 gpm in July 2006 |
| 2006-2703 | Rework of V10-48B |
| 2007-0371 | Torus in-leakage from RHR-48B remains high after maintenance effort |
| 2007-3128 | Water was leaking through threaded area of seat ring in V10-48B |
| 2007-3349 | During troubleshooting of #2 TSV failure to open the plant experienced a scram |
| 2008-2719 | Negative trend – torus leakage |

Procedures

| | |
|---|---|
| RP 5290 | Main Turbine Controls Verification and Validation Procedure, Rev. 3 |
| VYOPF 4160.02 | Valve Performance Testing – Quarterly Surveillance, performed 9/1/07 |
| VYOPF 4160.02 | Valve Performance Testing – Quarterly Surveillance, performed 9/14/07 |
| VYOPF 4160.02 | Valve Performance Testing – Quarterly Surveillance, performed 12/13/07 |
| VYOPF 4160.02 | Valve Performance Testing – Quarterly Surveillance, performed 3/11/08 |
| VYOPF 4160.02 | Valve Performance Testing – Quarterly Surveillance, performed 6/11/08 |
| VYOPF 4160.02 | Valve Performance Testing – Quarterly Surveillance, performed 9/17/08 |

VYOPF 4160.02 Valve Performance Testing – Quarterly Surveillance, performed 9/25/08
VYOPF 4160.02 Valve Performance Testing – Quarterly Surveillance, performed 11/11/08

Miscellaneous
RHR System Health Report – 2Q06, 3Q06, 4Q06, 1Q07, 2Q07, 4Q07, 1Q08, 2Q08
VY Top Ten Equipment Reliability Issue: Torus In Leakage Corrective Action Plan, 9/20/07
WO 128761 V60-3B-STOP; Inspect Bypass Mechanism for Binding
Apparent Cause Evaluation – Six NRC Inspection Findings in Cross Cutting Aspect of H.2.c

**Section 4OA5: Other**
Condition Reports
2008-03359

Calculations
VYC-836, Diesel Generator Loading, Revision 13
VYC-1860, Emergency Diesel Generator Dynamic Voltage and Frequency Analysis, Revision 0

Completed Surveillance Procedures
OP 4126, Diesel Generators Surveillance, Completed (8/22/05, 8/24/05, 2/12/07, 2/20/07, 8/11/08, 8/20/08, and 10/14/08)

Procedures
OP 4100, ECCS Integrated Automatic Initiation Test, Revision 47
OP 4126, Diesel Generator Surveillance, Revision 82

Miscellaneous
LER 90-10, Failure to Meet Technical Specifications for Diesel Generator Testing, Supplement 1

## LIST OF ACRONYMS

| | |
|---|---|
| ADAMS | Agencywide Documents Access and Management System |
| ALARA | As Low As is Reasonably Achievable |
| ANS | Alert and Notification System |
| AP | Administrative Procedure |
| ASME | American Society of Mechanical Engineers |
| CAP | Corrective Action Program |
| CEDE | Committed Effective Dose Equivalent |
| CFR | Code of Federal Regulations |
| CR | Condition Report |
| CRD | Control Rod Drive |
| DEP | Drill and Exercise Performance |
| DOT | U. S. Department of Transportation |
| DRP | Division of Reactor Projects |
| DRS | Division of Reactor Safety |
| EAL | Emergency Action Level |
| ECCS | Emergency Core Cooling System |
| EDG | Emergency Diesel Generator |
| EP | Emergency Preparedness |
| ERO | Emergency Response Organization |
| FA | Fire Area |
| FIN | Finding |
| FZ | Fire Zone |
| FW | Feedwater |
| HPCI | High Pressure Coolant Injection |
| IPEEE | Individual Plant Examination for External Events |
| ISI | In-service Inspection |
| IVVI | In-vessel Visual Inspection |
| LLRT | Local Leakage Rate Testing |
| MOV | Motor Operated Valve |
| MR | Maintenance Rule |
| MRFF | Maintenance Rule Functional Failure |
| MSIV | Main Steam Isolation Valve |
| MSPI | Mitigating Systems Performance Index |
| MT | Magnetic Particle Test |
| NDE | Nondestructive Examination |
| NEI | Nuclear Energy Institute, Inc. |
| NRC | Nuclear Regulatory Commission |
| ODCM | Offsite Dose Calculation Manual |
| OP | Operating Procedure |
| PARS | Publicly Available Records System |
| P&ID | Piping and Instrumentation Drawings |
| PCP | Process Control Program |
| PI | Performance Indicator |
| PMT | Post Maintenance Testing |
| PT | Liquid Penetrant Test |
| RCIC | Reactor Core Isolation Cooling |
| RCS | Reactor Coolant System |

| | |
|---|---|
| RFO | Refueling Outage |
| RHR | Residual Heat Removal |
| RHRSW | Residual Heat Removal Service Water |
| RRU | Reactor Recirculation Unit |
| RWCU | Reactor Water Cleanup |
| RWP | Radiation Work Permit |
| SLC | Standby Liquid Control |
| SRV | Safety Relief Valve |
| SSC | Structures, Systems, and Components |
| SW | Service Water |
| TI | Temporary Instruction |
| TS | Technical Specifications |
| TSV | Turbine Stop Valve |
| UFSAR | Updated Final Safety Analysis Report |
| UT | Ultrasonic Test |
| VT | Visual Test |
| VY | Vermont Yankee |
| WO | Work Order |