

October 27, 2008

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 05000271/2008004

Dear Mr. Colomb:

On September 30, 2008, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Vermont Yankee Nuclear Power Station. The enclosed inspection report documents the inspection results, which were discussed on October 9, 2008, with members of your staff.

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

Based on the results of this inspection, no findings of significance were identified. However, a licensee-identified violation which was determined to be of very low safety significance is documented in this report. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section VI.A.1 of the NRC Enforcement Policy because of the very low safety significance of the violation and because it is entered into your corrective action program. If you contest this non-cited violation, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement; and the NRC Senior Resident Inspector at the Vermont Yankee Nuclear Power Station.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of the NRC's document system (ADAMS).

M. Colomb

2

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Sincerely,

/RA/ Original Signed By:

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

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

Enclosure: Inspection Report No. 05000271/2008004
w/ Attachment: Supplemental Information

cc w/encl:

Vice President, Operations, Entergy Nuclear Operations
Senior Vice President, Entergy Nuclear Operations
Vice President, Oversight, Entergy Nuclear Operations
Senior Manager, Nuclear Safety & Licensing, Entergy Nuclear Operations
Senior Vice President and COO, Entergy Nuclear Operations
Assistant General Counsel, Entergy Nuclear Operations
Manager, Licensing, Entergy Nuclear Operations
G. Edwards
S. Lousteau, Treasury Department, Entergy Services, Inc.
D. O' Dowd, Administrator, Radiological Health Section, DPHS, State of New Hampshire
W. Irwin, Chief, CHP, Radiological Health, Vermont Department of Health
Chief, Safety Unit, Office of the Attorney General, Commonwealth of Mass.
D. Lewis, Pillsbury, Winthrop, Shaw, Pittman LLP
G. D. Bisbee, Esquire, Deputy Attorney General, Environmental Protection Bureau
J. Block, Esquire
J. P. Matteau, Executive Director, Windham Regional Commission
D. Katz, Citizens Awareness Network (CAN)
R. Shadis, New England Coalition Staff
G. Sachs, President/Staff Person, c/o Stopthesale
J. Volz, Chairman, Public Service Board, State of Vermont
Chairman, Board of Selectman, Town of Vernon
C. Pope, State of New Hampshire, SLO
D. O'Brien, State of Vermont, SLO
J. Giarrusso, SLO, MEMA, Commonwealth of Massachusetts
U. Vanags, State Nuclear Engineer, Vermont Department of Public Service
S. Shaw

M. Colomb

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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.: 05000271/2008004

Licensee: Entergy Nuclear Operations, Inc.

Facility: Vermont Yankee Nuclear Power Station

Location: 320 Governor Hunt Road
Vernon, Vermont 05354-9766

Dates: July 1, 2008 through September 30, 2008

Inspectors: R. Fernandes, Sr. Resident Inspector, Division of Reactor Projects (DRP)
B. Sienel, Resident Inspector, DRP
G. Johnson, Senior Operations Engineer, Division of Reactor Safety (DRS)
J. D'Antonio, Senior Operations Engineer, DRS
J. Noggle, Senior Health Physicist, DRS
A. Ziedonis, Reactor Inspector, DRS

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

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TABLE OF CONTENTS

SUMMARY OF FINDINGS	3
REPORT DETAILS	4
1. REACTOR SAFETY	4
1R04 Equipment Alignment (71111.04Q)	4
1R05 Fire Protection (71111.05Q).....	5
1R06 Flood Protection Measures.....	5
1R11 Licensed Operator Requalification Program.....	6
1R12 Maintenance Effectiveness (71111.12Q).....	7
1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)	8
1R15 Operability Evaluations (71111.15).....	8
1R18 Plant Modifications	9
1R19 Post-Maintenance Testing (71111.19).....	9
1R20 Refueling and Other Outage Activities	10
1R22 Surveillance Testing (71111.22).....	10
1EP6 Drill Evaluation (71114.06)	11
2. RADIATION SAFETY	11
2OS1 Access Control to Radiologically Significant Areas.....	11
2OS2 ALARA Planning and Controls	13
4. OTHER ACTIVITIES [OA]	14
4OA1 Performance Indicator (PI) Verification (71151)	14
4OA2 Identification and Resolution of Problems (71152)	14
4OA3 Event Followup.....	15
4OA6 Meetings, including Exit.....	17
4OA7 Licensee-Identified Violations.....	17
ATTACHMENT: SUPPLEMENTAL INFORMATION	17
SUPPLEMENTAL INFORMATION	18
KEY POINTS OF CONTACT	18
LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED	18
LIST OF DOCUMENTS REVIEWED	18
LIST OF ACRONYMS..	22

SUMMARY OF FINDINGS

IR 05000271/2008004; 07/01/2008 – 09/30/2008; Vermont Yankee Nuclear Power Station; Routine Quarterly Integrated Report.

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

A. NRC-Identified and Self-Revealing Findings

None.

B. Licensee-Identified Violations

A violation of very low safety significance, which was identified by the licensee, has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation and corrective action tracking numbers are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

Vermont Yankee (VY) Nuclear Power Station began the inspection period operating at approximately 100 percent power. On July 11, 2008, a downpower to approximately 46 percent was performed to remove the cooling towers (CTs) from service when a circulating water (CW) leak was identified in CT 1. (Please see Section 4OA3.1 for further discussion of the power reduction.) Operators controlled power to remain within the State of Vermont temperature discharge limits, reaching a low of approximately 23 percent, until CT repairs were completed and the plant was returned to 100 percent power on July 22. On September 16, operators reduced reactor power to approximately 58 percent to remove CT 1 from service when another CW leak was identified. Following the completion of inspections and repairs, the plant was returned to 100 percent power on September 19. On September 25, a planned power reduction to approximately 82 percent was performed for main turbine valve testing and electrical transmission system maintenance. On September 27, VY returned to 100 percent power. With the exception of minor power reductions to support rod pattern adjustments and the downpower evolutions noted above, VY remained at 100 percent power through the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R04 Equipment Alignment (71111.04Q)

a. Inspection Scope (4 samples)

The inspectors performed partial system walkdowns of the following risk-significant systems to determine the system alignment and to identify any discrepancies that could impact system operability. Observed plant conditions were compared to the standby alignment of equipment specified in applicable piping and instrumentation drawings (P&IDs) and operating procedures (OPs). The inspectors observed valve positions, power supply availability, and the general condition of selected components. Finally, the inspectors evaluated material condition, housekeeping, and component labeling. A list of documents reviewed is provided in the Attachment.

- High Pressure Coolant Injection (HPCI) and Service Water (SW) systems while CT 2-1 was out of service;
- "B" Emergency Diesel Generator (EDG) while the "A" EDG air compressor was out of service;
- "A" train of Standby Gas Treatment (SBGT) while the "B" train of SBGT was out of service for planned valve maintenance; and
- HPCI while the Reactor Core Isolation Cooling (RCIC) system was inoperable for logic testing.

Enclosure

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q)

a. Inspection Scope (5 samples)

The inspectors identified fire areas based on a review of Entergy's Vermont Yankee Safe Shutdown Capability Analysis, the Fire Hazards Analysis, and the Individual Plant Examination for External Events (IPEEE). The inspectors toured plant areas important to safety to evaluate Entergy's control of transient combustibles and ignition sources, and the material condition and operational status of fire protection systems, equipment, and barriers. A list of additional documents reviewed is provided in the Attachment to this report. The following fire zones (FZs) were inspected:

- "B" Emergency Core Cooling System corner room (FZ RB2);
- HPCI (FZ RB2);
- Reactor Building, 318 foot elevation, (FZ RB7);
- Reactor Building, 345 foot elevation, (FZ RB7); and
- SW Pump Room (FZ RB15).

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope (1 sample- Internal)

The inspectors reviewed Entergy's flood protection design and barriers for coping with internal flooding in the west switchgear room. The inspectors reviewed internal flooding information contained in Entergy's IPEEE and the Internal Flooding Design Basis Document (DBD) as it related to the west switchgear room. Finally, the inspectors performed a walkdown of the switchgear room to ensure equipment and structures needed to mitigate an internal flooding event were as described in the IPEEE and the DBD. Additionally, the inspectors reviewed condition reports (CRs) related to internal flooding in the room to ensure identified problems were properly addressed for resolution. A list of documents reviewed is provided in the Attachment.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Requalification Activities Review by the Resident Staff (71111.11Q)

a. Inspection Scope (1 sample)

The inspectors observed a simulator-based licensed operator requalification exam on July 9, 2008. The inspectors evaluated crew performance in the areas of clarity and formality of communications; ability to take timely actions; prioritization, interpretation, and verification of alarms; procedure usage; control board manipulations; and command and control. Crew performance in these areas was compared to the Instructor Guide for Simulator Scenario LOR-26-700 and Entergy management expectations and guidelines. The inspectors also compared the simulator configuration with the actual control board configuration. Finally, the inspectors observed the Entergy evaluators discuss identified weaknesses with the crew and/or individual crew members, as appropriate.

b. Findings

No findings of significance were identified.

.2 Biennial Review of the Licensed Operator Requalification Program (71111.11B)

a. Inspection Scope

The effectiveness of the licensed operator requalification training program was evaluated through reviews of the following documents related to the facility operating history for the previous two years:

- NRC inspection reports and plant issue matrix.
- Licensee event reports (LERs)
- Operator and training related CRs.

The quality and content of the requalification examinations were evaluated by the review of written examinations from the 2007 biennial examination and three weeks of operating examinations in 2008. The reviews assessed the coverage of the exams as specified in 10CFR55.41, 43, and 59 and the inclusion of probabilistic risk assessment insights. The discrimination level and construction of the exams were also evaluated against the criteria set forth in NUREG -1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, Supplement 1.

Observations of licensee exam administration and evaluator grading practices for two crews were conducted. Control of test item overlap between exam weeks was evaluated to ensure examination security was not compromised.

Remediation practices were assessed by review of instances where operators or crews had failed either a written examination or simulator evaluation during the current requalification program. One instance of a failed annual operating exam and one instance of a failed biennial written exam occurred; the inspectors verified appropriate remediation and reexamination were performed.

Utilization of feedback to update and modify the requalification program was evaluated by verification of training on plant and industry events. Operators were interviewed to discuss the effectiveness of the feedback process.

Compliance with license conditions was verified through review of medical records for five operators and review of watch standing proficiency and reactivation documentation for ten operators in the two year period.

The inspectors observed simulator performance during the conduct of examinations, reviewed simulator performance tests, and evaluated simulator action requests (SARs) to verify compliance with the requirements of 10CFR55.46. Tests and data reviewed are listed in the Attachment.

On September 2, 2008, the results of the annual operating tests for year 2008 were reviewed against the criteria of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, Supplement 1, and NRC Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process (SDP)." The review determined the following:

- Crew pass rate was 100%;
- Individual pass rate on the job performance measures of the operating exam was 100%; and
- Individual pass rate for the operating exam was 100%.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q)

a. Inspection Scope (1 sample)

The inspectors reviewed Entergy's evaluation of one degraded condition involving structures, systems or components (SSCs) for maintenance effectiveness during this inspection period. The inspectors reviewed Entergy's implementation of the Maintenance Rule, 10 CFR 50.65, to determine if the condition was appropriately evaluated against applicable Maintenance Rule functional failure criteria, as found in Entergy scoping documents and procedures. The inspectors reviewed the applicable system health report and discussed the issue with the Maintenance Rule Coordinator to

determine if the condition was appropriately tracked against the system performance criteria and classified in accordance with Maintenance Rule implementation guidance. The inspectors also attended the Maintenance Rule Expert Panel meeting where the performance evaluation/action plan for the SBTG system was discussed. Documents reviewed during the inspection are listed in the Attachment. The specific condition reviewed was:

- SBTG system above Maintenance Rule reliability criteria.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope (7 samples)

The inspectors evaluated online risk management for three planned and four emergent 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." Documents reviewed during the inspection are listed in the Attachment. The inspectors also walked down areas of the plant containing equipment that was determined to have higher risk significance during the following work activities:

- Planned SW intake dredging;
- Emergent CT 2-1 inspections and maintenance;
- Emergent repair of "A" EDG air compressor discharge line;
- Planned "B" SBTG valve maintenance;
- Planned HPCI maintenance;
- Emergent #1 turbine stop valve reactor protection system limit switch failure; and
- Emergent maintenance on the "B" SW pump.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope (6 samples)

The inspectors reviewed six operability evaluations prepared by Entergy. The inspectors evaluated the operability evaluations against the guidance contained in NRC Regulatory Issue Summary 2005-20, Revision to Guidance Formerly Contained in NRC

Generic Letter 91-18, "Information to Licensees Regarding Two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and on Operability," and Entergy procedure EN-OP-104, "Operability Determinations." A list of documents reviewed is provided in the Attachment. The inspectors also discussed the conditions with operators and system and design engineers, as necessary. The inspectors reviewed evaluations of the following degraded or non-conforming conditions:

- Reactor Core Isolation Cooling (RCIC) spare and test relays found energized;
- Air leak on union below "A" EDG air start solenoid;
- "B" EDG jacket water heat exchanger bypass line drain valve found out of position;
- HPCI gland seal drain line high pressure during testing;
- HPCI & RCIC torus suction piping partially void of water; and
- CT 1 functionality determination and impact on CT 2.

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18)

a. Inspection Scope (2 samples)

The inspectors reviewed two temporary modifications to ensure they did not adversely affect the availability, reliability, or functional capability of any risk-significant SSCs. The inspectors reviewed the engineering change packages and completed work orders (WO) which installed the modifications, and compared the installation and control of the modifications to the requirements of Entergy Corporate Procedure EN-DC-136, "Temporary Alterations." A list of documents reviewed is provided in the Attachment. The following modifications were reviewed:

- TM 5496, Removal of "A" reactor water recirculating (RWR) pump discharge bypass valve position switch contact from MG-1-1A trip circuit; and
- TM 8831 Replacement of the "C" condensate pump motor feeder cable with temporary cable.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope (5 samples)

The inspectors reviewed post-maintenance testing (PMT) activities on risk-significant systems. The inspectors either observed the PMT or reviewed completed PMT documentation to determine if the test data met the acceptance criteria contained in the WO, Technical Specifications (TS), Updated Final Safety Analysis Report (UFSAR),

Enclosure

and/or the in-service testing program. When testing was directly observed, the inspectors determined whether installed test equipment was appropriate and controlled, and whether the test was performed in accordance with applicable station procedures. The inspectors also reviewed the test activities to determine if the PMT was adequate to ensure system operability and functional capability following maintenance, if the systems were properly restored following testing, and if discrepancies were appropriately documented in the corrective action program (CAP). Additional documents reviewed are listed in the Attachment. The inspectors reviewed the PMTs performed for the following maintenance activities:

- “A” EDG starting air compressor line repair;
- “B” uninterruptable power supply (UPS) battery cell replacement;
- “B” EDG jacket cooling water pump replacement;
- “B” SGBT valve actuator refurbishment; and
- “B” SW pump motor replacement.

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope (partial sample)

The inspectors evaluated the following VY refueling outage (RFO 27) item to verify that Entergy considered risk when developing outage schedules; adhered to administrative risk reduction methodologies for plant configuration control; and adhered to their operating license, TS requirements, and approved procedures:

Review of the Outage Plan - The inspectors reviewed the RFO 27 shutdown risk assessment documented in the VY Outage Risk Assessment Team Report, Revision 0, to verify that Entergy addressed the outage’s impact on defense-in-depth for the five shutdown critical safety functions: electrical power availability, inventory control, decay heat removal, reactivity control, and containment.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope (5 samples)

The inspectors observed surveillance testing to determine if the specified acceptance criteria was consistent with 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

Enclosure

inspectors observed selected pre-job briefings for the test activities. The inspectors also checked to determine if discrepancies were appropriately documented in the CAP. The inspectors reviewed the following surveillances:

- CT 1 monthly inspection;
- Torus water temperature calibration;
- HPCI time to rated flow test (IST);
- “B” Residual Heat Removal (RHR) quarterly pump surveillance (IST); and
- “B” EDG fuel oil transfer pump comprehensive test (IST).

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope (1 sample)

The inspectors observed an August 8, 2008, emergency preparedness (EP) practice drill and the subsequent player and lead controller critiques. Entergy preselected the drill notifications and protective action recommendations to be included in the EP drill performance indicator (PI). The inspectors discussed the performance expectations and results with Entergy’s EP staff to confirm correct implementation of the PI program. The inspectors focused on the ability of licensed operators to perform event classifications and make proper notifications in accordance with the following station procedures and industry guidance:

- AP 0153, “Operations Department Communications and Log Maintenance;”
- AP 0156, “Notification of Significant Events;”
- AP 3125, “Emergency Plan Classification and Action Level Scheme;”
- DP 0093, “Emergency Planning Data Management;”
- OP 3540, “Control Room Actions during an Emergency;” and
- Nuclear Energy Institute (NEI) 99-02, “Regulatory Assessment Performance Indicator Guideline,” Revision 5.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control to Radiologically Significant Areas (71121.01)

a. Inspection Scope (14 samples)

During September 8 through 12, 2008, the inspectors conducted the following activities to verify that the licensee was properly implementing physical, engineering, and administrative controls for access to high radiation areas, and other radiologically controlled areas, and that workers were adhering to these controls when working in these areas. Implementation of the access control program was reviewed against the criteria contained in 10 CFR 20, site technical specifications, and the licensee's procedures. Additional documents reviewed are listed in the Attachment.

- (1) There were no occupational exposure cornerstone performance indicator incidents during the current assessment period.
- (2) The inspector walked down accessible exposure significant work areas of the plant and reviewed licensee controls and surveys to determine if licensee surveys, postings, and barricades were acceptable and in accordance with regulatory requirements.
- (3) The inspector walked down accessible exposure significant work areas of the plant and conducted independent surveys to determine whether prescribed radiation work permit and procedural controls were in place and whether licensee surveys and postings were complete and accurate.
- (4) During 2008, there were no internal dose assessments >10 mrem committed effective dose equivalent and therefore, no assessment of internal exposure calculations was performed.
- (5) The licensee's physical and programmatic controls for highly activated materials stored underwater in the spent fuel pool was reviewed and evaluated through observation and a review of the applicable access control procedure.
- (6) A review of licensee radiation protection program self-assessments and audits during 2008 was conducted to determine if identified problems were entered into the corrective action program for resolution.
- (7) Four condition reports associated with the radiation protection access control and as low as is reasonably achievable (ALARA) areas, between May 2008 and August 2008, were reviewed and discussed with licensee staff to determine if the follow-up activities were being conducted in an effective and timely manner commensurate with their safety significance.
- (8) Based on the condition reports reviewed, repetitive deficiencies were screened to determine if the licensee's self-assessment activities were identifying and addressing these deficiencies.
- (9) There were no Occupational Exposure Performance Indicator incidents reported during the current assessment period to evaluate utilizing the significance determination process.

Enclosure

- (10) Changes to the high radiation area and very high radiation area procedures since the last inspection in this area were reviewed and management of these changes was discussed with the Radiation Protection Manager.
- (11) Controls associated with potential changing plant conditions to anticipate timely posting and controls of radiation hazards was discussed with a radiation protection supervisor.
- (12) All accessible locked high radiation area entrances in the plant were verified to be locked through challenging the locks or doors. All locked and very high radiation area keys were inventoried and controls reviewed.
- (13) Several radiological condition reports were reviewed to evaluate if the incidents were caused by radiation worker errors and determine if there were any trends or patterns and if the licensee's corrective actions were adequately addressing these trends.
- (14) Several radiological condition reports were reviewed to evaluate if the incidents were caused by radiation protection technician errors and determine if there were any trends or patterns and if the licensee's corrective actions were adequately addressing these trends.

The inspector reviewed four corrective action condition reports that were initiated between May 2008 and August 2008 that were associated with the radiation protection program. The inspector verified that problems identified by these condition reports were properly characterized in the licensee's event reporting system, and that applicable causes and corrective actions were identified commensurate with the safety significance of the radiological occurrences.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls (71121.02)

a. Inspection Scope (4 samples)

During September 8 through 12, 2008, the inspector conducted the following activities to verify that the licensee was properly maintaining individual and collective radiation exposures as low as is reasonably achievable (ALARA). Implementation of the ALARA program was reviewed against the criteria contained in 10 CFR 20.1101(b) and the licensee's procedures.

- (1) The highest exposure significant outage ALARA work activity evaluations, exposure estimates, and exposure mitigation requirements were reviewed for the upcoming Fall 2008 refueling outage.

Enclosure

- (2) The assumptions and bases for the Fall 2008 refueling outage collective exposure estimates were reviewed. This review involved the detailed preparation of exposure estimates based on dose rate and man-hour estimates for the highest exposure significant outage work activities.
- (3) There were no declared pregnant workers during 2008 and, therefore, licensee performance in this area was not observed.
- (4) Radiation protection related condition reports were reviewed between May 2008 and August 2008 for repetitive deficiencies in ALARA to determine if the licensee's self-assessment activities were identifying and addressing these deficiencies.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES [OA]

4OA1 Performance Indicator (PI) Verification (71151)

a. Inspection Scope (3 samples)

Mitigating Systems Cornerstone

The inspectors sampled Entergy submittals for the PIs listed below for the periods indicated. The inspectors reviewed selected operator logs, plant process computer data, licensee event reports, Maintenance Rule out of service logs, criticality data, Consolidated Data Entry Mitigating System Performance Indicator (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 NEI 99-02, "Regulatory Assessment Indicator Guideline," Revision 5 and AP 0094, "NRC Performance Indicator Reporting," were used to verify the accuracy and completeness of the PI data reported during this period.

- Safety System Functional Failures: July 1, 2007 – June 30, 2008;
- MSPI, High Pressure Injection System: October 1, 2007 – June 30, 2008; and
- MSPI, Heat Removal System: October 1, 2007 – June 30, 2008.

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 screening of each item entered into Entergy's CAP. This review was accomplished by reviewing printouts of each condition report, attending daily screening meetings, and/or accessing Entergy's database. The purpose of this review was to identify conditions such as repetitive equipment failures or human performance issues that might warrant additional follow-up.

b. Findings

No findings of significance were identified.

.2 Annual Sample Review - 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 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 taking their 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 in accordance with DP 0166, "Operations Department Standards."

b. Findings

No findings of significance were identified. Plant hardware issues do not appear to have a significant impact on the ability of operators to complete actions required for normal or abnormal evolutions. However, the inspectors found that the current methodology of identifying Operator Workarounds and Burdens did not provide the level of detail observed at many other plants. This was also identified by the licensee during a recent self-assessment and is being addressed by a proposed revision to DP 0166, "Operations Department Standards."

4OA3 Event Followup (71153)

.1 Cooling Tower Cell 1-1 Circulating Water Header Leak Results in Reactor Down Power

a. Inspection Scope (1 sample)

On July 11, 2008, with the plant operating at 100 percent power, an auxiliary operator identified a circulating water slip joint leak and structural degradation in the east distribution header of CT 1. The inspectors responded to the control room to assess operator response to the condition and to determine whether the actions were performed in accordance with Entergy procedures. Operators reduced power to 46 percent in order to remove both CT 1 and CT 2 from service to allow inspection and repair and to comply with Vermont State thermal discharge limits.

b. Findings

No findings of significance were identified with the operator response to this condition. A Special Inspection Team was subsequently sent to the site. The results of this inspection are documented in IR 05000271/2008009.

.2 Reactor Building High Radiation Levels While Returning the "A" Reactor Water Cleanup Filter Demineralizer to Servicea. Inspection Scope (1 sample)

On August 26, 2008, with the plant operating at 100% power, operators improperly restored the "A" reactor water cleanup (RWCU) filter demineralizer to service which resulted in a transitory increase in radiation levels in several areas of the reactor building and main steam lines. The inspectors were in the control room at the time and observed operator response to the event. Operators evacuated the reactor building and instructed Radiation Protection personnel to evaluate radiological conditions in the reactor building per Entergy's procedures. Entergy concluded that the resulting flow and pressure transient caused a short term reactor coolant chemistry perturbation which was subsequently restored after placing the RWCU filters back in service. There was no significant increase in exposure to plant personnel.

b. Findings

No findings of significance were identified with the operator response to this event. This was an insignificant procedural error with no safety consequences.

.3 (Closed) LER 05000271/2007002-01, High Pressure Coolant Injection System Valve Failed to Open (1 sample)

On June 8, 2007, with the reactor at 81 percent power, Entergy identified that the HPCI pump injection valve (V23-19) did not open on a manual signal from the control room during a surveillance test. The inspectors reviewed Revision 0 of LER 05000271/2007002, as documented in IR 05000271/2007004. Entergy submitted Revision 1 to clarify statements made in the assessment of safety consequences regarding operability of other systems while HPCI was inoperable. The inspectors did not identify any additional findings during this review. This LER is closed.

4OA6 Meetings, including Exit

Exit Meeting Summary

On October 9, 2008, the resident inspectors presented the inspection results to members of the VY staff. The inspectors confirmed that no proprietary information was provided or examined during the inspection.

The inspector presented the inspection results to members of licensee management at the conclusion of the onsite portion of the requalification inspection on July 18, 2008. Overall results of the requalification examination for all crews were submitted to the NRC on September 2, 2008. On September 30, 2008, the facility was informed of the non-cited violation (NCV) concerning licensed operator medical issues as described in Section 4OA7 of this report.

4OA7 Licensee-Identified Violations

The following violation of very low safety significance was identified by the licensee and meets the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as a Non-Cited Violation.

Two examples were identified in which the licensee failed to report potentially disqualifying licensed operator medical conditions to the NRC as required by 10CFR55.25 and 10CFR50.74. Contrary to these requirements, in the first instance, notification of a potentially disqualifying condition related to prescription medication was delayed for 15 months. The notification of a second operator's potentially disqualifying physical condition was delayed for six months. The issues have been entered in the licensee's corrective action program as site condition reports CR-2008-02901 and CR-2008-3429. Corrective actions included obtaining a peer review of medical records from another site, and a corporate level condition report CR-HQN-2008-00724 to review medical records at all Entergy sites for two years.

The issues were of very low safety significance because the first individual did not stand watch since his diagnosis. The second individual made no operator errors to indicate potential impairment from failure to take prescribed medication, and the ultimate license restriction added was simply the requirement to take the medication as prescribed (EA-2008-277).

ATTACHMENT: SUPPLEMENTAL INFORMATION

Enclosure

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Energy Personnel

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

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Closed

05000271/2007002-01 LER High Pressure Coolant Injection System Valve Failed to Open (Section 40A3)

LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

Procedures

OP 2117 "Standby Gas Treatment," Rev. 17
OP 2120 "HPCI system," Rev. 55
OP 2126 "Diesel Generators," Rev. 55
OP 2181 "Service Water/Alternate Cooling Operating Procedure," Rev. 109

Drawings

G-191159 "Flow Diagram Service Water System," Sheet 2, Rev. 90
G-191160 "Flow Diagram Diesel Generator Starting Air System," Sheet 7, Rev. 23
G-191162 "Flow Diagram Miscellaneous Systems Fuel Oil," Sheet 2, Rev. 29
G-191238 "HVAC Flow Diagram – Reactor Building," Rev. 33

Miscellaneous Documents

CR 2008-3371

Section 1R05: Fire Protection

CR 2005-2904, FPD-115-20 Failed to Fully Close per OP 4019
OP 4349 Surveillance – Flame and Smoke Detectors, Rev. 36
OP 4019 Operating Cycle Check of Fire Dampers, Rev. 24
Work Order 05-003907-000, Replace Fire Damper

Section 1R06: Flood Protection Measures

CR 2008-3406, Incorrect statement in the internal flooding DBD

Vermont Yankee IPEEE, June 1998

Vermont Yankee Topical Design Basis Document for Internal Flooding, Rev. 9

VY-NE-06-00011, VY Probabilistic Safety Assessment: Internal Flooding Analysis, App.C Rev.

0

Section 1R11: Licensed Operator Regualification Program

Condition Reports

2006-2537, Adequacy of ON-3174 for dealing with a sustained loss of instrument AC based on current simulator model.

2006-2793, Sim water level response to LBLOCA does not appear to be correct

2006-2816, Sim NR RPV level instruments fail high during an RPV-ED.

2007-0065, Sim deficiency discovered during Licensed Operator initial training.

2007-1291, Near-miss operation on energized equipment

2007-1950, Some sim transient testing methodologies do not meet current industry practices or recent regulatory expectations.

2007-3058, Inadvertent 15% transfer of B CPS to A CPS

2007-3243, Partial Failure of Cooling Tower Cell 2-4

2007-3294, Tagging Requirements of EN-OP-102 Not Implemented

2007-3367, Incorrect Implementation of ON-3143, Stuck Control Rod

2007-4390, Sim Fidelity – Drywell temps in sim do not match plant data.

2008-2012, CD-91 found out of position

Simulator Transient Tests:

Manual Scram, 11/7/07

Simultaneous Closure of all MSIVs, 11/7/07

Simultaneous Trip of all Feedwater Pumps, 11/7/07

Simultaneous Trip of all Recirculation Pumps, 11/7/07

Single Recirculation Pump Trip, 11/7/07

Simultaneous MSIV Closure with a Single Stuck Open Safety Relief Valve, 11/7/07

Maximum Size Reactor Coolant Rupture with Loss of All Offsite Power, 11/7/07

Main Turbine Trip, 11/7/07

Maximum Size Unisolable Main Steamline Rupture, 11/7/07

Maximum Rate Power Ramp, 11/7/07

Scenario Based Tests:

LOR-25-901-5, 3/1/07

LOR-26-301-3, 10/18/07

LOR-263-6, 10/18/07

LOR-26-301-7, 10/18/07

LOR-25-801, 12/27/06

LOR-25-901, 3/7/07

Other Simulator Tests:

Two Rod Interlock Functional Test, 5/18/07

Recirc System Valve Operability Test, 6/2/07

CAD System valve Operability Test, 9/20/07

RHRWSW 'A' Pump and Valve Operability and Full Flow Test, 8/2/07
Cycle 25 Core Reactivity Tests, 6/26/07
Annual Malfunction Testing: Feedwater Pump Trip
Annual Malfunction Testing: CRD Pump Trip
Integrated Startup, Shutdown, and Steady State Test, 11/6/07

Miscellaneous Documents

Biennial Written Exam 2007 CRS-1
EN-NS-112, "Medical Program," Rev. 4
EN-TQ-202, "Simulator Configuration Control," Rev. 5
Lesson Plan VCBT-OPS-CTINSP "Cooling Tower Inspections" Rev 0
Lesson Plan VLP-AOR-26-605 "Responses"
LO-VTYLO-2007-0019: Corporate Assessment of Ops Training Fundamentals
LO-VTYLO-2008-0022: Operations Training Self Assessment Report, 5/21/2008
Root Cause Analysis Report: Structural Failure of CT 2-4
SIM-312 "Vermont Yankee Simulator Administration Manual" Rev. 5

Section 1R12: Maintenance Effectiveness

10CFR50.65 Maintenance Rule Scoping Basis Document – SBTG, Rev.3
CR 2008-1419, Display frozen on "A" SBTG parameter recorder
CR 2008-1606, SBTG now above maintenance rule reliability criteria
CR 2008-2433, "A" SBTG initial flow for secondary containment capability check was low
1st Quarter 2008 SBTG System Health Report
VY Maintenance Rule State of the System Report – SBTG, period ending 6/30/2008
VYSE-MRL-2008-010, 10CFR50.65 MR Performance Evaluation/Action Plan for SBTG

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

CR 2008-3391, VYAPF 0172.02 form for C-3-1A weld repair in WW 833 contained an error
EOOS Evaluation for WW0833 @ T-0, Rev. 1
EOOS Evaluation for WW0837 @ T-1, Rev. 1
LCO Maintenance Plan for "B" SBTG 9/8-9/11/08
On-Line Maintenance Safety Assessment Review, 7/14-CT 2-1/ACS Operable
On-Line Maintenance Safety Assessment Review, 8/4-8/10/08
On-Line Maintenance Safety Assessment Review, 8/11-8/17/08
Risk Management Worksheet, 8/13/08
Risk Management Worksheet, Service Water Pump P-7-1B is Unavailability, 9/26/08
VY River Turbidity Testing 2008 data, 7/28-8/15/08
WO 124545-01, Dredge River to Restore Intake Structure Critical Cross-Section

Section 1R15: Operability Evaluations

CR 2008-1194, A EDG Air System Leakage
CR 2088-2588, RCIC System relays Energized
CR 2008-3371, EDG Jacket water Heat Exchanger Bypass Drain Valve Out of Position
CR 2008-3443, Gland Seal Drain Line Press Hi
CR 2008-3481, HPCI Torus Suction Line Not Completely Full
OP 2120, "High Pressure Coolant Injection System", Rev. 55
WO 143590-01, Air leak on union below EDG-1A air start solenoid

LIST OF ACRONYMS

ADAMS	Agencywide Documents Access and Management System
ALARA	as low as is reasonably achievable
AP	Administrative Procedure
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CR	condition report
CT	cooling tower
CW	circulating water
DBD	Design Basis Document
DP	Vermont Yankee Departmental Procedure
DRP	Division of Reactor Projects
DRS	Division of Reactor Safety
EDG	emergency diesel generator
FZ	fire zone
HPCI	high pressure coolant injection
IMC	inspection manual chapter
IPEEE	Individual Plant Examination for External Events
LER	Licensee Event Report
MSPI	Mitigating System Performance Indicator
NCV	non-cited violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
OP	Vermont Yankee Operating Procedure
P&ID	pipng and instrumentation drawing
PARS	Publicly Available Records System
PI	performance indicator
PMT	post maintenance testing
RCIC	reactor core isolation cooling
RFO	refueling outage
RHR	residual heat removal
RWCU	reactor water cleanup
RWR	reactor water recirculating
SBGT	Standby Gas Treatment
SDP	significance determination process
SSC	structures, systems, or components
SW	service water
TS	Technical Specifications
UPS	uninterruptible power supply
UFSAR	Updated Final Safety Analysis Report
VY	Vermont Yankee
WO	work order