



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

October 27, 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 05000271/2010004

Dear Mr. Colomb:

On September 30, 2010, 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 October 15, 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 self-revealing 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 (CAP), the NRC is treating this finding as a non-cited violation (NCV), consistent with Section 2.3.2.a of the NRC's Enforcement Policy. If you contest any NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Senior Resident Inspector at Vermont Yankee. In addition, if you disagree with the cross-cutting aspect assigned to 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.

M. Colomb

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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,

A handwritten signature in black ink, appearing to read "Donald E. Jackson", with a long horizontal flourish extending to the right.

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

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

Enclosure: Inspection Report No. 05000271/2010004
w/ Attachment: Supplemental Information

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M. Colomb

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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. 05000271/2010004
w/ Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.: 50-271

License No.: DPR-28

Report No.: 05000271/2010004

Licensee: Entergy Nuclear Operations, Inc.

Facility: Vermont Yankee Nuclear Power Station

Location: Vernon, Vermont 05354-9766

Dates: July 1, 2010 through September 30, 2010

Inspectors: D. Spindler, Sr. Resident Inspector, Division of Reactor Projects (DRP)
H. Jones, Resident Inspector, DRP
J. Noggle, Sr. Health Physicist, Division of Reactor Safety (DRS)
S. Pindale, Sr. Reactor Inspector, DRS
K. Mangan, Sr. Reactor Inspector, DRS
S. Barr, Sr. Emergency Preparedness Inspector, DRS
D. Dempsey, Resident Inspector, DRP
M. Orr, Reactor Inspector, DRS
B. Smith, Resident Inspector, DRP

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

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SUMMARY OF FINDINGS

IR 05000271/2010004; 07/01/2010 – 09/30/2010; Vermont Yankee Nuclear Power Station; Identification and Resolution of Problems.

This report covered a three-month period of inspection by resident inspector staff and region-based inspectors. One Green, self-revealing finding, which was 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." The cross-cutting aspect for the finding was determined using IMC 0310, "Components Within The Cross-Cutting Areas." Findings for which the significance determination process 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. A self-revealing, Green, non-cited violation (NCV) of Technical Specification 6.4, "Procedures," was identified in which technicians incorrectly performed reactor core isolation cooling (RCIC) surveillance test operating procedure (OP) 4365, "RCIC Steam Line Low Pressure Functional/Calibration," Rev. 25, resulting in the inadvertent isolation of the RCIC system. Entergy entered this issue into their corrective action program, correctly installed the test equipment, and subsequently performed the test satisfactorily.

The inspectors determined that the finding was more than minor because it adversely affected the Human Performance attribute for the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. In accordance with IMC 0609, Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," the finding was determined to be of very low risk significance (Green) because the finding was not a design or qualification deficiency, did not represent a loss of system safety function or loss of a single train for greater than its allowed technical specification time, and did not screen as potentially risk significant due to seismic, flooding, or severe weather initiating events. The inspectors determined this finding had a cross-cutting aspect in the Human Performance cross-cutting area, Work Practices component, in that Entergy failed to appropriately self-check and peer-check the digital multimeter (DMM) setup prior to connecting it to the RCIC isolation logic. [H.4(a)] (Section 40A2)

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REPORT DETAILS

Summary of Plant Status

Vermont Yankee (VY) Nuclear Power Station began the inspection period operating at 100 percent power. On August 23, 2010, VY performed a planned power reduction to 53 percent power to perform main steam line isolation valve testing, main turbine stop valve testing, and a rod pattern adjustment. VY returned to 100 percent power on August 24, 2010, and remained at or near 100 percent power for the duration of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Imminent Adverse Weather

a. Inspection Scope (1 sample)

The inspectors reviewed Entergy's procedures to evaluate the process for implementation of imminent high temperature preparedness. This review was conducted from June 28, 2010, through July 31, 2010, due to unusually high temperatures experienced within the reactor building. The inspectors reviewed adverse weather information contained in the External Events Design Basis Document and Updated Final Safety Analysis Report (UFSAR), and compared it to the actions specified in OP 3127, "Natural Phenomena." The inspectors also performed a walkdown of the reactor building and intake structure to verify that equipment readiness was adjusted to meet the onset of unusually high temperature conditions. A list of documents reviewed is provided in the Attachment.

b. Findings

No findings were identified.

.2 Seasonal Adverse Weather

a. Inspection Scope (1 sample)

The inspectors reviewed Entergy's procedures for seasonal preparations to evaluate the process for implementation of warm weather preparedness. The inspectors reviewed adverse weather information contained in the External Events Design Basis Document and compared it to the actions specified in OP 2196, "Seasonal Preparedness." The inspectors interviewed operators, performed a walkdown of the condensate storage tank room and emergency diesel generators, and examined the equipment specified in the OP to determine if equipment readiness was maintained to meet the onset of warm weather conditions. The inspectors also reviewed a sample of seasonal preparedness

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related condition reports identified in Entergy's corrective action program to determine if they were appropriately identified and corrected. Additional documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

Partial Equipment Alignment (71111.04Q)

a. Inspection Scope (4 samples)

The inspectors performed four partial system walkdowns 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. The following systems were inspected:

- High pressure coolant injection (HPCI) during a reactor core isolation cooling (RCIC) surveillance test;
- 'A' emergency diesel generator following planned maintenance;
- 'B' residual heat removal system following planned maintenance; and
- Reactor building component cooling water (RBCCW) system.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

Quarterly Inspection (71111.05Q)

a. Inspection Scope (5 samples)

The inspectors performed inspections of five fire areas based on a review of the Vermont Yankee Safe Shutdown Capability Analysis and the Fire Hazards Analysis. The inspectors reviewed Entergy's fire protection program to determine the specified fire protection design features, fire area boundaries, and combustible loading requirements for the selected areas. The inspectors verified, consistent with applicable administrative procedures, that combustibles and ignition sources were adequately controlled; passive fire barriers, manual fire-fighting equipment, and detection and suppression equipment were appropriately maintained; and compensatory measures for out-of-service,

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degraded, or inoperable fire protection equipment were implemented in accordance with Entergy's fire protection program. The inspectors evaluated the fire protection program for conformance with the requirements of License Condition 3.F. The documents reviewed are listed in the Attachment. The following fire areas were inspected:

- Fire zone RB-5, elevation 280', reactor building north;
- Fire zone RB-6, elevation 280', reactor building south;
- Fire zone RB-7, elevation 303', reactor building;
- Fire zone RB-7, elevation 318', reactor building; and
- Fire zone RB-7, elevation 345', reactor building.

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program (71111.11)

.1 Biennial Inspection (71111.11B)

a. Inspection Scope (1 sample)

The following inspection activities were performed using NUREG 1021, "Operator Licensing Examination Standards for Power Reactors," Rev. 9, Supplement 1; NRC Inspection Procedure Attachment 71111.11, "Licensed Operator Regualification Program," Appendix A, "Checklist for Evaluating Facility Testing Material;" and Appendix B, "Suggested Interview Topics."

A review was conducted of recent operating history documentation found in inspection reports, licensee event reports, the licensee's corrective action program, and the most recent NRC plant issues matrix (PIM). The inspectors also reviewed specific events from the licensee's corrective action program which indicated possible training deficiencies to verify that they had been appropriately addressed. The Senior Resident Inspector was also consulted for insights regarding licensed operators' performance. These reviews did not detect any operational events that were indicative of possible training deficiencies.

The operating tests for five exam weeks were reviewed. The biennial written exam was administered in 2009. Two of the seven 2009 biennial written regualification exams were reviewed. Inspectors verified compliance with the facility program overlap controls.

The inspectors observed the administration and post-exam evaluator assessment of operating exams administered during the week of the inspection. These observations included facility evaluations of one operating crew and individual performance during the administration of three dynamic simulator scenarios and individual performance during administration of six job performance measures (JPMs). Inspectors verified these examination materials satisfied the criteria of the examination standards and 10 CFR 55.59.

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Four remediation plans were reviewed to assess the effectiveness of the remedial training. Operators were interviewed for feedback on their training program and the quality of training received. The personnel interviewed provided several examples of training responding to written or verbal feedback or requests for training. Inspectors reviewed documentation for five training feedback items submitted from 2008 to 2010.

The inspectors observed simulator performance during the conduct of the examinations and reviewed performance testing and discrepancy reports to verify compliance with the requirements of 10 CFR 55.46. Physical fidelity was verified between the simulator and the plant control room for one plant modification.

A sample of administrative records was reviewed for compliance with license conditions, including NRC regulations. This sample included training attendance records for five licensed operators, licensed operator watchstanding proficiency for four operators, two license reactivation records, and five licensed operator medical records. The current olfactory and tactile determination testing methodology was reviewed against ANSI/ANS 3.4, "Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power Plants," requirements.

A review was conducted of final licensee requalification exam results for the annual operating testing cycle. The inspection assessed whether pass rates were consistent with the guidance of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," and NRC Inspection Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process (SDP)."

The review verified the following:

- Crew failure rate on the dynamic simulator examination was less than 20% (Failure rate was 0%);
- Individual failure rate on the walk-through (JPMs) was less than 20% (Failure rate was 2.5%);
- More than 75% of the individuals passed all portions of the exam (97.5% of the individuals passed all portions of the exam); and
- No biennial written examination was administered this year.

b. Findings

No findings were identified.

.2 Quarterly Inspection (71111.11Q)

a. Inspection Scope (1 sample)

The inspectors observed a simulator-based licensed operator requalification (LOR) exam on August 11, 2010. The inspectors assessed the performance of risk significant operator actions, including the use of emergency operating procedures. The inspectors evaluated crew performance in the areas of clarity and formality of communications;

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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 verified that evaluators were identifying and documenting crew performance problems. The documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

Quarterly Inspection (71111.12Q)

a. Inspection Scope (2 samples)

The inspectors reviewed performance-based problems involving selected in-scope structures, systems and components (SSCs) to assess the effectiveness of the maintenance program. The reviews focused on the following aspects when applicable:

- Proper maintenance rule scoping in accordance with 10 CFR 50.65;
- Characterization of reliability issues;
- Changing system and component unavailability;
- 10 CFR 50.65 paragraph (a)(1) and (a)(2) classifications;
- Identifying and addressing common cause failures;
- Trending of system flow and temperature values;
- Appropriateness of performance criteria for SSCs classified paragraph (a)(2); and
- Adequacy of goals and corrective actions for SSCs classified paragraph (a)(1).

The inspectors reviewed the applicable system health reports, maintenance backlogs, and Maintenance Rule basis documents. The documents reviewed are listed in the Attachment. The following structures, systems and components were inspected:

- Reactor water clean-up (RWCU) system; and
- Control room annunciator system.

b. Findings

No findings were identified.

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

a. Inspection Scope (5 samples)

The inspectors evaluated five maintenance risk assessments for planned and emergent maintenance activities to verify that the appropriate risk assessments were performed

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prior to removing equipment for work. The inspectors reviewed maintenance risk evaluations, maintenance plans, work schedules, and control room logs to determine if concurrent or emergent maintenance or surveillance activities significantly increased the plant risk. The inspectors reviewed risk assessments to determine if they were performed as required by 10 CFR 50.65 paragraph (a)(4) and implemented in accordance with Entergy's administrative procedures (AP) 0125, "Plant Equipment," and AP 0172, "Work Schedule Risk Management - Online." When emergent work was performed, the inspectors observed activities to determine if plant risk was promptly reassessed and managed. The documents reviewed are listed in the Attachment. The following maintenance activities were inspected:

- The week of July 12, 2010, increased (yellow) risk due to the 'A' emergency diesel generator slow start;
- The week of July 26, 2010, increased (yellow) risk due 'B' residual heat removal (RHR) planned maintenance;
- The week of August 9, 2010, emergent work due to a loss of the emergency response facility information system (ERFIS) and the safety parameter display system (SPDS);
- On September 5, 2010, emergent work due to 'A' emergency diesel generator coolant jacket heater thermostat control failure; and
- On September 8, 2010, emergent work due to half-scrum caused by a pressure switch problem during surveillance testing.

b. Findings

No findings were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope (5 samples)

The inspectors reviewed five operability evaluations associated with degraded or non-conforming conditions to assess the acceptability of the evaluations, the use and control of applicable compensatory measures, and compliance with Technical Specifications. The inspectors reviewed and compared the technical adequacy of the evaluations with the Technical Specifications, Updated Final Safety Analysis Report, associated design basis documents, and Entergy's 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:

- CR 2010-03659, RBCCW service water (SW) valve 92B chattering;
- CR 2010-03717, Cooling tower deficiencies;
- CR 2010-03755, Battery B-AS-2 positive crack and growth indications;
- CR 2010-04001, Abnormal valve position indication for standby gas treatment isolation valve during stroke time testing; and
- CR 2010-04189, Failure of 'E' drywell to torus vacuum breaker during testing.

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b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)Permanent Plant Modificationsa. Inspection Scope (1 sample)

The inspectors reviewed EC22215, "Change to Residual Heat Removal Containment Isolation Valves Designation for Removal from 10CFR50 Appendix J Program," 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 observed the system in operation following the implementation of the modification. The documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)a. Inspection Scope (5 samples)

The inspectors reviewed five post-maintenance test (PMT) activities on risk-significant systems. The inspectors reviewed these activities to determine whether test acceptance criteria were clear and consistent with design basis documents. 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 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," and applicable station procedures. Upon completion, the inspectors performed a walkdown to verify that equipment was returned to the proper alignment necessary to perform its safety function, and evaluated whether conditions adverse to quality were entered into the CAP for resolution. The documents reviewed are listed in the Attachment. The inspectors reviewed the PMTs performed for the following maintenance activities:

- On July 1, 2010, 'A' emergency diesel generator (EDG) planned maintenance;
- On July 30, 2010, 'B' RHR low pressure coolant injection valve V10-25B packing adjustment to mitigate a packing leak;
- On July 30, 2010, RHR heat exchanger E-14-1B weld repair;
- On September 9, 2010, 'A' EDG coolant jacket heater thermostat replacement; and
- On September 13, 2010, load reject/control valve fast closure switch PS-40 repair.

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b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)a. Inspection Scope (5 samples)

The inspectors observed five surveillance tests and/or reviewed test data of selected risk-significant SSCs to determine whether the testing adequately demonstrated equipment operational readiness and the ability to perform the intended safety functions. The inspectors reviewed selected prerequisites and precautions to determine if they were met; evaluated whether the tests were performed in accordance with the written procedure; determined whether the test data was complete and met procedural requirements; and assessed whether structures, systems and components (SSCs) were properly returned to service following testing. The inspectors also verified that conditions adverse to quality were entered into the CAP for resolution. The documents reviewed are listed in the Attachment. The inspectors reviewed the following surveillance tests:

- On July 29, 2010, 'B' loop RHR/RHRSW pump and valve operability test;
- On August 5, 2010, Reactor coolant system leak detection surveillance (RCS LD);
- On August 20, 2010, High pressure coolant injection pump operability test (IST);
- On August 23, 2010, Main steam isolation valve full closure timing testing (CIV); and
- On September 23, 2010, 'B' core spray pump surveillance test.

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness (EP)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 Yankee Nuclear Power Station ANS, including sirens and tone alert radios. During this inspection, the inspector interviewed EP staff responsible for implementation of the ANS testing and maintenance, and reviewed Condition Reports (CRs) pertaining to the ANS for causes, trends, and corrective actions. The inspector reviewed the ANS procedures and the ANS design report to ensure Entergy's compliance with design report commitments for system maintenance and testing. 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.

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b. Findings

No findings were identified.

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

a. Inspection Scope (1 sample)

The inspector 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 licensee staff to respond to an emergency event and to ensure Entergy's ability to activate their emergency facilities in a timely manner. The inspector reviewed the Vermont Yankee ERO roster, training records, applicable procedures, drill reports for augmentation, quarterly EP drill reports, and CRs related to the ERO staffing augmentation system. 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 were identified.

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

a. Inspection Scope (1 sample)

Since the last NRC inspection of this program area (June 2009), Entergy had implemented various revisions of the different sections of the Vermont Yankee Nuclear Power Station Emergency Plan. Entergy had determined that, in accordance with 10 CFR 50.54(q), any change made to the Plan and its lower-tier implementing procedures had not resulted in any decrease in effectiveness of the Plan, and that the revised Plan continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR 50. The inspector reviewed all EAL changes that had been made since June 2009, and conducted a sampling review of other Emergency Plan changes, including the changes to lower-tier emergency plan implementing procedures, to evaluate for any potential decreases in effectiveness of the Plan. However, this review was not documented in an NRC Safety Evaluation Report and does not constitute formal NRC approval of the changes. Therefore, these changes remain subject to future NRC inspection in their entirety. 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 were identified.

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1EP5 Correction of Emergency Preparedness Weaknesses (71114.05)

a. Inspection Scope (1 sample)

The inspector reviewed a sample of self-assessment procedures and reports to assess Entergy's ability to evaluate their Vermont Yankee EP performance and programs. The inspector reviewed a sample of EP-related CRs from January 2009 through July 2010 initiated by Entergy at Vermont Yankee from drills, self-assessments, and audits. The inspector assessed Entergy's response to and documentation of the actual declaration of an Unusual Event on June 23, 2010, due to an earthquake felt at the site. Additionally, the inspector reviewed Quality Assurance audits, including 10 CFR 50.54(t) audits, and several self-assessment 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 were identified.

1EP7 Force on Force (FOF) Drill Evaluation (71114.07)

a. Inspection Scope (1 sample)

On February 3, 2010, the inspector observed the licensee's performance during the site emergency preparedness exercise/drill conducted in conjunction with a FOF exercise evaluation. The inspector observed communications, event classification, and event notification activities by the simulated shift manager and supporting staff. The inspector reviewed the emergency preparedness-related corrective actions from previous inspections conducted by the NRC's Office of Nuclear Security and Incident Response to determine whether they had been completed and adequately addressed the cause of any previously-identified weakness. The inspector verified that the licensee correctly utilized the security response procedures and classified the event appropriately, and that all time requirements were met. The inspector also observed the post-drill critique to determine whether any observed deficiencies were also identified by the licensee evaluators and that issues identified during this evaluation were entered into the licensee's corrective action program.

b. Findings

No findings were identified.

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2. RADIATION SAFETY

Occupational/Public Radiation Safety (PS) Cornerstone

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

a. Inspection Scope (1 sample)

Contamination and Radioactive Material Control

At least three sealed sources were selected from the licensee's inventory records that present the greatest radiological risk. These sources were accounted for and semi-annual leak test records were reviewed indicating their integrity was maintained.

At Vermont Yankee, there are no sources that require tracking or reporting to the National Source Tracking System as specified in 10 CFR 20.2207.

Radiological Hazards Control and Work Coverage

During tours of the facility and review of ongoing work associated with the work activities listed below, the inspector evaluated ambient radiological conditions, verified the existing conditions were consistent with posted surveys, RWPs, and worker briefings. During job performance observations of these work activities, the inspector verified the adequacy of radiological controls, such as required surveys (including system breach radiation, contamination, and airborne surveys), radiation protection job coverage (including audio and visual surveillance for remote job coverage), and contamination controls. In addition, the inspector verified that radiation monitoring devices were placed on the individual's body consistent with NRC and licensee procedural requirements and that the dosimeter was placed in the location of highest expected dose as applicable to observations of the following work activities:

- Recirculation pump seal decontamination and rebuild; and
- Standby Gas Treatment (SBGT) system charcoal bed replacement.

The inspector reviewed one radiation work permit (RWP) for work within a potential airborne radioactivity area with the potential for individual worker internal exposures associated with recirculation pump seal decontamination. The inspector evaluated airborne radioactivity controls and monitoring, including potentials for significant airborne levels. For this selected airborne radioactivity material area, the inspector verified barrier (e.g., tent or glove box) integrity. This review included any potential for airborne transuranics or other hard-to-detect radionuclides.

A review was conducted of the licensee's physical and programmatic controls for highly activated or contaminated materials (nonfuel) stored within the spent fuel. An evaluation was conducted to verify that appropriate controls (i.e., administrative and physical controls) are in place to preclude inadvertent removal of these materials from the pool. Selective inspection of posting and physical controls for high radiation areas (HRA) and

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very high radiation areas (VHRA) were conducted, to the extent necessary to verify conformance with the Occupational performance indicator (PI).

Risk-Significant High Radiation Area and Very High Radiation Area Controls

The inspector discussed with the Radiation Protection Manager (RPM) the controls and procedures for high-risk HRAs and VHRAs. The inspector reviewed current changes to licensee procedures to verify that they do not substantially reduce the effectiveness and level of worker protection.

The inspector discussed with one first-line health physics (HP) supervisor the controls in place for special areas that have the potential to become VHRAs during certain plant operations. These included discussions of these plant operations (e.g., traversing in-core probe movement; BWR drywell fuel transfer slot area; spent fuel pool, cavity inspection activities) that require communication beforehand with the HP group, so as to allow corresponding timely actions to properly post, control, and monitor the radiation hazards including re-access authorization.

The inspector verified that licensee controls for all VHRAs, and areas with the potential to become a VHRA, ensure that an individual is not able to gain unauthorized access to the VHRA.

Radiation Worker Performance

During job performance observations, radiation worker performance was assessed with respect to stated radiation protection work requirements to determine if workers are aware of the significant radiological conditions in their workplace; the RWP controls/limits in place; and that their performance reflects the level of radiological hazards present.

The inspector reviewed several radiological problem reports since the last inspection that find the cause of the event to be attributable to human performance errors. This review assessed if there was an observable pattern traceable to a similar cause, and if the associated corrective actions taken by the licensee were appropriate to resolve the reported problems.

Radiation Protection Technician Proficiency

During job performance observations, the performance of the radiation protection technicians was observed with respect to radiation protection work requirements. A determination was made if technicians were aware of the radiological conditions in their workplace, and if their performance was consistent with their training and qualifications with respect to the radiological hazards and work activities.

The inspector reviewed several radiological problem reports since the last inspection that find the cause of the event to be radiation protection technician error. This review assessed if there was an observable pattern traceable to a similar cause and if the

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associated corrective actions taken by the licensee were appropriate to resolve the reported problems.

Problem Identification and Resolution

The inspector verified that problems associated with radiation monitoring and exposure control were being identified by the licensee at an appropriate threshold and were properly addressed for resolution in the corrective action program.

b. Findings

No findings were identified.

2RS2 Occupational ALARA Planning and Controls (71124.02)

a. Inspection Scope (1 sample)

Inspection Planning

The inspector reviewed procedures associated with maintaining occupational exposures as low as reasonably achievable (ALARA). These included a review of processes used to estimate and track exposures from specific work activities.

Radiological Work Planning

The inspector obtained from the licensee a list of work activities ranked by actual exposure that had been completed during the Spring 2010 refueling outage, and selected twelve work activities of the highest exposure significance that resulted in a collective dose of greater than 5 person-rem.

The inspector reviewed the ALARA work activity evaluations, exposure estimates, and exposure mitigation requirements and determined if the licensee has reasonably grouped the radiological work into work activities, based on historical precedence, industry norms, and/or special circumstances.

The inspector verified that the licensee's planning identified appropriate dose mitigation features; considered, commensurate with the risk of the work activity, alternate mitigation features; and defined reasonable dose goals. This review also included a verification that the licensee's ALARA assessment had taken into account decreased worker efficiency from use of respiratory protective devices and or heat stress mitigation equipment (e.g., ice vests). The inspector also determined if the licensee's work planning considered the use of remote technologies (such as teledosimetry, remote visual monitoring, and robotics) as a means to reduce dose and the use of dose reduction insights from industry operating experience and plant-specific lessons learned. The inspector's review also included verification the integration of ALARA requirements into work procedure and RWP documents.

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The inspector compared the results achieved (dose rate reductions, person-rem used) with the intended dose established in the licensee's ALARA planning for these work activities. The person-hour estimates were compared with the actual work activity time requirements, and an evaluation of the accuracy of these time estimates was conducted. Any unintended collective exposures were reviewed to determine the reasons for the dose overruns (e.g., failure to adequately plan the activity, failure to provide sufficient work controls) for any inconsistencies between intended and actual work activity doses. The inspectors focused on those work activities with planned or accrued exposure greater than 5 person-rem.

The inspector determined if post-job (work activity) reviews were conducted and if identified problems were entered into the licensee's corrective action program.

Verification of Dose Estimates and Exposure Tracking Systems

Twelve ALARA work packages were selected to review the assumptions and basis (including dose rate and man-hour estimates) for the Spring 2010 refueling outage collective exposure estimate for reasonable accuracy. Applicable procedures were reviewed to determine the methodology for estimating exposures from specific work activities and the intended dose outcome.

The inspector verified for the selected work activities, that the licensee had established measures to track, trend, and if necessary to reduce, occupational doses for ongoing work activities. This review included assessment of trigger points or criteria that were established to prompt additional reviews and/or additional ALARA planning and controls.

An evaluation of the licensee's method for adjusting exposure estimates, or re-planning work, when unexpected changes in scope or emergent work are encountered was conducted. This review included the determination if adjustments to exposure estimates (intended dose) were based on sound radiation protection and ALARA principles or if they were adjusted to account for failures to control the work.

Source Term Reduction and Control

The inspector reviewed licensee records to determine the historical trends and current status of significant tracked plant source terms known to contribute to elevated facility aggregate exposure. The inspector evaluated licensee plans for long-term exposure reduction initiatives and any applicable contingency plans for expected changes in the source term as the result of changes in plant fuel performance issues or changes in plant primary chemistry.

Radiation Worker Performance

The inspector observed radiation worker and radiation protection technician performance during work activities being performed in radiation areas, airborne radioactivity areas, or high radiation areas. The inspector determined if workers demonstrated the ALARA philosophy in practice and whether there are any procedure compliance issues. In addition, the inspector observed radiation worker performance to determine whether the

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training and skill level was sufficient with respect to the radiological hazards and the work involved.

Problem Identification and Resolution

The inspector verified that problems associated with ALARA planning and controls are being identified by the licensee at an appropriate threshold and are properly addressed for resolution in the licensee corrective action program.

b. Findings

No findings were identified.

4. **OTHER ACTIVITIES [OA]**

4OA1 Performance Indicator (PI) Verification (71151 – 6 samples)

.1 Mitigating Systems Cornerstone

a. Inspection Scope (3 samples)

The inspectors reviewed Entergy's submittals and PI data for the cornerstones listed below for the period from July 2009 to June 2010. The inspectors reviewed selected operator logs, plant process computer data, licensee event reports, and CRs. The PI definitions and guidance contained in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Performance Indicator Guideline," and AP 0094, "NRC Performance Indicator Reporting," were used to verify the accuracy and completeness of the PI data reported during this period. The PIs reviewed were:

- Safety System Functional Failures: July 1, 2009 – June 30, 2010 (MS05);
- Mitigating System Performance Indicator, HPCI: July 1, 2009 – June 30, 2010 (MS07); and
- Mitigating System Performance Indicator, Heat Removal System: July 1, 2009 – June 30, 2010 (MS08).

b. Findings

No findings were identified.

.2 Emergency Preparedness Cornerstone

a. Inspection Scope (3 samples)

The inspector reviewed data for the Vermont Yankee EP PIs, which are: (1) Drill and Exercise Performance (DEP); (2) ERO Drill Participation; and, (3) ANS Reliability. The last NRC EP inspection at Vermont Yankee was conducted in the second quarter of 2009, so the inspector reviewed supporting documentation from EP drills, training records, and equipment tests from the second quarter of 2009 through the second

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quarter of 2010, to verify the accuracy of the reported PI data. The review of these PIs was conducted in accordance with NRC Inspection Procedure 71151, using the acceptance criteria documented in NEI 99-02, "Regulatory Assessment Performance Indicator Guidelines," Revision 6.

b. Findings

No findings 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

Introduction: A self-revealing, Green NCV of Technical Specification 6.4, "Procedures," was identified in which technicians incorrectly performed RCIC surveillance test OP 4365, "RCIC Steam Line Low Pressure Functional/Calibration," Revision 25, resulting in the inadvertent isolation of the RCIC system. Entergy entered this issue into their corrective action program for resolution.

Description: On August 12, 2010, while testing the RCIC steam line low pressure switches in accordance with OP 4365, "RCIC Steam Line Low Pressure Functional/Calibration," Revision 25, technicians set up a digital multimeter (DMM) incorrectly, which resulted in an electrical short across an open contact in the RCIC isolation circuit. When another pressure switch in the circuit was tested, the isolation logic was completed, thus resulting in an inadvertent RCIC system isolation.

OP 4365 directed technicians to connect a DMM to measure voltage across a contact in the RCIC isolation logic. When a pressure switch in another portion of the logic was tested, its associated contact would close and a voltage change would be present on the DMM. The technicians incorrectly connected both the positive lead and the negative lead of the DMM in the "common" jack through the use of a "banana plug" jack built into the test lead. This connection created a short between the positive test lead and the negative test lead on the DMM that created a condition where the open contact appeared closed to the logic. As the technicians lowered the pressure on another pressure switch, its contact closed and made up the RCIC isolation logic, thus causing the RCIC system to isolate. When the technicians connected the DMM in this manner, the technicians failed to properly perform step A.5.c of OP 4365.

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The deficiency was entered into the licensee's corrective action program as CR-VTY-2010-04025. An investigation of the event revealed that the technician performing the evolution failed to perform an adequate self-check and the assisting technician failed to perform an adequate peer check. Both the self check and peer check are required by EN-HU-102, "Human Performance Tools," Revision 5.

Analysis: The inspectors determined that failure to correctly perform RCIC system surveillance testing in accordance with station procedures was a performance deficiency within Entergy's ability to foresee and correct and should have been prevented. Traditional enforcement does not apply as the issue did not have an 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 IMC 0612, Appendix E, "Minor Examples," revealed that this deficiency was not similar to any of the minor examples. Additionally, using IMC 0612, "Power Reactor Inspection Reports," Appendix B, Section B-12, the inspectors determined that the finding was more than minor because it adversely affected the Human Performance attribute for the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. In accordance with IMC 0609, Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," the finding was determined to be of very low risk significance (Green) because the finding was not a design or qualification deficiency, did not represent a loss of system safety function or loss of a single train for greater than its allowed technical specification time, and did not screen as potentially risk significant due to seismic, flooding, or severe weather initiating events. Because this finding is of very low safety significance and has been entered into Vermont Yankee's corrective action program, the violation is being treated as a non-cited violation.

The inspectors determined this finding had a cross-cutting aspect in the Human Performance cross-cutting area, Work Practices component, in that Entergy failed to appropriately self-check and peer-check the DMM setup prior to connecting it to the RCIC isolation logic. [H.4(a)].

Enforcement: Technical Specification 6.4, "Procedures", requires that written procedures be implemented for surveillance and testing requirements. Contrary to this requirement, on August 12, 2010, Entergy failed to properly implement a surveillance test procedure which resulted in an automatic isolation of the RCIC system. Entergy correctly installed the test equipment and subsequently performed the test satisfactorily. Because of the very low safety significance (Green) and because it has been entered into the CAP (CR-VTY-2010-04025), the NRC is treating this finding as a NCV, consistent with Section 2.3.2.a of the NRC's Enforcement Policy. (NCV

05000271/2010004-01: Inadvertent Isolation of Reactor Core Isolation Cooling (RCIC) During Surveillance Testing)

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.2 Annual Sample: Review of Adequacy of Operability Determinations

a. Inspection Scope (1 sample)

The inspector reviewed 24 condition reports involving operability determinations (OD) to ensure that the full extent of the conditions was identified and that appropriate evaluations were performed. The inspector evaluated the ODs against the requirements of Vermont Yankee's corrective action program as specified in Entergy procedure EN-OP-104, "Operability Determination Process," and the technical guidance provided in Part 9900 of the NRC Inspection Manual. The inspection effort represented one sample. The documents reviewed are listed in the Attachment.

b. Findings and Observations

No findings were identified. The level of detail and supporting analyses in the ODs varied widely, but were adequate to the circumstances. In each case the ODs provided sufficient bases for a reasonable assurance of operability. The requirements of procedure EN-OP-104 were met. The inspector had the following observation for CR 2009-03314, concerning low individual cell voltages (ICV) in the B-UPS-1A battery bank. The inspector observed that in the quarterly battery surveillance, Entergy does not compare ICV of cell specific gravity against the average across the bank as recommended in IEEE Standard 450-1995. The criteria in the standard are used as an indicator of a need to perform an equalizing charge. Review of the results of the surveillance on bank B-UPS-1B performed in August 2009 showed that 42 cells slightly exceeded the ICV guidance indicating that an equalizing charge might be warranted. Entergy acknowledged the observations and indicated that additional actions had already been taken or were being considered.

3 Operator Workarounds

a. Inspection Scope (1 sample)

The inspectors reviewed the cumulative effect of operator workarounds, operator burdens, enhanced surveillances and control room deficiencies on the reliability, availability and potential mis-operation of mitigating systems with a particular focus on issues that had the potential to affect the ability of operators to respond to plant transients and events. The inspectors observed operators on normal rounds in all areas of the plant in order to assess the impact of equipment anomalies on the performance of their duties. The inspectors reviewed the auxiliary operator round sheets/turnover sheets for the reactor building, turbine building, and outside areas of the plant, and compared these with Entergy's listed operator burdens and workarounds. The inspectors reviewed selected off-normal procedures and walked down related areas of the plant to determine whether the procedure steps could be implemented by operations personnel and required equipment was properly staged. In addition, the inspectors reviewed Entergy tracking systems for operator burdens, control room deficiencies, and disabled control room alarms. The inspectors discussed selected issues with responsible operations personnel to ensure they were appropriately categorized and tracked for resolution.

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b. Findings

No findings were identified.

4OA3 Event Follow-up (71153).1 Plant Event Reviewa. Inspection Scope (1 sample)

For the plant events below, the inspectors reviewed and/or observed plant parameters, reviewed personnel performance, and evaluated performance of mitigating systems. The inspectors communicated the plant events to regional personnel and compared the event details with criteria contained in IMC 0309, "Reactive Inspection Decision Basis for Reactors," for consideration of additional reactive inspection activities. The inspectors reviewed Entergy's follow-up actions related to the events to assure that appropriate corrective actions were implemented commensurate with their safety significance.

- At 8:12 a.m. on August 10, the RCIC isolated during surveillance testing. The cause was an incorrect lead configuration on a digital multimeter. Operators immediately determined the cause, corrected the condition and restored the RCIC system to standby status. The issue was documented in CR 2010-04025; and
- At 7:05 p.m. on August 29, the control room lost power to annunciators on panels 9-4 and 9-5. The station declared an Unusual Event SU4.1 based on a loss of greater than 75% of annunciators associated with safety systems on control room panels 9-3, 9-4, 9-5, and 9-8 for greater or equal to 15 minutes. The cause was a power surge that opened fuses for annunciator panels on 9-4 and 9-5. The fuses were replaced and the annunciators were restored by 8:09 p.m. The NRC was notified (Event Notification (EN) 46212) and the issue was documented in CR 2010-04266.

b. Findings and Observations

No findings or observations of significance were identified.

.2 (Closed) LER 05000271/2010-001-00: Automatic Reactor Trip due to Switchyard Current Transformer Problem (71153 - 1 sample)

An LER was generated due to a main generator lockout that occurred on May 26, 2010, because of a high differential current between the output of the main generator and the switchyard. The cause was attributed to new current transformer ratio settings in the switchyard that differed from the current transformer on the output of the main generator. As main generator output was increased, the differences between the two current transformers became significant enough to cause the main generator to lockout and the reactor to trip. No new issues were identified. The inspectors reviewed the LER and determined that no findings were identified and no violation of NRC requirements occurred. This LER is closed.

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4OA5 Other Activities.1 (Closed) NRC Temporary Instruction 2515/177 - Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal and Containment Spray Systemsa. Inspection Scope

The inspectors performed the inspection in accordance with Temporary Instruction (TI) 2515/177, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal and Containment Spray Systems." The NRC staff developed TI 2515/177 to support the NRC's confirmatory review of licensee responses to NRC Generic Letter (GL) 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal and Containment Spray Systems." The Office of Nuclear Reactor Regulation (NRR) documented completion of their review of Entergy's GL 2008-01 response in a closure letter dated December 22, 2009 (ADAMS Accession No. ML093490486)¹. Based on the review of Entergy's GL 2008-01 response letters, the NRR staff provided guidance on TI inspection scope to the regional inspectors. The inspectors used this inspection guidance along with the TI to verify that Entergy implemented or was in the process of acceptably implementing the commitments, modifications, and programmatically controlled actions described in their GL 2008-01 response. The inspectors verified that the plant-specific information (including licensing basis documents and design information) was consistent with the information used by NRR in their assessment and that it supported a conclusion that the subject systems' operability was reasonably assured.

The inspectors reviewed a sample of isometric drawings and piping and instrument diagrams, and conducted selected system piping walkdowns to verify that Entergy's drawings reflected the subject system configurations and Updated Final Safety Analysis Report (UFSAR) descriptions. Specifically, the inspectors verified the following related to a sample of isometric drawings for the HPCI, core spray, and RHR systems:

- High point vents were identified;
- High points that did not have vents were recognized and evaluated with respect to their potential for gas buildup;
- Other areas where gas could accumulate and potentially impact subject system operability, such as orifices in horizontal pipes, isolated branch lines, heat exchangers, improperly sloped piping, and under closed valves, were acceptably evaluated in engineering reviews or had ultrasonic testing (UT) points which would reasonably detect void formation; and,
- For piping segments reviewed, branch lines and fittings were clearly shown.

The inspectors conducted walkdowns of portions of the above systems to reasonably assure the acceptability of Entergy's drawings utilized during their review of GL 2008-01. The inspectors verified that Entergy conducted walkdowns of the applicable systems to

¹ Designation in parentheses refers to an Agencywide Documents Access and Management System (ADAMS) accession number. Documents referenced are publicly-available using the accession number in ADAMS.

confirm that the combination of system orientation, vents, instructions and procedures, tests, and training, would ensure that each system was sufficiently full of water to assure operability. The inspectors reviewed Entergy's methodology used to determine system piping high points, identification of negative sloped piping, and calculations of void sizes based on UT equipment readings, to ensure the methods were reasonable. The inspectors reviewed engineering analyses associated with the development of acceptance criteria for as-found voids. The review included engineering assumptions for void transport and acceptability of void fractions at the suction and discharge piping of the applicable system pumps. The inspectors also observed a field UT measurement in the core spray system discharge piping to assess the adequacy of the monitoring techniques used to ensure system operability.

The inspectors reviewed a sample of Entergy's procedures used for filling and venting the associated GL 2008-01 systems to verify that the procedures were effective in venting or reducing voiding to acceptable levels. The inspectors also observed the venting of RHR Train 'A' to the drywell spray header during the inspection to evaluate the adequacy of system venting and the associated procedures. The inspectors verified the hardware vents located in the suction piping for the HPCI, core spray and RHR systems were installed as committed to in Entergy's GL response. The inspectors verified that Entergy's surveillance frequencies were consistent with the Vermont Yankee technical specifications and associated bases, and the UFSAR. The inspectors reviewed a sample of system venting surveillance results to ensure proper implementation of the surveillance program, and that the existence of unacceptable gas accumulation was evaluated within the CAP, as necessary. The inspectors reviewed CAP documents to verify that selected actions described in Entergy's nine-month and supplemental submittals were acceptably documented including completed actions, implementation schedule for incomplete actions, and verification that NRC commitments were included in the CAP. Additionally, the inspectors reviewed evaluations and corrective actions for various issues Entergy identified during their GL 2008-01 review. The inspectors performed this review to ensure Entergy appropriately evaluated and adequately addressed any gas voiding concerns including the evaluation of operability for gas voids discovered in the field. Finally, the inspectors reviewed Entergy's training program and documentation to assess if appropriate training had been provided to the operations and engineering support staff to ensure appropriate awareness of the effects of gas voiding. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified. This completes the inspection requirements for TI 2515/177.

.2 (Closed) URI 05000271/2009005-2 Troubleshooting Activities on Inoperable Vacuum Breakers

a. Inspection Scope

On May 14, 2009, and August 14, 2009, Entergy declared 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

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maximum allowable Technical Specification (TS) value. Entergy entered TS 3.7.A.6.b, which states that up to two out of the 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 possibly repair the vacuum breakers. Vermont Yankee TS 3.7.A.8 states 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 reviewed Entergy's troubleshooting activities on September 29, 2009, and October 8, 2009, and determined that there were no violations of NRC requirements. Therefore, the URI is closed.

b. Findings

No findings were identified.

4OA6 Meetings, including Exit

Exit Meeting Summary

On July 15, 2010, the inspectors who completed the Temporary Instruction (TI) 2515/177 inspection presented the inspection results to Mr. C. Wamser, General Manager of Plant Operations, and other members of Entergy staff. The inspectors reviewed proprietary information, which was returned to Entergy at the end of the inspection. The inspectors verified that no proprietary information is documented in this report.

On August 20, 2010, the inspector for an emergency plan baseline inspection conducted an exit meeting and presented the preliminary inspection results to Mr. M. Gosekamp, Site Maintenance Manager, and other members of the Entergy staff. The inspector confirmed that proprietary information was not provided or examined during the inspection.

On August 20, 2010, the licensed operator training inspector presented the inspection results to members of licensee management at the conclusion of the onsite inspection. Full requalification examination results were reviewed between the lead inspector and Mr. Kevin Stupak, Requalification Training Program Supervisor, on September 17, 2010.

On September 17, 2010, the inspector for a radiation safety baseline inspection presented results to Mr. Michael Gosekamp and other members of Entergy's staff. The licensee acknowledged the findings. No proprietary information is contained in this report.

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On October 15, 2010, the resident inspectors presented the third quarter 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

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On October 15, 2010, the resident inspectors presented the third quarter 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

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SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Vermont Yankee Personnel

M. Colomb, Site Vice President
C. Wamser, General Manager of Plant Operations
M. Romeo, Director of Nuclear Safety
R. Wanczyk, Licensing Manager
J. Devincentis, Licensing
N. Rademacher, Director of Engineering
M. Philippon, Operations Manager
J. Rogers, Design Engineering
C. Daniels, Operations/FIN Team
D. Jones, Asst. Operations Manager
R. Current, Sr. Electrical I&C System Engineer
L. Doucette, System Engineering
P. Corbett, Manager, Quality Assurance
P. Couture, Licensing Specialist
L. Derting, Supervisor, Radwaste
J. Geyster, Supervisor, Radiation Protection
M. Gosekamp, Manager, Maintenance
J. Hardy, Manager, Chemistry
M. Morgan, Superintendent, Training
S. Skibniowski, Environmental Specialist
P. Stover, Supervisor, Radiation Protection
D. Tkatch, Manager, Radiation Protection
K. Stupak, LOR Program Lead

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000271/2010004-01	NCV	Inadvertent isolation of Reactor Core Isolation Cooling (RCIC) During Surveillance Testing
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Closed

05000271/2009005-2	URI	Troubleshooting activities on inoperable vacuum breakers
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Discussed

None

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

Procedures

OP 2196, "Seasonal Preparedness," Rev. 30
 OP 3127, "Natural Phenomena," Rev. 25

Miscellaneous Documents

Vermont Yankee Safety Standard Manual for Severe Weather, Rev. 1

Section 1R04: Equipment Alignment

Procedures

OP 2120, "High Pressure Coolant Injection System," Rev. 57
 OP 2150, "Advanced Off Gas System," Rev. 67
 OP 2124, "Residual Heat Removal System," Rev. 114
 OP 2126, "Diesel Generators," Rev. 56

Drawings

G-191172, "Flow Diagram, Residual Heat Removal System," Rev. 66
 33600-A-207, "Engineering Flow Diagram Train A and B Recombiner Area Off Gas Modification," Rev. 25
 G191169, Sheet 1, "Flow Diagram High Pressure Coolant Injection System", Rev. 52
 G 191169, Sheet 2, "Flow Diagram High Pressure Coolant Injection System", Rev. 43

Attachment

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
EN-TQ-125, "Fire Brigade Drills," Rev. 0

Miscellaneous Documents

PRP-RB-1, Reactor Building Elevation 345', dated 5/27/2007
PRP-RB-2, Reactor Building Elevation 318', dated 5/27/2007
PRP-RB-3, Reactor Building Elevation 303', dated 5/27/2007
PRP-RB-4, Reactor Building Elevation 280' South, dated 5/1/2003
PRP-RB-5, Reactor Building Elevation 280' North, dated 5/1/2003
Fire Hazards Analysis, Rev. 10

Section 1R11: Licensed Operator Regualification Program

Procedures

EOP-1, "RPV Control," Rev. 4
EOP-2, "ATWS RPV Control," Rev. 8
ON 3173, "Loss of Circulating Water," Rev. 3
OP 2112, "Reactor Water Clean-Up System," Rev. 72
OT 3120, "High Condenser Back Pressure," Rev. 22
OPON-3145-01, "Loss of CRD Regulating Function," Rev. 1
TDD-5.7, "Development and Administration of Licensed Operator Regualification Examinations," Rev. 14
TDD-7.2, "Simulator Exercise Guides," Rev. 10
SIM-312, "Physical Fidelity," Rev. 6
SIM-343, "Discrepancy Reporting," Rev. 12
OT 3175, "Recirculation Pump Runback due to Condensate or Feed Pump Trip," Rev. 3
OT 3113, "Reactor Low Level," Rev. 23
OT 3111, "High Drywell Pressure," Rev. 18
OT 3170, "Loss of Bus 3," Rev. 4
ON 3163, "Loss of DC-2AS," Rev. 6
OPON-3172-01, "Loss of Bus 4," Rev. 00
OPON-3145-01, "Loss of CRD Regulating Function," Rev. 01
OT 3115, "Reactor Pressure Transients," Rev. 11
Alarm Response 4-U-2, "RCIC Steam Line DP," Rev. 9

Simulator Test Documentation:

2009 Integrated Startup, Shutdown and Steady State Tests
2009 Standby Gas Treatment System Quarterly Valve Test
2009 Real Time and Repeatability Test
2009 Simultaneous MSIV Closure Test
2009 Simultaneous MSIV Closure with Stuck Open Safety
Cycle 27 and Cycle 28 Core Performance Tests

Condition Reports:

CR-VTY-2010-04142, Root Cause for CR 2010-02757 did not Evaluate Operator Performance
 CR-VTY-2010-04137, EC-02215 Incorrectly Installed on Simulator
 CR-VTY-2010-04179, Seven Unsat Written Questions on 2009 Requal Exams
 CR-VTY-2009-02691, Simulator ERFIS Alarm Data from Exam Scenarios Available for Viewing
 CR-VTY-2009-02485, Simulator Modeling Squib Valve Indicating Lights
 CR-VTY-2009-00079, Uncorrected Simulator Problem with Torus Spray
 CR-VTY-2008-03399, Simulator Malfunction ED05D does not Work per Plant Design .

Biennial Written Exams 2009

2009 LOR SRO #1 & #7 Exams

Reviewed Scenarios and JPMs - 2010 Annual Operating Exams

Scenarios and JPMs for Crew A
 Scenarios for Crews B, C, D, & E

Miscellaneous

LOR-28-101-4, "Simulator Exercise Guide," Rev. 2
 Simulator Exercise Guide 18, "Scenario Template RPV-6 ATWS-Power/Level Control," Rev. 16
 Root Cause – Unintentional Reactor Vessel Level Decrease during ECCS Test (CR-VY-2010-02757)
 Design Change EC No. 1955, GEMAC Controller FC-3-301 Replacement (Control Rod Drive System)

Section 1R12: Maintenance Effectiveness

Condition Reports

2010-0281	2007-3292	2010-2120
2010-0488	2007-3554	2010-2066
2010-0692	2008-4934	2008-4457
2010-1623	2009-4041	2007-4049
2007-3272	2010-0260	

Work Orders

232865

Procedures

OP 4362, "RWCUC System Break Detection Isolation Functional/Calibration," Rev. 26

Miscellaneous Documents

RWCUC System Health Report for the 1st quarter 2010
 Annunciator Subsystem Performance Improvement Plan
 10CFR50.65 Maintenance Rule Scoping Basis Document for Reactor Water Cleanup, Rev. 2

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

OP 4314, "Generator Load Reject – Turbine Control Valve First Closure Functional/Calibration," Rev. 20

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2010-4369

2010-4398

Work Orders

249693

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Section 1R15: Operability Evaluations

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2008-3229

2009-2300

2009-2913

2009-3145

2009-3795

2009-4080

2010-0021

2010-1241

2010-1548

2010-1654

2010-2485

2010-4001

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Procedures

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EN-LI-100, "Process Applicability Determination," Rev. 8

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Procedures

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OP 4124, "Residual Heat Removal and RHR Service Water System Surveillance", Rev. 115
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Condition Reports

2010-3139
2010-3369
2010-3830
2010-3848

Work Orders

180231
22909
240183
249693
250298
52246830
52248693

Section 1R22: Surveillance Testing

Condition Reports

2010-4134
2004-0161

Procedures

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OP 4120, "High Pressure Coolant Injection System Surveillance," Rev. 79
OP 2152, "Drywell Equipment and Floor Drains," Rev. 26
OP 4152, "Equipment and Floor Drain Sump and Totalizer Surveillance," Rev. 43
ARS 21002, "CRP 9-4 Alarm Response Sheets," Rev. 9

Drawings

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EC 1684, "Fill Rate and Pump Out Timer Setting for the Drywell Equipment and Floor Drain," Rev. 0
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Vermont Yankee Alert and Notification System Maintenance Procedure, by Burlington Communications (Revision 4/09)
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AP3554, Emergency Plan Teams (Revision 2)
AP3712, Emergency Plan Training (Revision 23)
AP0894, Staffing Limits (Revision 13)
OP3547, Security Actions during an Emergency (Revision 13)
ENN-PL-140, Emergency Response Organization Respiratory Protection Guidelines (Revision 1)
2010 ERO 4-Team Duty Roster (dated August 12, 2010)
Emergency Plan Training Program Description (Revision 11)
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Section 1EP4: Emergency Action Level (EAL) and Emergency Plan Changes

Vermont Yankee Nuclear Power Station Emergency Plan (Revisions 47 and 48)
EN-LI-100, Process Applicability Determination (Revision 9)
EN-LI-101, 10CFR50.59 Evaluation Program (Revision 5)

EN-LI-113, Licensing Basis Document Change Process (Revision 4)
 EN-EP-305, Emergency Planning 10CFR50.54(q) Review Program (Revision 1)
 EN-DC-115, Engineering Change Process (Revision 10)
 AP0096, Procedure Development, Review, Issuance, and Cancellation (Revision 25)
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Procedures

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 AP 0156, "Notification of Significant Events," Rev. 65
 AP 3125, "Emergency Plan Classification and Action Level Scheme," Rev. 22
 OP 3132, "Operations Department Response to Security Events", Rev. 15
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Section 2: Radiation Safety

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2010-1890	2010-2933
2010-1963	2010-3598
2010-2041	2010-5841
2010-2307	2010-4317

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Section 40A1: Performance Indicator (PI) Verification

Condition Reports

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EMST-Batt-4210-02, "Quarterly Surveillance of Safety Related Lead Acid Storage Batteries," Revision 00
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G191168, "Flow Diagram Core Spray System," Revision 44
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VYC-1859, "Standby Gas Treatment System Demister Loop Seal Recovery Analysis," Rev.0
VYC-2302, "Radiological AST LOCA Analysis," Revision 0
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 1924875-C-001, Structural Screening of Fluid Transient Effects, Rev. 0
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 1924875-R-001, Summary Report Associated with NRC GL 2008-01, Rev. 0
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 Calculation VYC-3086, Vent Valve One Turn Open Air Flow, Rev. 1
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WO 00213869	Core Spray 'A' Injection
WO 00213870	Core Spray 'B' Torus Suction
WO 00213895	Core Spray 'A' Torus Suction
WO 00213897	RHR 'B' Torus Suction
WO 00213898	RHR 'A' Torus Suction
WO 00213899	RCIC Torus Suction
WO 00213907	HPCI Pump Discharge
WO 00213908	HPCI Torus Suction

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2010-03689*
2010-03767*

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Revision 2 to NRC Staff Criteria for Gas Movement in Suction Lines and Pump Response to Gas, dated 3/26/09
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EN-OP-104, Operability/Functionality Evaluations, Rev. 3
OP 2123, Core Spray, Rev. 41
OP 2124, Residual Heat Removal System, Rev. 114
OP 4124/VYOPF 4124.28B, Quarterly RHR LPCI Loop B Venting, Rev. 115
OPST-CS-4123-05A, Maintenance of Filled Core Spray A Discharge Piping When Normal Keepfill Not Available, Rev. 00
OPST-CS-4123-05B, Maintenance of Filled Core Spray B Discharge Piping When Normal Keepfill Not Available, Rev. 00

LIST OF ACRONYMS

ADAMS	Agencywide Documents Access and Management System
ALARA	As Low As Reasonably Achievable
ANS	Alert and Notification System
AP	Administrative Procedure
BWR	Boiling Water Reactor
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CR	Condition Report
CS	Core Spray
DEP	Drill and Exercise Performance
DMM	Digital Multimeter
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
GL	Generic Letter
HP	Health Physics
HPCI	High Pressure Coolant Injection
HRA	High Radiation Areas
ICV	Individual Cell Voltages
IMC	Inspection Manual Chapter
IPEEE	Individual Plant Examination for External Events
IST	In-Service Testing
LOR	Licensed Operator Requalification
NCV	Non-cited Violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
NRR	Nuclear Reactor Regulation
OD	Operability Determinations
OP	Operating Procedure
PARS	Publicly Available Records System
PI	Performance Indicator
PMT	Post Maintenance Testing
QA	Quality Assurance
RBCCW	Reactor Building Component Cooling Water
RCIC	Reactor Core Isolation Cooling
RCS	Reactor Coolant System
RHR	Residual Heat Removal
RHRSW	Residual Heat Removal Service Water

RPV	Reactor Pressure Vessel
RWCU	Reactor Water Clean-up
RWP	Radiation Work Permit
SSCs	Structures, Systems and Components
SW	Service Water
TI	Temporary Instruction
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
UT	Ultrasonic Test
VHRA	Very High Radiation Areas
VT	Visual Test
VY	Vermont Yankee
WO	Work Order