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

January 25, 2010

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 05000271/2009005

Dear Mr. Colomb:

On December 31, 2009, 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 12, 2010, with you and other members of your staff.

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

This report documents one NRC-identified finding of very low safety significance (Green). This finding was determined to involve a violation of NRC requirements. However, because of the very low safety significance and because it has been entered into your corrective action program, the NRC is treating this finding as a non-cited violation (NCV), consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest the NCV in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the United States 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, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Senior Resident Inspector at the Vermont Yankee Nuclear Power Station. In addition, if you disagree with the characterization of the finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region I, and the NRC Senior Resident Inspector at Vermont Yankee Nuclear Power Station. The information you provide will be considered in accordance with Inspection Manual Chapter 0305.

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,

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

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

Enclosure: Inspection Report No. 05000271/2009005
w/ Attachment: Supplemental Information

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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/

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

Docket No. 50-271
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Enclosure: Inspection Report No. 05000271/2009005
w/ Attachment: Supplemental Information

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Enclosure

U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.:	50-271
License No.:	DPR-28
Report No.:	05000271/2009005
Licensee:	Entergy Nuclear Operations, Inc.
Facility:	Vermont Yankee Nuclear Power Station
Location:	Vernon, Vermont 05354-9766
Dates:	October 1, 2009 through December 31, 2009
Inspectors:	S. Kennedy, Sr. Resident Inspector, DRP S. Rutenkroger, Acting Sr. Resident Inspector, DRP H. Jones, Resident Inspector, DRP J. Commiskey, Radiation Protection Inspector, DRS
Approved by:	Donald E. Jackson, Chief Reactor Projects Branch 5 Division of Reactor Projects

Enclosure

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SUMMARY OF FINDINGS

IR 05000271/2009005; 10/01/2009 – 12/31/2009; Vermont Yankee Nuclear Power Station; Maintenance Risk Assessments and Emergent Work Control.

This report covered a three-month period of inspection by resident inspectors and announced inspections by a regional health physicist. One Green NRC-identified finding determined to be a 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). The cross-cutting aspect for the finding was determined using IMC 0305, "Operating Reactor Assessment Program." 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 4, dated December 2006.

Cornerstone: Mitigating Systems

- Green. The inspectors identified a non-cited violation (NCV) of 10 CFR 50.65 paragraph (a)(4), "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," because Entergy did not assess and manage the increase in risk that resulted from maintenance activities that impacted the availability of the low pressure coolant injection subsystem (LPCI). On December 4, 2009, Entergy conducted a test of the high pressure coolant injection (HPCI) system as a retest following maintenance activities. Operations placed both trains of the residual heat removal (RHR) system in the torus cooling mode. This alignment impacted the ability of the LPCI subsystem to automatically perform its function in some design basis accident scenarios. However, the inspectors noted that the LPCI subsystem was not included as part of the risk assessment, and that subsystem was not maintained as available in accordance with Entergy procedures. Entergy entered this issue into the corrective action program (CAP), and initiated a preliminary investigation to review the effectiveness of Maintenance Rule accounting for LPCI unavailability while in the torus cooling mode.

  The finding is more than minor because Entergy's risk assessment did not consider risk significant structures, systems, and components (SSCs) (i.e. LPCI subsystem) that were unavailable during the maintenance activity. The finding is associated with the Configuration Control attribute of the Mitigating Systems cornerstone, and affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors determined that the finding is of very low safety significance because the incremental core damage probability deficit was less than 1.0E-6. This finding has a cross-cutting aspect in the Human Performance cross-cutting area, Work Control component, because Entergy did not appropriately plan and incorporate risk insights in work activities that impacted the availability of the LPCI subsystem. [H.3(a)] (Section 1R13)

REPORT DETAILS

Summary of Plant Status

Vermont Yankee (VY) Nuclear Power Station began the inspection period operating at 100 percent power. On November 16, 2009, VY commenced a power reduction to approximately 50 percent to perform planned maintenance activities. The station returned to 100 percent power on November 18, 2009, and remained at or near 100 percent power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection (71111.01 – 1 sample)

.1 Adverse Weather (System/Seasonal)

a. Inspection Scope

The inspectors reviewed Entergy's procedures for seasonal preparations to evaluate the process for implementation of cold weather preparedness. The inspectors reviewed cold weather information contained in the Updated Final Safety Analysis Report (UFSAR), and compared it to the actions specified in operating procedure (OP) 2196, "Seasonal Preparedness." The inspectors interviewed operators in order to determine their familiarity with OP 2196. The inspectors performed a walk down of the emergency diesel generator (EDG) rooms, the condensate storage tank, and the intake structure to verify that cold weather protective measures were in place per the procedure. Additional documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified

1R04 Equipment Alignment (71111.04 – 2 samples)

.1 Partial Equipment Alignment (71111.04Q – 1 sample)

a. Inspection Scope

The inspectors performed a partial system walkdown of the 'B' EDG during maintenance on the 'A' EDG to verify correct 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 and OPs. The inspectors verified valve positions and the general condition of selected components. Finally, the inspectors evaluated material condition,

housekeeping, and component labeling. The documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

.2 Complete Equipment Alignment (71111.04S – 1 sample)

a. Inspection Scope

The inspectors performed a complete equipment alignment inspection of the accessible portions of the service water system. The inspectors compared the actual system configuration to approved drawings, the 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, and that deficiencies had been entered into the CAP. 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. This inspection effort represented one sample. The documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q – 5 samples)

a. Inspection Scope

The inspectors performed an inspection of five fire areas based on a review of the Vermont Yankee Safe Shutdown Capability Analysis, the Fire Hazards Analysis, and the Individual Plant Examination for External Events. 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 documents reviewed are listed in the Attachment. The following fire areas and fire zones were inspected:

- Fire Zone RB-1, reactor building elevation 232', 'A' emergency core cooling system (ECCS) corner room;
- Fire Zone RB-1, reactor building elevation 213', 'A' ECCS corner room;
- Fire Zone RB-2, reactor building elevation 232', 'B' ECCS corner room;
- Fire Zone RB-2, reactor building elevation 213', 'B' ECCS corner room; and
- 345 KV relay house (no fire zone designation).

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06 - 1 sample)

Underground Bunkers/Manholes Subject to Flooding

a. Inspection Scope

The inspectors completed one flood protection measures inspection sample. The inspectors evaluated the condition of safety-related cables located in underground manholes. Specifically, the inspectors examined photographic evidence of conditions in several manholes and directly inspected conditions in manholes HH-24(SI) and HH-26(SII), which contain safety-related service water system cables. The inspectors verified the integrity of cables and splices, and the condition of cable support structures. In addition, the inspectors evaluated items entered in the licensee's CAP relating to conditions discovered during the manhole inspections, assessed whether the conditions had any adverse impact on operability, and determined whether appropriate corrective actions were planned. The documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program

.1 Licensed Operator Requalification Program – Quarterly (71111.11Q – 1 sample)

a. Inspection Scope

The inspectors observed a simulator-based licensed operator requalification (LOR) exam on October 6, 2009. 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. The inspectors also compared the simulator configuration with the actual control board configuration. Finally, the inspectors observed Entergy evaluators discuss identified weaknesses with the crew and individual crew members. The documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

.2 Licensed Operator Requalification Program – Biennial (71111.11B – 1 sample)

a. Inspection Scope

During the 4th quarter 2009, a region-based inspector conducted an in-office review of results of the licensee-administered annual operating tests and comprehensive written exams for 2009. The inspection assessed whether pass rates were consistent with the guidance of NRC Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process (SDP)." The inspector verified that:

- Crew failure rate was less than 20% (Crew failure rate was 11%);
- Individual failure rate on the dynamic simulator test was less than or equal to 20% (Individual failure rate was 2.2%);
- Individual failure rate on the walk-through test was less than or equal to 20% (Individual failure rate was 0%);
- Individual failure rate on the comprehensive written exam was less than or equal to 20% (Individual failure rate was 4.7%); and
- Overall pass rate among individuals for all portions of the exam was greater than or equal to 75% (Overall pass rate was 93.1%).

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q – 1 sample)

a. Inspection Scope

The inspectors reviewed Entergy's evaluation of one degraded condition involving SSCs for maintenance effectiveness during this inspection period. The inspectors reviewed Entergy's implementation of the Maintenance Rule to determine if the condition was appropriately evaluated against applicable Maintenance Rule functional failure criteria, as found in Entergy's scoping documents and procedures. The inspectors reviewed the applicable system health reports and discussed the issues with the Maintenance Rule Coordinator to determine if the conditions were appropriately tracked against the system performance criteria and classified in accordance with Maintenance Rule implementation guidance. The documents reviewed are listed in the Attachment. The specific item reviewed includes:

- 'A' service water pump packing deficiencies.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 2 samples)

a. Inspection Scope

The inspectors evaluated online risk management for two maintenance activities. 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 compared reviewed items and activities to requirements listed in administrative procedure (AP) 0125, "Plant Equipment," and AP 0172, "Work Schedule Risk Management - Online." The documents reviewed are listed in the Attachment. The maintenance activities inspected included:

- October 26-29, 2009, 'A' service water pump emergent maintenance due to packing leak; and
- December 4, 2009, RHR system in torus cooling mode due to HPCI pump testing.

b. Findings

Introduction: The inspectors identified a Green NCV of 10 CFR 50.65 paragraph (a)(4), "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," because Entergy did not assess and manage the increase in risk that resulted from maintenance activities that impacted the availability of the LPCI subsystem.

Description: On December 4, 2009, Entergy conducted a test of the HPCI system as a retest following maintenance activities. Operations personnel placed both trains of the RHR system in the torus cooling mode to maintain the torus within limits contained within the emergency operation procedures. Because this alignment made the LPCI mode inoperable, Operations personnel entered the appropriate Limiting Condition of Operation in the Technical Specifications (TS) for this condition. However, the inspectors noted that the LPCI subsystem was not included as part of the risk assessment, and questioned its accuracy. The condition of concern was a loss of coolant accident followed by a loss of normal power and the failure of one emergency diesel to start. This would result in a loop drain condition to the torus for one train of LPCI, and that train would not be fully available to perform its coolant injection function. The inspectors noted that there was no dedicated operator, and the recovery actions were not proceduralized as required by EN-WM-104, "On Line Risk Assessment," to maintain availability. Entergy entered this issue into the CAP (CR 2009-4234), and initiated a preliminary investigation to review the effectiveness of Maintenance Rule accounting for LPCI unavailability while in the torus cooling mode.

Analysis: The performance deficiency is that Entergy did not conduct an adequate risk assessment for maintenance activities that impacted the availability of the LPCI subsystem. This issue was within Entergy's ability to foresee and correct, and should have been prevented. Traditional Enforcement did not apply, as the issue did not have actual or potential safety consequence, had no willful aspects, nor did it impact the NRC's ability to perform its regulatory function. A review of NRC Inspection Manual Chapter (IMC) 0612, Appendix E, "Minor Examples," revealed that the finding is similar to Example 7.f, in that, the elevated overall plant risk when correctly assessed would put the plant into a higher risk category. The LPCI subsystem is considered risk significant

because it is identified as such in Table 2 of the NRC's Phase 2 Significance Determination Process notebook for Vermont Yankee.

Using IMC 0612, "Power Reactor Inspection Reports," Appendix B, Section 3, Item 5(a), the finding is more than minor because Entergy's risk assessment did not consider risk significant SSCs (i.e., LPCI subsystem) that were unavailable during the maintenance activity. The finding is associated with the Configuration Control attribute of the Mitigating Systems cornerstone, and affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Because this finding involves the licensee's assessment and management of risk associated with performing maintenance activities under all plant operating or shutdown conditions, the inspectors used IMC 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," to evaluate this finding. The inspectors determined that the finding is of very low safety significance (Green) because the incremental core damage probability deficit was less than 1.0E-6. This finding has a cross-cutting aspect in the Human Performance cross-cutting area, Work Control component, because Entergy did not appropriately plan and incorporate risk insights in work activities that impacted the availability of the LPCI subsystem. [H.3(a)]

Enforcement: 10 CFR 50.65 paragraph (a)(4) states, in part, that "the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities." Contrary to the above, on December 4, 2009, Entergy did not assess and manage the increase in risk that resulted from maintenance activities that impacted the availability of the LPCI subsystem. Because this violation is of very low safety significance (Green), and has been entered into the CAP (CR 2009-4234), this issue is being treated as an NCV, consistent with the NRC Enforcement Policy. **(NCV 05000271/2009005-01: Inadequate Risk Assessment Associated with the Low Pressure Coolant Injection Subsystem)**

1R15 Operability Evaluations (71111.15 – 3 samples)

a. Inspection Scope

The inspectors reviewed three operability evaluations prepared by Entergy. The inspectors evaluated the operability evaluations against the guidance contained in NRC Regulatory Issue Summary 2005-20, "Information to Licensees Regarding Two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and on Operability," and Entergy procedure EN-OP-104, "Operability Determinations." The documents reviewed are listed in the Attachment. The inspectors reviewed evaluations of the following degraded or non-conforming conditions:

- Troubleshooting activities on inoperable vacuum breakers October 8, 2009 (CR 2009-3480);
- 'A' service water pump packing deficiencies October 19, 2009 (CR 2009-3595); and
- Uninterruptible power supplies (B-UPS-1A and 1B) low individual cell voltage (CR 2009 3645, CR 2009 3314, and CR 2009 3463).

b. Findings

Introduction: The inspectors identified an Unresolved Item (URI) associated with troubleshooting activities on inoperable vacuum breakers.

Description: On May 14, 2009, and August 14, 2009, Entergy declared both the V16-19-5E and V16-19-5F torus-to-drywell vacuum breakers inoperable, respectively. The vacuum breakers were declared inoperable when it was identified that their breakaway force exceeded the maximum allowable TS value of 0.5 psid. Entergy entered TS 3.7.A.6.b, which stated that up to two out of ten torus-to-drywell vacuum breakers may be determined to be inoperable provided that they are secured, or known to be, in the closed position.

On September 29, 2009, and October 8, 2009, Entergy conducted troubleshooting activities on both inoperable vacuum breakers. The troubleshooting activities involved opening and closing the inoperable vacuum breakers to obtain breakaway force data and to possibly repair the vacuum breakers. The inspectors noted TS 3.7.A.6 did not have a condition that allowed the opening of an inoperable vacuum breaker once it is secured in the closed position in accordance with the requirements of TS 3.7.A.6.b. Furthermore, TS 3.7.A.8 stated that if TS 3.7.A.6 cannot be met, an orderly shutdown shall be initiated immediately, and the reactor shall be in a cold shutdown within 24 hours. The inspectors noted that once the inoperable vacuum breakers are secured in the closed position, TS 3.7.A.6 can be met, and that opening the inoperable vacuum breakers is a potential violation of TS 3.7.A.6.b. Vacuum breakers can be opened for surveillance testing, however, there are no TS requirements to conduct surveillances on inoperable equipment.

This issue remains unresolved pending a review by the NRC Office of Nuclear Reactor Regulation to determine if this issue constitutes a violation of Entergy Vermont Yankee TS. **(URI 05000271/2009005-02, Troubleshooting Activities on Inoperable Vacuum Breakers)**

1R18 Plant Modifications (71111.18 – 1 sample)

a. Inspection Scope

The inspectors reviewed temporary modification 11714 for removal of the relief valve and vaporizer from the nitrogen supply system to ensure it did not adversely affect the availability, reliability, or functional capability of any risk-significant SSCs. For the modification, the inspectors reviewed the engineering change package, walked down the system, interviewed the project engineer, and compared the installation and control of the modification to the requirements of Entergy Corporate Procedure EN-DC-136, "Temporary Alterations."

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19 – 5 samples)

a. Inspection Scope

The inspectors reviewed post maintenance testing (PMT) activities on five 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 work order (WO), TSs, UFSAR, and the in-service testing (IST) 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 CAP. The documents reviewed are listed in the Attachment. The inspectors reviewed the PMTs performed for the following maintenance activities:

- WO 00209887, relay replacement for 'A' EDG jacket cooling heater;
- WO 00212301, replacement of the packing gland and stuffing box in the 'A' service water pump P-7-1A;
- WO 00177259, 'A' EDG aftercooler leak repair;
- WO 00205629, reactor core isolation cooling (RCIC) test valve motor replacement; and
- WO 00143584, HPCI planned maintenance outage.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22 – 4 samples – 1 IST, 2 Routine, and 1 Leak Rate)

a. Inspection Scope

The inspectors observed four surveillance tests to determine if the specified acceptance criteria were consistent with TS 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. The inspectors observed selected pre-job briefings for the test activities. The inspectors also verified discrepancies were appropriately documented in the CAP. The documents reviewed are listed in the Attachment. The inspectors reviewed the following surveillance tests:

- On October 8, 2009, OP 4210, Maintenance and Surveillance of 'A' and 'B' UPS Batteries (Routine);
- On October 20, 2009, OP 4124, RHR Pump 'A' (P-10-1A) Operability Test (IST);
- On November 5, 2009, OP 4126, 'A' EDG Surveillance (Routine); and

- On December 18, 2009, OP 4152, Equipment and Floor Drain Sump and Totalizer Surveillance (Reactor Coolant System Leak Rate Surveillance).

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES [OA]

4OA1 Performance Indicator (PI) Verification (71151)

a. Inspection Scope (5 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, 2008, through September 30, 2009. 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 (NEI), Inc. 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, 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 (MS10);
- MSPI, emergency AC power (MS06); and
- MSPI, residual heat removal system (MS09).

Occupational Exposure Control Effectiveness – (OR01)

The inspector reviewed implementation of Entergy's Occupational Exposure Control Effectiveness Performance Indicator (PI) Program (OR01). Specifically, the inspector reviewed issue reports, and associated documents, for occurrences involving locked high radiation areas, very high radiation areas, and unplanned exposures against the criteria specified in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," to verify that all occurrences that met the NEI criteria were identified and reported as performance indicators. This inspection activity represents the completion of one sample relative to this inspection area; completing the annual inspection requirement.

Radiological Effluent Technical Specification/Offsite Dose Calculation Manual (RETS)/ (ODCM) Radiological Effluent Occurrences – (PR01)

The inspector reviewed relevant effluent release reports for the period October 2008 through September 2009, for issues related to the public radiation safety performance indicator (PR01), which measures radiological effluent release occurrences 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. This inspection activity represents the completion of one sample relative to this inspection area; completing the annual inspection requirement.

The inspector reviewed the following documents to ensure the licensee met all requirements of the performance indicator:

- Monthly projected dose assessment results due to radioactive liquid and gaseous effluent releases;
- Quarterly projected dose assessment results due to radioactive liquid and gaseous effluent releases; and
- Dose assessment procedures.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Reviews of Items Entered into the Corrective Action Program

a. Inspection Scope

The inspectors performed a daily screening of each item entered into Entergy's CAP. This review was accomplished by reviewing printouts of each CR, 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.

b. Findings

No findings of significance were identified.

.2 Semi-Annual Trend Review

a. Inspection Scope (1 sample)

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 considered the six-month period of May to October 2009, although

some examples expanded beyond those dates when the scope of the trend warranted. 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 and Observations

No findings or observations of significance were identified.

4OA5 Other Activities

.1 Independent Spent Fuel Storage Installation (ISFSI) (60855.1)

a. Inspection Scope (1 sample)

An ISFSI inspection was conducted on November 16-17, 2009, under the Nuclear Material Safety and Safeguards (NMSS) inspection program utilizing inspection procedure 60855.1, to review the ongoing maintenance and surveillance activities for onsite dry storage of spent fuel. The ISFSI licensing basis documents and implementing procedures were reviewed as the inspection standards for the inspection. The inspection consisted of: observation of the condition of the five Holtec Hi-Storm casks currently storing spent fuel inside the restricted area at Vermont Yankee; independent radiation survey of the spent fuel storage casks; and review of surveillance records including once per shift air vent outlet temperature readings.

b. Findings

No findings of significance were identified.

.2 Quarterly Resident Inspectors Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors performed observations of security force personnel and activities to ensure that the activities were consistent with site security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours. These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspector's normal plant status reviews and inspection activities.

b. Findings

No findings of significance were identified.

4OA6 Meetings, including Exit

Exit Meeting Summary

On November 19, 2009, the radiation protection inspector presented the inspection results to Mr. Michel Philippon, Manager of Operations. The inspector confirmed that no proprietary information was provided or examined during the inspection.

On January 12, 2010, the resident inspectors presented the inspection results to Mr. Michael Colomb, Site Vice President, and other members of the Vermont Yankee staff. The inspectors confirmed that no proprietary information was provided or examined during the inspection.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Vermont Yankee Personnel
M. Colomb, Site Vice President
C. Wamser, General Manager of Plant Operations
J. Dreyfuss, Director of Nuclear Safety
D. Mannai, Licensing Manager
N. Rademacher, Director of Engineering
M. Philippon, Operations Manager
J. Rogers, Design Engineering
P. Rose, Operations/FIN Team
G. Von der Esch, Asst. Operations Manager
L. Doucette, System Engineering
R. Meister, Licensing
P. Corbett, Manager, Quality Assurance
P. Couture, Licensing Specialist
L. Derting, Supervisor, Radwaste
J. DeVincentis, Senior Licensing Engineer
J. Geyster, Supervisor, Radiation Protection
M. Gosekamp, Manager, Maintenance
J. Hardy, Superintendant, Chemistry
G. Lozier, Manager, CA&A
M. Morgan, Superintendent, Training
S. Skibniowski, Environmental Specialist
P. Stover, Supervisor, Radiation Protection
D. Tkatch, Manager, Radiation Protection
R. Wanczyk, Enexus Site Representative
K. Stupak, LOR Program Lead

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000271/2009005-01	NCV	Inadequate Risk Assessment Associated with the Low Pressure Coolant Injection Subsystem (Section 1R13)

Opened

05000271/2009005-02	URI	Troubleshooting Activities on Inoperable Vacuum Breakers (Section 1R15)

Attachment

LIST OF DOCUMENTS REVIEWED

In addition to the documents identified in the body of this report, the inspectors reviewed the following documents and records:

Vermont Yankee Nuclear Power Station Updated Final Safety Analysis Report
Vermont Yankee Nuclear Power Station Technical Specifications
Vermont Yankee Nuclear Power Station Narrative Logs, Night Orders, and Standing Orders

* Denotes creation as a result of NRC inspection

Section 1R01, Adverse Weather Protection
Condition Reports
2004-2539
2009-4458

Procedures
AP 3125, Emergency Plan Classification and Action Level Scheme, Rev. 21
OP 2196, Seasonal Preparedness, Rev. 29
OP 3127, Natural Phenomena, Rev. 25

Section 1R04: Equipment Alignment
Condition Report
*2009-3773

Procedures
OP 2126, Diesel Generators, Rev. 55
VYOPF 4181.08, Service Water Pump Capacity Test, Rev. 68
OP 2181, Service Water/Alternate Cooling Operating Procedure, Rev. 110

Drawings
G-191159, Flow Diagram Service Water System Sh. 1, Rev. 76
G-191159, Flow Diagram Service Water System Sh. 2, Rev. 91
G-191160, Flow Diagram Diesel Generator Starting Air System, Rev. 23, Sh. 7
5920-4147, Emergency Diesel General Air Jacket Coolant System Schematic, Rev. 20
5920-4150, Schematic Lube Oil System, Rev. 9

Miscellaneous Documents
Maintenance Rule Monthly Report for September 2009
Service Water System Health Reports
SEP-IST-001, Inservice Testing Program Plan, Fourth Ten Year Interval, Rev. 0

Section 1R05: Fire Protection
Procedures
OP 2186, Fire Suppression Systems, Rev. 56
OP 3020, Fire Emergency Response Procedure, Rev. 54
OP 4002, Integrity Surveillance of Fire Detectors and Fire Suppression Systems, Rev. 14

PP 7011, Vermont Yankee Fire Protection and Appendix R Program, Rev. 9

Miscellaneous Documents
PFP-RB-8, Torus South, Elevation 232'-6" Rev. Date 5/1/03
PFP-RB-9, Torus North, Elevation 232'-6" Rev. Date 5/1/03
PFP-RB-10, Torus South, Elevation 213'-9" Rev. Date 5/1/03
PFP-RB-11, Torus North, Elevation 213'-9" Rev. Date 5/1/03
PFP-RH, Relay House, Rev. Date 5/27/07
Fire Hazards Analysis, Rev. 10

Section 1R06: Flood Protection Measures
Condition Reports
2009-4142

Miscellaneous Documents
Cable Program Inspection Matrix dated November 28, 2009
EBASCO Specification CX-68, Electric Cables dated October 11, 1969

Section 1R11: Licensed Operator Requalification Program
AFG 51, Anticipate RPV-ED on Lowering Torus Level, Rev. 0

Section 1R12: Maintenance Effectiveness
Condition Reports
2009-3595 2009-3642

Procedures
EN-DC-205, Maintenance Rule Monitoring, Rev. 2
EN-DC-203, Maintenance Rule Program, Rev. 1

Section 1R13: Maintenance Risk Assessments and Emergent Work Control
Procedures
ON 3148, Loss of Service Water, Rev. 15
VYOPF 4181.08, Service Water Pump Capacity Test, Rev. 68
EN-WM-101, On Line Work Management Process, Rev. 4
EN-WM-104, On Line Risk Assessment, Rev. 0
AP0172, Work Schedule Risk Management – On Line. Rev. 19

Condition Reports
2009-3770 2009-3773 2009-3595 2009-3642 *2009-4234

Drawings
G-191159, Flow Diagram Service Water System Sh. 1, Rev. 76
G-191159, Flow Diagram Service Water System Sh. 2, Rev. 91

Miscellaneous Documents
Design Basis Document for Service Water, Rev. 29
Section 1R15: Operability Evaluations

Condition Reports

2009-3314	2009-3463	2009-3595	2009-3642	2009-3645	2009-2773
2009-1771	*2009-3480	*2009-3420	*2009-3439	*2009-3446	*2009-3444
*2009-3516	*2009-3449	*2009-3750			

Procedures
OP 4115, Primary Containment Surveillance, Rev. 61
EN-OP-104, Operability Determinations, Rev. 2

Miscellaneous Documents
Design Basis Document for Containment Pressure Suppression System, Rev. 20

Section 1R18: Plant Modifications
Work Order
172574

Condition Reports
2009-2513
2008-5106

Procedures
OT 3122, Loss of Normal Power, Rev. 41
OP 2119, Nitrogen Supply System, Rev. 27

Miscellaneous Documents
Maintenance Rule Scoping Basis Document for Nitrogen Supply, Rev. 4
Engineering Change 11714, Remove Failed SR-16-19-1056A and replace.
Design Basis Document for Nitrogen Supply, Primary Containment Atmospheric Control, and Containment Atmosphere Dilution Systems, Rev. 19

Section 1R19: Post-Maintenance Testing
Procedures
OP 4116, Secondary Containment Surveillance, Rev. 49
OP 4181, Service Water System Surveillance, Rev. 68
EN-DC-324, Preventative Maintenance Program, Rev. 5

Work Orders
00177259, 00209887, 00212301, 00205629, 00143584

Condition Reports

2009-3376	2009-3476	2009-3743	2009-3744	2009-3745
2009-3761	2009-3762	2009-3770	2009-3772	2009-3773
2009-3595	2009-2047	2009-3989		

Drawings
5920-4147, Emergency Diesel General Air Jacket Coolant System Schematic, Rev. 20

G-191169, Flow Diagram HPCI System, Rev. 51
G-191174, Flow Diagram RCIC System, Rev. 44

Miscellaneous Documents
VYOPF 4181.04, Service Water Pump Capacity Test Data Sheet dated 10/30/2009
VYOPF 4181.08, Service Water Pump Capacity Test, dated 10/30/2009
Rotating Equipment Vibration Data Sheet for 'A' Service Water Pump P-7-1A dated 10/30/2009
P-7-1A Service Water Pump Capacity, Vibration and Amp Curves dated 11/2/2009
HPCI LCO Risk Assessment dated November 19, 2009
VYAPF 0172.01 Online Maintenance Safety Assessment Review dated 11/30/2009
HPCI LCO Maintenance Plan dated November 30, 2009 to December 3, 2009
VYOPF 4120.01 HPCI Pump Comprehensive Test dated December 4, 2009
VYOPF 4120.02 HPCI Valve Operability Test dated December 4, 2009

Section 1R22: Surveillance Testing
Condition Report
*2009-3635

Procedures
OP 4124, Residual Heat Removal System Surveillance, Rev. 113
OP 4152, Equipment And Floor Drain Sump And Totalizer Surveillance, Rev. 43
OP 4126, Emergency Diesel Generator Surveillance, Rev. 83
OP 4210, Maintenance and Surveillance of Lead Acid Storage Batteries, Rev. 54

Miscellaneous Documents
VYOPF 4210.01 Storage Battery Check Sheet for UPS 1a and 1B dated 4th quarter 2009

Section 4OA1: Performance Indicator (PI) Verification
Condition Reports

2008-01981	2008-2043	2008-2336	2008-2346
2008-04285	2008-4294	2008-4561	2008-4761
2008-05216	2009-2242	2009-2957	

Procedures
DP-3201, Equipment Handling and Storage Abnormal Conditions
EN-DIR-RP-002, Radiation Protection Performance Indicator Program
OP-2530, Radiological Monitoring for Dry Fuel Storage
AP 0094, NRC Performance Indicator Reporting, Rev. 14
EN-LI-114, Performance Indicator Process, Rev. 4

Miscellaneous Documents
Control Room Narrative Logs 6/30/2008-7/1/2009
Certificate of Compliance No. 1014
QA-02/06-2009-VY-1, Quality Assurance Audit Report
ISFSI Annual Effluent Release Report, dated September 4, 2009
LER 2008-001-00
Personnel electronic dosimeter dose and dose rate attention logs
Monthly and quarterly effluent release dose assessments

Monthly ISFSI Radiation Surveys, July 2009 through October 2009
2008 and 2009, VY DR-53 Location Dose Calculation from all sources
Vermont Yankee Registration of Spent Fuel Cask Use; License No. DPR-28, Docket Nos. 50-271, 72-59. MPC Serial Nos.: 058, 59, 60, 61, and 62
Control Room Logs from October 2008-September 2009
MSPI Derivation Report for Emergency AC Power System, Residual Heat Removal System, and Cooling Water System from October 2008 through September 2009

Section 4OA2: Problem Identification and Resolution

Procedures

EN-LI-102 Corrective Action Process, Rev. 13

Miscellaneous Documents

Vermont Yankee Quarterly Trend Report, Second Quarter 2009

LIST OF ACRONYMS

ADAMS	Agencywide Documents Access and Management System
AP	Administrative Procedure
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CR	Condition Report
DRP	Division of Reactor Projects
DRS	Division of Reactor Safety
ECCS	Emergency Core Cooling System
EDG	Emergency Diesel Generator
FIN	Fix-it-Now
HPCI	High Pressure Coolant Injection
HRA	High Radiation Area
HVAC	Heating Ventilation and Air Conditioning
IST	In-Service Testing
ISFSI	Independent Spent Fuel Storage Installation
LOR	Licensed operator Requalification
LPCI	Low Pressure Coolant Injection
MSPI	Mitigating System Performance Indicator
NCV	Non-cited Violation
NEI	Nuclear Energy Institute
NMSS	Nuclear Material Safety and Safeguards
NRC	Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
OP	Operating Procedure
PARS	Publicly Available Records System
PI	Performance Indicator
PMT	Post Maintenance Testing
RETS	Radiological Effluent Technical Specifications
RCIC	Reactor Core Isolation Cooling
RHR	Residual Heat Removal
SDP	Significance Determination Process
SSCs	Structures, Systems and Components
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
VY	Vermont Yankee
WO	Work Order