



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

August 5, 2008

Mr. Theodore A. Sullivan
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 05000271/2008003**

Dear Mr. Sullivan:

On June 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 July 10, 2008, with you and members of your staff.

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

This report documents one NRC identified finding of very low safety significance (Green). This finding was determined to involve a violation of NRC requirements. However, because of the very low safety significance and because it is entered into your corrective action program, the NRC is treating this finding as a non-cited violation (NCV) consistent with Section VI.A.1 of the NRC Enforcement Manual. If you contest the NCV in this report, you should provide a response with the basis for your denial, within 30 days of the date of this inspection report, to the United States Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at 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). ADAMS is accessible from the NRC Web Site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA /

Barry S. Norris, Acting Chief
Projects Branch 5
Division of Reactor Projects

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

Enclosure: Inspection Report No. 05000271/2008003
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

NRC's document system (ADAMS). ADAMS is accessible from the NRC Web Site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,
/RA/
Barry S. Norris, Acting Chief
Projects Branch 5
Division of Reactor Projects

Distribution:
S. Collins, RA
M. Dapas, DRA
D. Lew, DRP
J. Clifford, DRP
D. Jackson, DRP
B. Norris, DRP
N. Sieller, DRP
S. Williams, RI OEDO
M. Kowal, NRR
R. Nelson, NRR
J. Kim, PM, NRR
J. Boska, Backup PM, NRR
R. Fernandes, SRI
B. SieneI, DRP, Resident Inspector
A. Rancourt, DRP, Resident OA
ROPreports Resource
Region I Docket Room (with concurrences)

SUNSI Review Complete: BSN (Reviewer's Initials)

DOCUMENT NAME: G:\DRP\BRANCH5\Reports\Drafts\VY IR 2008003 rev 4.doc

ML082180854

After declaring this document "An Official Agency Record" it **will** be released to the Public.

To receive a copy of this document, indicate in the box: "C" = Copy without attachment/enclosure "E" = Copy with attachment/enclosure "N" = No copy

OFFICE	RI/DRP	RI/DRP
NAME	B SieneI/BSN for	B Norris/ BSN
DATE	08/04/08	08/ 05/08

OFFICIAL RECORD COPY

U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.: 50-271

License No.: DPR-28

Report No.: 0500271/2008003

Licensee: Entergy Nuclear Operations, Inc.

Facility: Vermont Yankee Nuclear Power Station

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

Dates: April 1 through June 30, 2008

Inspectors: R. Fernandes, Sr. Resident Inspector, Division of Reactor Projects (DRP)
B. Siemel, Resident Inspector, DRP
F. Arner, Sr. Reactor Inspector, Division of Reactor Safety (DRS)
J. Noggle, Senior Health Physicist, DRS
J. Tiff, Reactor Inspector, DRS

Approved by: Barry S. Norris, Acting Chief
Projects Branch 5
Division of Reactor Projects

TABLE OF CONTENTS

SUMMARY OF FINDINGS	3
1. REACTOR SAFETY	4
1R01 Adverse Weather Protection	4
1R04 Equipment Alignment	5
1R05 Fire Protection.....	6
1R06 Flood Protection Measures	6
1R11 Licensed Operator Requalification Program.....	6
1R12 Maintenance Effectiveness	7
1R13 Maintenance Risk Assessments and Emergent Work Control	9
1R15 Operability Evaluations	9
1R19 Post-Maintenance Testing	10
1R22 Surveillance Testing	10
1EP6 Drill Evaluation	11
2. RADIATION SAFETY	11
2OS3 Radiation Monitoring Instrumentation and Protective Equipment	11
4. OTHER ACTIVITIES [OA]	13
4OA1 Performance Indicator Verification	13
4OA2 Identification and Resolution of Problems	13
4OA6 Meetings, including Exit.....	16
ATTACHMENT: SUPPLEMENTAL INFORMATION	16
SUPPLEMENTAL INFORMATION	A-1
KEY POINTS OF CONTACT	A-1
LIST OF DOCUMENTS REVIEWED.....	A-1
LIST OF ACRONYMS	A-11

SUMMARY OF FINDINGS

IR 05000271/2008003; 04/01/2008 - 06/30/2008; Vermont Yankee Nuclear Power Station; Maintenance Effectiveness.

This report covered a 13-week period of inspection by the resident inspectors and region based inspectors. One Green NRC-identified finding was identified, which was classified as a non-cited violation (NCV). The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process (SDP)." Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Initiating Events

Green. The NRC identified a non-cited violation for Entergy's failure to take timely corrective action, as required by 10CFR50.65(a)(1), after the reactor building crane (RBC) exceeded reliability performance goals. Specifically, from April 12, 2007, when the RBC was classified as (a)(1), until May 12, 2008, when the RBC brakes failed to function during the movement of a spent fuel storage cask, Entergy failed to take corrective actions in response to the RBC not meeting established goals. This issue was entered into the licensee's corrective action program as Condition Report CR 2008-2043.

The issue is greater than minor because the failure to implement timely corrective actions resulted in the failure of the RBC brakes during the movement of a spent fuel storage cask. The finding is not suitable for evaluation under the Significance Determination Process, but has been reviewed by NRC management and was determined to be a finding of very low safety significance (Green) because the spent fuel storage cask was in an approved load path, and the refuel floor allowed the brakes to engage when sufficient load was removed from the hoist. This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, in that Entergy failed to take appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity. [P.1(d)]

B. Licensee-Identified Violations

None.

REPORT DETAILS

Summary of Plant Status

Vermont Yankee (VY) Nuclear Power Station began the inspection period operating at approximately 100 percent power. On April 1, Entergy reduced power to 44 percent to repair a minor tube leak in the main condenser; Entergy returned to full power on April 4, without repairing the tube leak because they were unable to identify the exact leak location. On May 26, Entergy reduced power to 72 percent because of reduced river flow and cooling tower unavailability due to maintenance; Entergy returned to 100 percent power on May 28, after completion of cooling tower maintenance. In addition, Entergy performed several power reductions for rod sequence exchange and minor rod pattern adjustments throughout the period. VY finished the inspection period operating at approximately 100 percent power.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 External Flooding

a. Inspection Scope (1 sample)

The inspectors reviewed Entergy's flood protection barriers and procedures for coping with external flooding in the switchgear rooms. The inspectors reviewed external flooding information contained in the External Events Design Basis Document (DBD) and compared it to the actions specified in operating procedure (OP) 3127, "Natural Phenomena." The inspectors performed walkdowns of the switchgear rooms and examined the equipment specified in the OP (sump pumps, floor drain plugs, etc.) to determine if it was available for use. The inspectors also reviewed a sample of external flooding-related conditions 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 of significance were identified.

.2 Alternating Current (AC) Power System Readiness

a. Inspection Scope (1 sample)

The inspectors performed a review of Entergy's offsite and alternate AC power system readiness for adverse weather. The inspectors reviewed Entergy's plant features and procedures for operation and continued availability of their AC power systems to determine if they were appropriate. The inspection focused on Entergy's procedures for communication protocols with the transmission system operator (TSO) to determine if appropriate information would be exchanged when issues arise that could impact the offsite power system. The inspectors also reviewed Entergy's procedures to determine

if they addressed necessary actions to be taken if notified by the TSO that they needed to transfer safety-related loads to the onsite power supply, compensatory actions to be taken if it were not possible to predict grid conditions, reassessment of plant risk based on maintenance activities which could affect grid reliability, and required communications between Entergy and the TSO. A list of documents reviewed is provided in the Attachment.

b. Findings

No findings of significance were identified.

.3 Seasonal Preparedness

a. Inspection Scope (1 sample)

The inspectors reviewed actions taken by Entergy to prepare the service water (SW), emergency diesel generator (EDG), and high pressure coolant injection (HPCI) systems for warm weather operations. The inspectors reviewed OP 2196, "Preparations for Cold Weather Operations," (Form VYOPF 2196.02, "Cold Weather Restoration Operations Checklist"); discussed the completion of items with operations personnel to determine if actions for the selected systems had been completed or were being tracked for completion; and independently walked down applicable portions of the plant, including the condensate storage tank, to determine if selected actions to prepare for warm weather operations had been completed appropriately.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04Q)

a. Inspection Scope (3 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 and OPs. The inspectors observed valve positions, power supply availability, and the general condition of selected components. Finally, the inspectors evaluated material condition, housekeeping, and component labeling. A list of documents reviewed is provided in the Attachment.

- SW system while the alternate cooling system was out of service for planned maintenance;
- "B" Standby Gas Treatment (SBGT) system while "B" SBGT system was out of service for planned maintenance; and
- "A" and "B" Standby Liquid Control (SLC) trains following maintenance on the "A" SLC pump

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 areas (FAs) and fire zones (FZs) were inspected:

- East Switchgear Room (FA-4);
- West Switchgear Room (FA-5);
- Cable Vault (FZ-2);
- Battery Room (FZ-3); and
- 345 KV Relay House (no fire designation)

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)a. Inspection Scope (1 sample)

The inspectors reviewed Entergy's flood protection barriers and procedures for coping with internal flooding in the EDG equipment rooms. The inspectors reviewed internal flooding design information associated with this location in Entergy's IPEEE, the Updated Final Safety Analysis Report (UFSAR), and in the Internal Flooding DBD. The inspectors conducted a walk down of the area to determine if equipment and structures needed to mitigate an internal flooding event were available, as described in Entergy design documents. A listing of documents reviewed is provided in the Attachment of this report.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Regualification Program (71111.11Q)a. Inspection Scope (1 sample)

The inspectors observed a simulator-based licensed operator requalification exam on June 2, 2008. The inspectors evaluated crew performance in the areas of clarity and formality of communications; ability to take timely actions; prioritization, interpretation,

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

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q)

a. Inspection Scope (2 samples)

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

- HPCI controller output drifting below 100 percent; and
- Reactor building crane (RBC) failure to stop while lowering cask to the refuel floor

b. Findings

Introduction: A non-cited violation (NCV) was identified for Entergy's failure to take timely and appropriate corrective action prescribed per paragraph (a)(1) of 10CFR50.65, when the RBC exceeded the licensee-established reliability performance goals. As a result, the RBC brakes failed to function during the movement of a spent fuel storage cask on May 12, 2008.

Discussion: The RBC (CR-1-1A) is within the scope of the MR (10CFR50.65 (b)(2)(ii) and (iii)) and is tracked as a subsystem of the hoist system. The RBC is a non-safety related, non-risk significant SSC whose failure could prevent safety-related SSCs from fulfilling their safety-related function or whose failure could cause a reactor scram or actuation of a safety-related system. In this case, the failure of the RBC could result in a heavy load impacting components in the "B" Train of the emergency core cooling systems and has the potential to cause a reactor scram by impacting the reactor building structure. The RBC is used during outages to disassemble and reassemble the reactor containment and reactor vessel components. It is also used to transfer spent fuel storage casks from the spent fuel pool to the ground elevation of the reactor building. The RBC consists of a bridge that rides rails set into the reactor building structure. The RBC is controlled from a cubicle mounted on the bridge.

In April 2007, condition report (CR) 2007-1153 documented that the hoist system had entered MR category (a)(1) when it accrued seven MRFFs within a three year period, exceeding the maximum performance acceptance criteria. Entergy's evaluation established performance goals of zero spurious electrical control, hoist/load cell, and drive unit trips within the nine month monitoring period following implementation of corrective actions. Corrective actions included actions to improve crane performance and a review of the preventive maintenance basis documentation and the operating procedures to identify, clean, repair and/or change out components, as necessary.

On November 26, 2007, the RBC experienced additional MRFFs (CR 2007-4383) during preparations for dry fuel storage, requiring Entergy to revise the performance evaluation and action plan. Subsequently, on May 12, 2008, the RBC hoist failed while lowering a fully loaded spent fuel storage cask to the refuel floor. Specifically, the RBC hoist failed to respond to the stop signal with the cask four inches above the floor, and the cask continued to slowly lower to the floor. In the apparent cause evaluation (ACE), Entergy determined the failure to respond to the stop command was due the brake relay (2VR-H) not de-energizing and the backup relay (1VR-H) not energizing to actuate the brakes. The relay failures were determined to be due to setpoint drift.

The inspectors reviewed CRs, work orders (WOs), and ACE reports. The inspectors determined that corrective actions established following entry into MR (a)(1) had not been effective in preventing additional MRFFs. The May 12 failure was due to the setpoint drift of the relays. The inspectors determined that Entergy failed to take appropriate corrective actions when system performance goals were not met, prior to moving spent fuel.

Analysis: The inspectors determined that the performance deficiency was failure to take timely corrective action when exceeding a licensee established reliability goal. Specifically, Entergy used the RBC to move spent fuel storage casks before the development and implementation of a corrective action plan in accordance with the requirements of 10CFR50.65 (a)(1). The issue is greater than minor because the failure to implement timely corrective actions resulted in the failure of the RBC brakes during the movement of a spent fuel storage cask. The finding is not suitable for evaluation under the Significance Determination Process, but has been reviewed by NRC management and was determined to be a finding of very low safety significance (Green) because the spent fuel storage cask was in an approved load path, and the refuel floor allowed the brakes to engage when sufficient load was removed from the hoist.

This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, in that Entergy failed to take appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity. [P.1(d)]

Enforcement: 10CFR50.65 (a)(1), requires the holders of an operating license to monitor the performance or condition of SSCs within the scope of the MR, as defined by 10CFR50.65(b), against licensee-established goals, in a manner sufficient to provide reasonable assurance that such SSCs are capable of fulfilling their intended functions. The established goals shall be commensurate with safety. When the performance or condition of a SSC does not meet established goals, appropriate corrective action shall

be taken. Contrary to the above, from April 12, 2007, when the hoist system (RBC) exceeded its reliability criteria and was classified as (a)(1), until May 12, 2008, when the RBC failed while moving a loaded spent fuel storage cask, Entergy failed to take timely corrective action when the RBC did not meet established goals. However, because the violation was determined to be of very low safety significance (Green) and has been entered into Entergy's corrective action program (CAP), the violation is being treated as a Non-Cited Violation (NCV), consistent with VI.A.1 of the NRC Enforcement Policy. **(NCV 05000271/2008003-01, Ineffective Reactor Building Crane Maintenance)**

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

a. Inspection Scope (5 samples)

The inspectors evaluated online risk management for three planned and two 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 also compared the items to the requirements in Administrative Procedure (AP) 0125, "Plant Equipment," and AP 0172, "Work Schedule Risk Management - Online." Additional documents reviewed are listed in the attachment. The inspectors also walked down areas of the plant containing equipment that was determined to have higher risk significance during the following work activities:

- Planned downpower for condenser tube leakage troubleshooting;
- Planned maintenance on cooling tower (CT) 2-1;
- Emergent troubleshooting for turbine generator emergency trip test switch failure;
- Planned maintenance rendering "A" EDG unavailable and "B" EDG inoperable; and,
- Emergent placement of alternate cooling in service on dry fuel storage cask 1

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope (5 samples)

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

- Reactor building fire panel failed battery test;
- Portion of engineering fix not installed on CT 2-1/2-2 partition wall;
- HPCI flow controller output drifting down;

- Degraded column identified in CT 2-1; and,
- Reactor building crane hit rail stop

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope (6 samples)

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

- CT 2-1 fan motor control time delay relay replacement;
- CT 2-1 inspection and structural repairs;
- Feedwater regulating valve 12B positioner replacement;
- HPCI flow controller troubleshooting and calibration;
- HPCI flow controller replacement; and,
- Electronic pressure regulator failure troubleshooting and repair.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope (6 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. Additional documents reviewed are listed in the Attachment. The inspectors observed selected pre-job briefings for the test activities. The inspectors also checked to determine if discrepancies were appropriately documented in the CAP. The inspectors reviewed the following surveillance testing:

- "B" residual heat removal (RHR) quarterly pump surveillance;
- "B" residual heat removal service water (RHRSW) quarterly pump surveillance;

- main steam isolation valve full closure timing and reactor protection system relay actuation functional test;
- main steam line high flow functional test;
- reactor core isolation cooling (RCIC) quarterly pump and valve test; and,
- torus-to-drywell vacuum breakers breakaway and opening force test

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope (1 sample)

On April 3, 2008, the inspectors observed an emergency plan management team response to a simulator-based event during emergency plan training activities. The inspectors discussed the performance expectations and results with the lead controller. The inspectors focused on the ability of the team to perform event classifications and make proper notifications in accordance with station procedures.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS3 Radiation Monitoring Instrumentation and Protective Equipment (71121.03)

a. Inspection Scope (9 samples)

During May 27-30, 2008, the inspector conducted the following activities to evaluate the operability and accuracy of radiation monitoring instrumentation, and the adequacy of the respiratory protection program for issuing self-contained breathing apparatus (SCBA) to emergency response personnel. Implementation of these programs was reviewed against the criteria contained in 10CFR20, applicable industry standards, and the licensee's procedures. Additional documents reviewed are listed in the attachments.

- 1) UFSAR Sections 9.2, Liquid Radwaste System; 9.3, Solid Radwaste System; and 9.4, Gaseous Radwaste System, were reviewed to identify applicable radiation monitors associated with transient high radiation areas in the plant for review.
- 2) The radiation protection (RP) instrument issue area provided for the selection of portable RP instruments that were available for use for job coverage of radiologically significant areas.

- 3) Current calibration records and applicable calibration procedures were reviewed for the following plant radiation monitors and portable RP instruments. In addition, the applicable calibrators utilized were reviewed for National Institute of Standards and Technology standard traceability.

Plant Radiation Monitors

- main steam line radiation monitors
- traversing in-core probe room area radiation monitor
- east and west refuel floor area radiation monitors
- spent fuel pool area radiation monitor
- reactor water clean up phase separator area radiation monitor
- reactor building ventilation and refueling area zone monitors
- containment high range radiation monitors
- steam jet air ejector off-gas radiation monitors

Portable RP Instruments

- 3 radiation survey instruments
- 2 extendable probe survey instruments
- 2 continuous air monitors
- 3 air samplers
- 2 personal lapel air samplers
- 10 electronic dosimeters
- 1 neutron radiation survey instrument

Calibrators

- shepherd 89 survey instrument calibrator
 - technical operations 682 instrument calibrator
 - 2 air sampler flow calibrators
 - 1 area radiation monitor calibrator
- 4) Radiological incidents involving internal exposures identified by condition reports were reviewed for 2008. In addition, dosimetry electronic records were queried for any internal exposures >50 mrem committed effective dose equivalent. None were identified for further review.
- 5) The inspector reviewed twelve condition reports initiated between November 2007, and May 2008, relative to the radiation protection program and radiation monitoring instrument deficiencies to determine if the deficiencies were appropriately characterized and corrected commensurate with their safety significance. The inspector verified that problems identified by these CRs 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 occurrences.
- 6) Based on the condition reports reviewed, no repetitive deficiencies were identified for further follow-up.
- 7) With respect to the RP portable instruments listed in 3) above, the instrument calibration expiration and response check stickers were reviewed. The applicable

response check beta-source and instrument sign-out procedures were also reviewed.

- 8) Emergency plan designated SCBA equipment and qualified users were sampled. This included inspection of selected SCBAs in the main control room, administration building hallway, alternate brigade room, and turbine building decon booth. Selected SCBA qualification records for on-shift reactor operators were verified for current use qualification.
- 9) Selected SCBA units in the main control room and in the administration building were examined for periodic air cylinder hydrostatic testing and maintenance records. Review of approved replacement parts documentation and certification of the repair personnel was performed.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES [OA]

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope (2 samples)

Barrier Integrity Cornerstone

The inspectors sampled Entergy submittals for the performance indicators (PIs) listed below for the period from April 2007 to March 2008. The inspectors reviewed portions of operator rounds surveillances, monthly reactor coolant iodine isotopic reports, and related CRs. The inspectors discussed the methods for compiling the data with the responsible operations and chemistry personnel. The PI definitions and guidance contained in Nuclear Energy Institute 99-02, "Regulatory Assessment 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. Additional documents reviewed are listed in attachment.

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

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Review of Items Entered into the Corrective Action Program

a. Inspection Scope

The inspectors performed a screening of each item entered into Entergy's 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 Semi-Annual Trend Review

a. Inspection Scope (1 sample)

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

b. Assessment and Observations

No findings of significance were identified.

.3 Annual Sample – HPCI/RCIC Flow Oscillations

a. Inspection Scope (1 Sample)

The inspectors reviewed Entergy's corrective actions associated with RCIC and HPCI system flow oscillations during response to a plant trip on July 25, 2005. The inspection focused on the Entergy's actions and evaluations performed relative to assuring that HPCI and RCIC could provide injection flow rates consistent with those credited in postulated transient and accident analyses. The NRC previously documented a finding with Entergy's evaluation of system operability given the potential for flow oscillation conditions (NCV 05000271/2006007-03). Entergy initiated CR 2006-2524 in response to the finding. This current review focused on Entergy's troubleshooting and corrective actions in response to the NCV.

The inspectors reviewed the basis for the revised operability evaluation associated with CR 2006-2524, to assess the depth and technical adequacy, and the associated ACE. The inspectors reviewed the adequacy of the compensatory actions, including procedure changes to aid the operators in responding to potential oscillating flow conditions (i.e., placing the flow controllers in the manual mode of operation). Licensed operator training lesson plans were reviewed to see if the flow oscillation event had been incorporated into the internal operating experience section. The inspectors reviewed flow rate data from the original event and relevant industry information regarding system operation in the automatic mode below rated flow rates. The inspectors reviewed the results of Entergy's RCIC turbine control system oil inspection and the actions taken with regard to contaminants found in the oil system during

cleaning and flushing activities performed in April 2007. A list of documents reviewed is included in the attachment.

The inspectors reviewed flow controller settings, inner speed loop control settings, and calibration activities for the RCIC and HPCI systems, to determine if the settings were reasonable, and to identify any significant deviations from the original tuning parameters. The inspectors reviewed RCIC test data from May 2007, to determine if system response indicated stability while injecting to the reactor vessel. In addition, HPCI flow controller performance test data from March 2008, was reviewed to determine if system flow rates became divergent and unstable during flow rate step changes, in the manual and automatic mode of flow control operation, and at high flow rate and low flow rate conditions.

b. Findings and Observations

No findings of significance were identified. The inspectors determined that Entergy's evaluation for CR 2006-2524 was adequate, in that it addressed the overall HPCI/RCIC system operability issues. The inspectors also noted that during Entergy's review, they self-identified a potential adverse trend with respect to the rigor of performing operability determinations. Entergy initiated CR 2006-2863 to address this as part of their ACE report addressing the original insufficient documentation of the operability basis for the HPCI and RCIC systems.

With respect to the potential for system flow oscillations, the inspectors agreed with Entergy's conclusion that both systems remained operable and there was reasonable assurance that the systems would provide the required flow in response to postulated transients and accident conditions. The inspectors noted that the flow oscillations during the 2005 plant trip occurred when the HPCI flow controller was in automatic, with flow below 75 percent of rated. This is consistent with industry operating experience. The inspectors noted that oscillations have not recurred during surveillance test when the system was at or near design flow. The inspectors determined that operating procedures and the licensed operator training program lesson plans have been appropriately revised.

The inspectors noted that Entergy had not shared the operating experience, internally or externally, about the particulate found in the RCIC oil reservoir in April 2007. In addition, the inspectors noted that Entergy had initiated a preventive maintenance task to clean the reservoir during major overhauls, but the task was not formally tracked. Entergy initiated CR 2008-1100.

.4 Annual Sample – Challenges to Feed and Condensate System

a. Inspection Scope (1 Sample)

The inspectors reviewed Entergy's corrective actions associated with the "C" reactor feed pump (RFP) trip on August 4, 2007, and the "A" condensate pump seal failure on August 27, 2007. Both events impacted the operation of the station and potentially challenged safe plant operation. The RFP trip caused an automatic runback and subsequent reduction of reactor power to 80 percent. The condensate pump seal leak prevented operations from performing power ascension.

b. Findings and Observations

No findings of significance were identified. Entergy determined that the RFP trip was the result of the failure of a Hancock Model 5500 valve in the RFP low suction flow instrumentation line. The valve disc separated from the stem because of the failure of a locking ring; the ring holds the disc and stem together. Because of the large number of valves of this type at VY, Entergy developed specific factors to determine the extent of condition and scope of repair of the valves, including the valve orientation; valve position; service use; preventive maintenance history; and applications with unacceptable consequences should the valve fail. Corrective actions included inspecting all the valves which met all the criteria. Inspection of the other RFP flow instrumentation isolation valves has been scheduled for the upcoming outage.

Entergy determined that the apparent causes for the condensate pump seal failure were a greater than normal rate of wear on the carbon seal face and a lack of adequate flushing of the seal by the seal water injection source to remove the seal wear debris. Entergy identified that there was significant history of condensate pump seal failures; however, there had only been two in the last nine years, and that the seals are changed out on a four and one half year preventive maintenance basis. During steady state plant operations, the seals demonstrate satisfactory performance; however, when the pumps are started, the seal face is subject to potential misalignment caused by debris between the seal faces. Corrective actions included an engineering change to replace the existing condensate pump seal design. The inspector determined that the problem investigation, extent of condition, and corrective actions were appropriate; however, the inspector noted that the engineering change has not been scheduled for implementation.

4OA6 Meetings, including Exit

Exit Meeting Summary

On July 10, 2008, the resident inspectors presented the inspection results to Mr. Theodore Sullivan, Site Vice President, and other members of the VY staff. The inspectors confirmed that no proprietary information was provided or examined during the inspection.

ATTACHMENT: SUPPLEMENTAL INFORMATION

Enclosure

SUPPLEMENTAL INFORMATION**KEY POINTS OF CONTACT**Entergy Personnel

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

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSEDOpened and Closed

05000271/2008003-01	NCV	Ineffective Reactor Building Crane Maintenance (Section IR12)
---------------------	-----	--

Discussed

05000271/2006007-03	NCV	Inadequate Corrective Actions for HPCI/RCIC Terry Turbine Controller Flow Oscillations (Section 40A2.3)
---------------------	-----	---

LIST OF DOCUMENTS REVIEWED**Section 1R01: Adverse Weather Protection**Condition Reports

CR-2004-2804	CR-2007-2166, CA-17	CR 2008-2394
CR 2007-0570	CR 2007-2411	CR 2008-2610
CR 2007-0942	CR 2007-2424	CR 2008-2622

Procedures

AP 0172, Work Schedule Risk Management – On Line, Revision 19
 ENN-PL-158, Transmission Grid Interface and Compliance with NERC Standards, Revision 1
 ISO New England Operating Procedure No. 4, Action During a Capacity Deficiency, Revision 8
 ISO New England Operating Procedure No. 12, Voltage and Reactive Control, Revision 3
 ON 3179, Grid Instability, Revision 2
 OP 2140, 345 KV Electrical System, Revision 50
 OP 2141, 115 KV Switchyard, Revision 18
 OP 2181, Service Water/Alternate Cooling Operating Procedure, Revision 109
 OP 2192, Heating Ventilating and Air Conditioning System, Revision 65
 OP 2196, Preparations for Cold Weather Operations, Revision 29
 OP 3127, Natural Phenomena, Revision 25
 VYOPF 4181.02, SW Valve Operability Test – Quarterly Basis, completed 4/28/08
 VYOPF 4181.07, SW Manual Valve Exercising - Once Per Cycle, completed 4/18/08

Miscellaneous

LER 87-08, Loss of Normal Power During Shutdown Due to Routing All Off-Site Power Sources Through One Breaker, Revision 1
Topical Design Basis Document for External Events, Revision 2
UFSAR Section 2.4.3.4, Floods
WO 115706-01, MH-17:1335H conduit flood seal has separated from cable
WO 51097376-01, Porta-pump B preventive maintenance, completed 6/12/07
WO 51097377-01, Porta-pump A preventive maintenance, completed 6/12/07

Section 1R04: Equipment Alignment

Procedures

OP 2114, Operation of the Standby Liquid Control System, Revision 33
OP 2117, Standby Gas Treatment, Revision 17
OP 2181, Service Water/Alternate Cooling Operating Procedure, Revision 109

Drawings

G-191159, Sheet 1, Flow Diagram Service Water System, Revision 75
G-191238, HVAC Flow Diagram Reactor Building, Revision 33
G-191171, Flow Diagram Standby Liquid Control System, Revision 27

Section 1R05: Fire Protection

Procedures

OP 4002, Integrity Surveillance of Fire Detectors and Suppression Systems, Revision 14
OP 4103, Fire Protection Equipment Surveillance, Revision 43
OP 4339, Surveillance of Fire Protection Detectors/Instruments, Revision 38

Pre-fire Plans

PFP-CB-2, Cable Vault, Revision 05/27/07
PFP-CB-3, Switchgear Rooms, Revision 05/27/07
PFP-RH, Relay House, Revision 05/27/07

Miscellaneous

Fire Hazards Analysis, Revision 9

Section 1R06: Flood Protection Measures

Condition Reports

CR 2005-3992 CR 2007-4568

Drawings

G-191665, Sheet 1, Turbine Building Riser Diagrams Plumbing & Draining, Revision 9

Miscellaneous

BVY 99-162, "Response to Request for Additional Information Concerning VY-IPEEE", 12/28/99
UFSAR Section 10.6, Station Service Water System, Revision 22
NRC Information Notice 2005-30 Safe Shutdown Potentially Challenged By Unanalyzed Internal Flooding Events and Inadequate Design
VY Individual Plant Examination of External Events (IPEEE), Staff Evaluation Report, For Internal Flooding Analysis, Enclosure 5, 1/19/2001
VY Individual Plant Examination External Events (IPEEE), June 1998
VY Internal Flooding Topical Design Basis Document, Revision 9

Section 1R12: Maintenance Effectiveness

Condition Reports

2007-1153	2007-4493	2008-1821
2007-4383	2007-1640	2008-2252

Procedures

OP 0150, Conduct of Operations and Operator Rounds, Revision 171
 OP 2200, Operation of the Reactor and Turbine Bridge Cranes, Revision 34
 OP 5240, Turbine and Reactor Building Bridge Crane Inspection and Maintenance, Revision 28

Miscellaneous

10 CFR 50.65 Maintenance Rule Performance Evaluation/Action Plan for Hoist System
 10 CFR 50.65 Maintenance Rule Scoping Basis Document – HPCI, Revision 4
 10 CFR 50.65 Maintenance Rule SSC Basis Document – Hoists
 1st Quarter 2008 HPCI System health Report
 EN-DC 205, Maintenance Rule Monitoring, Revision 1
 EN-DC 206, Maintenance Rule (a)(1) Process, Revision 1
 HPCI SSC performance history 6/1/05-6/6/08
 Root Cause Analysis Report, Reactor Building Crane (CR-1-1A) Main Hoist Malfunction
 CR 2008-2043
 WO 114776-01, CR-1-1A Perform reliability inspection with vendor Crane Inspection Manual
 WO 153289-05, Replace amplifier card on removed HPCI flow controller

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

AP 0172, Work Schedule Risk Management- On Line, Revision 19
 DP 2226, MPC Alternate Cooling, Revisions 5/1/08 and 5/14/08

Miscellaneous

EOOS Evaluation for WW0814, Revision 1 and Revision 2
 EOOS Evaluation for WW0818, Revision 1 and Revision 3
 EOOS Evaluation for WW0819, Revision 4
 LCO Maintenance Plan for CT 2-1 (ACS) work 4/29 – 5/2/08
 On-Line Maintenance Safety Assessment Review, 3/31/08 to 4/6/08, completed 03/27/08
 On-Line Maintenance Safety Assessment Review, 5/5/08 to 5/12/08, completed 5/2/08
 On-Line Maintenance Safety Assessment Review, 6/2/08 to 6/8/08, completed 6/4/08
 Risk Management Worksheet, 5/5-5/8/08
 Risk Management Worksheet, 6/5/05
 Work Week Schedules, 5/5/08-5/11/08 and 5/12/08-5/18/08

Section 1R15: Operability Evaluations

CR 2008-1537	CR 2008-1866	CR 2008-2616
CR 2008-1821	CR 2008-2477	

ENVY Design Engineering Initial Operability Recommendation, System CR-1-1A Reactor
 Building Crane, Revision 0 and Revision 1
 HPCI Design Basis Document
 SYSENG 2006-002, Evaluation of HPCI’s Performance of Safety Functions for PRO-0504120
 WO 139027-08, CR-1-1A: Inspection Crane in Response to CR-VTY-2008-2477

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

OP 4120, High Pressure Coolant Injection System Surveillance, Revision 74
 OP 5353, Feed Regulation Valve Maintenance, Revision 18
 RP 5352, Electronic Pressure Regulator (EPR) – CV/BPV Functional/Calibration Test,
 Revision 16

Work Orders

WO 130385-02, Perform structural repairs to CT 2-1
 WO 143184
 WO 149512, Troubleshoot low HPCI controller output indication
 WO 152608-01, EPR failure troubleshooting
 WO 153289-03, Replace HPCI flow controller FIC-23-108
 WO 51510755-01, Replace time delay relay for CT 2-1 motor control

Completed PMTs

VYOPF 4120.01, HPCI Pump Operability and Flow Rate Test, Completed 6/5/08
 VYOPF 5353.02, As-Found Valve and Positioner Calibration, Completed 04/01/08
 VYOPF 5353.04, Timing and Lockup Valve Verification, Completed 04/01/08
 VYOPF 5353.05, AOV Restoration Final Conditions, Completed 04/02/08
 VYRPF 5352.12, As-Found/As-Left Settings EPR, Completed 5/22/08
 VYRPF 5352.13, EPR Power Supply & Relay Checks Data Sheets, Completed 5/22/08

Section 1R22: Surveillance Testing**Procedures**

OP 4113, Main and Auxiliary Steam System Surveillance, Revision 30
 OP 4115, Primary Containment Surveillance, Revision 60
 OP 4121, Reactor Core Isolation Cooling System Surveillance, Revision 77
 OP 4124, Residual Heat Removal and RHR Service Water System Surveillance, Revision 112

Miscellaneous

CR 2008-2491
 VYOPF 4113.02, MSIV Full Closure Timing and RPS Relay Actuation Functional Test Data
 Sheet, Completed 6/11/08
 VYOPF 4115.03, Torus-To-Drywell Vacuum Breakers Breakaway and Opening Data Sheet
 VYOPF 4124.04B, RHR Pump “B” Operability Data Sheet, Completed 4/24/08
 VYOPF 4124.04D, RHR Pump “D” Operability Data Sheet, Completed 4/24/08
 VYOPF 4124.06B, RHRSW Pump “B” and Valve Operability and Full Flow Test Data Sheet,
 Completed 4/24/08
 VYOPF 4124.06D, RHRSW Pump “D” and Valve Operability and Full Flow Test Data Sheet,
 Completed 4/24/08

Section 2OS3: Radiation Monitoring Instrumentation and Protective Equipment**Condition Reports**

2007-4183	2007-4604	2008-0079	2008-1662
2007-4529	2007-4676	2008-0286	2008-1863
2007-4552	2007-4712	2008-0316	2008-2034

Procedures

DP 4540, Revision 32, Operation of Radiation Protection Standard Sources and R-Chamber
EN-RP-150, Revision 1, Radiography and X-Ray Testing

OP 4315, Revision 31, Main Steam Line Radiation Monitor Calibration

OP 4326, Revision 21, Reactor Building Ventilation and Refueling Floor Radiation Monitor
Functional/Calibration

OP 4333, Revision 7, Reactor Building High Range Area Radiation Monitor Functional Check

OP 4384, Revision 25, Area Radiation Monitor Functional Check

OP 4387, Revision 24, Air Ejector Offgas Radiation Monitor Electronic Calibration

OP 4503, Revision 12, Source Calibration of Reactor Building Ventilation and Refueling Zone
Area Radiation Monitors

OP 4505, Revision 10, Source Calibration of Main Steam Line Radiation Monitors

OP 4507, Revision 15, Source Calibration and monthly Check of Steam Jet Air Ejector Off-Gas
Monitors

OP 4521, Revision 10, Source Calibration of Containment High Range Radiation Monitor

RP 4522, Revision 7, Calibration of the Reactor Building Radiation Monitoring System

Section 40A1: Performance Indicator Verification

CR 2007-2664 CR 2008-1999 CR 2008-2025

Technical Specifications

Section 40A2: Identification and Resolution of ProblemsCondition Reports

2006-2524	2008-1941	2008-2307
2008-1100	2008-1944	2008-2308
2008-1434	2008-1946	2008-2313
2008-1493	2008-1955	2008-2314
2008-1509	2008-1968	2008-2324
2008-1536	2008-1985	2008-2328
2008-1599	2008-2007	2008-2330
2008-1662	2008-2141	2008-2332
2008-1697	2008-2161	2008-2343
2008-1729	2008-2196	2008-2445
2008-1812	2008-2279	2008-2585
2008-1816	2008-2282	

Procedures

OP 2120, Appendix B, Automatic HPCI Initiation, Revision 54

OP 2121, Appendix B, Automatic RCIC Initiation, Revision 30

OP 2121, Appendix C, Manual RCIC Injection, Revision 51

OP 4120, High Pressure Coolant Injection System Surveillance, Revision 74

OP 5376, RCIC Control System Calibration Test, Revision 8

OP 5337, HPCI Control System Calibration Test, Revision 7

Miscellaneous

Calibration Data Sheet, Standard Calibration for Equipment No. FIC-23-108

Calibration Data Sheet, Standard Calibration for FC-13-91

Closure Basis of Operability Evaluation for HPCI & RCIC Flow Oscillations, dated 5/2/2008

HPCI Quarterly Surveillance Flow Data, dated 2/20/2008

LOT 00206, High Pressure Cooling Injection, Revision 27

LOT 00217, Reactor Core Isolation Cooling, Revision 27
 Post Trip Report 2005-01, Related to HPCI and RCIC oscillations, dated 7/25/2005
 RCIC Quarterly Surveillance Flow Data, dated 11/28/2006
 RCIC Quarterly Surveillance Flow Data, dated 2/15/2007
 SIL 336, Surveillance Testing Recommendations for HPCI and RCIC Systems, Revision 1

LIST OF ACRONYMS

ACE	Apparent Cause Evaluation
ADAMS	Agencywide Documents Access and Management System
AP	Administrative Procedure
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CR	Condition Report
CT	Cooling Tower
DBD	Design Basis Document
DRP	Division of Reactor Projects
DRS	Division of Reactor Safety
EDG	Emergency Diesel Generator
FA	Fire Area
FZ	Fire Zone
HPCI	High Pressure Coolant Injection
IMC	Inspection Manual Chapter
IPEEE	Individual Plant Examination for External Events
MR	Maintenance Rule
MRFF	Maintenance Rule Functional Failure
NCV	Non-Cited Violation
NIST	National Institute of Standards and Technology
NRC	Nuclear Regulatory Commission
OP	Operating Procedure
PARS	Publicly Available Records System
PI	Performance Indicator
PMT	Post Maintenance Testing
RBC	Reactor Building Crane
RCIC	Reactor Core Isolation Cooling
RFP	Reactor Feed Pump
RHR	Residual Heat Removal
RHRSW	Residual Heat Removal Service Water
RP	Radiation Protection
SBGT	Standby Gas Treatment
SCBA	Self Contained Breathing Apparatus
SDP	Significance Determination Process
SLC	Standby Liquid Control
SSC	Structures, Systems, and Components
SW	Service Water
TS	Technical Specifications
TSO	Transmission System Operator
UFSAR	Updated Final Safety Analysis Report
VY	Vermont Yankee
WO	Work Order