

May 5, 2003

Mr. Jay K. Thayer  
Site Vice President - Vermont Yankee  
Entergy Nuclear Vermont Yankee, LLC  
P.O. Box 0500  
185 Old Ferry Road  
Brattleboro, Vermont 05302-0500

SUBJECT: VERMONT YANKEE NUCLEAR POWER STATION - NRC INTEGRATED  
INSPECTION REPORT 50-271/03-02

Dear Mr. Thayer:

On March 28, 2003, the US Nuclear Regulatory Commission (NRC) completed an inspection at your Vermont Yankee Nuclear Power Station. The enclosed report documents the inspection findings which were discussed on April 14, 2003, with Mr. K. Bronson and other 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 two NRC-identified findings and one self-revealing finding of very low safety significance (Green), all of which were determined to involve violations of NRC requirements. However, because of the very low safety significance and because they are entered into your corrective actions program, the NRC is treating these three findings as non-cited violations (NCVs), consistent with Section VI.A of the NRC's Enforcement Policy. If you contest these non-cited violations, 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, D.C. 20555-0001; with copies to the Regional Administrator Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at the Vermont Yankee Nuclear Power Station.

Since the terrorist attacks on September 11, 2001, the NRC has issued five Orders (dated February 25, 2002, January 7, 2003, and April 29, 2003) and several threat advisories to licensees of commercial power reactors to strengthen licensee capabilities, improve security force readiness, and enhance controls over personnel access authorization. The NRC also issued Temporary Instruction 2515/148 on August 28, 2002, that provided guidance to inspectors to audit and inspect licensee implementation of the interim compensatory measures (ICMs) required by the February 25<sup>TH</sup> Order. Phase 1 of TI 2515/148 was completed at all commercial nuclear power plants during calendar year (CY) '02, and the remaining inspections are scheduled for completion in CY '03. Additionally, table-top security drills were conducted at several licensees to evaluate the impact of expanded adversary characteristics and the ICMs

on licensee protection and mitigative strategies. Information gained and discrepancies identified during the audits and drills were reviewed and dispositioned by the Office of Nuclear Security and Incident Response. For CY '03, the NRC will continue to monitor overall safeguards and security controls, conduct inspections, and resume force-on-force exercises at selected power plants. Should threat conditions change, the NRC may issue additional Orders, advisories, and temporary instructions to ensure adequate safety is being maintained at all commercial power reactors.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of 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/

Clifford J. Anderson, Chief  
Projects Branch 5  
Division of Reactor Projects

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

Enclosure: Inspection Report 50-271/03-02  
w/Attachment: Supplemental Information

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**U.S. NUCLEAR REGULATORY COMMISSION**

REGION I

Docket No. 50-271

Licensee No. DPR-28

Report No. 50-271/03-02

Licensee: Entergy Nuclear Vermont Yankee, LLC

Facility: Vermont Yankee Nuclear Power Station

Location: 546 Governor Hunt Road  
Vernon, Vermont  
05354-9766

Dates: December 29, 2002 - March 28, 2003

Inspectors: David L. Pelton, Senior Resident Inspector  
Edward Knutson, Resident Inspector  
Beth Siemel, Resident Inspector  
Frank Arner, Senior Project Engineer  
Jennifer Bobiak, Reactor Engineer  
Joseph T. Furia, Senior Health Physicist  
David M. Silk, Senior Emergency Preparedness Inspector  
Kenneth M. Jenison, Senior Project Engineer

Approved by: Clifford J. Anderson, Chief  
Projects Branch 5  
Division of Reactor Projects

## SUMMARY OF FINDINGS

IR 05000271/2003-002; Entergy Nuclear Vermont Yankee LLC; on 12/29/02-03/28/03; Vermont Yankee Nuclear Power Station; Adverse Weather Protection, Access Control, Identification and Resolution of Problems.

This report covered a 13-week period of baseline inspection conducted by resident inspectors. Additionally, announced inspections were performed by regional inspectors in the areas of radiation protection and emergency preparedness. Four Green non-cited violations (NCVs) were identified. The significance of 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 3, dated July 2000.

### A. Inspector Identified and Self-Revealing Findings

#### Cornerstone: Mitigating Systems

- Green. The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for the failure to take timely corrective actions in regards to condensate storage tank (CST) enclosure temperatures that fell below the administrative limits listed in auxiliary operator logs.

This finding is greater than minor because it affected the Mitigating Systems Cornerstone objective of equipment reliability, in that, CST level instruments were left vulnerable to low temperatures which could impact the automatic swap-over function of the high pressure injection (HPCI) and reactor core isolation cooling (RCIC) system suctions from the CST to the suppression pool. The finding was determined to be of very low safety significance because an actual loss of safety function did not occur with the level instrumentation. This finding also affected the cross-cutting area of Problem Identification and Resolution, in that, untimely corrective actions resulted in the vulnerability of the CST level instrumentation to cold temperatures. (Section 1R01)

#### Cornerstone: Barrier Integrity

- Green. The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," for a failure to adequately control the design of the HPCI system discharge check valves.

This finding is greater than minor because it affected the Barrier Integrity Cornerstone, in that, the inadequate design controls applied to the replacement of HPCI turbine exhaust check valves V23-3 and V23-4 resulted in repeated failures during local leakage rate tests performed on these valves. The finding was determined to be of very low safety significance because the failure of the

## Summary of Findings (cont'd)

check valves did not result in an actual open pathway in the physical integrity of reactor containment. (Section 4OA2.1)

### Cornerstone: Physical Protection

- Green. A self-revealing, non-cited violation of 10 CFR 26.24(a)(2) was identified for a failure of the licensee to perform random drug and alcohol testing on an annual rate equal to at least 50 percent of the workforce for calendar year 2002.

This finding is greater than minor because it affected the objectives of the Physical Protection Cornerstone, in that, it constituted a vulnerability that affected the licensee's Access Authorization System (Personnel Screening Program). The finding was determined to be of very low safety significance because the finding was not a malevolent act and the licensee had not had greater than two similar findings during the last four calendar quarters. (Section 3PP2)

### B. Licensee Identified Findings

One licensee identified violation of very low safety significance was reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. The associated event report generated by the licensee is listed in Section 4OA7 of this report.

## REPORT DETAILS

### Summary of Plant Status

Vermont Yankee Nuclear Power Station entered the inspection period operating at or near full power. On February 9, 2003, the licensee performed a reduction in power to approximately 30 percent and operated in a single-loop configuration (i.e., operated with one recirculation pump secured) in support of planned maintenance on the "B" recirculation pump motor-generator. Vermont Yankee was returned to full power on February 14, 2003 and, with the exception of minor power reductions for control rod pattern adjustments, continued at, or near, full power for the remainder of the inspection period.

#### 1. REACTOR SAFETY

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

#### 1R01 Adverse Weather Protection

##### a. Inspection Scope

The inspectors reviewed measures established by the licensee for coping with cold weather effects on the alternate cooling, HPCI, and RCIC systems. The inspectors reviewed the system's design basis documentation and performed a partial walkdown of accessible portions of the system. The inspectors evaluated the adequacy of the system against the requirements of Vermont Yankee Operating Procedure (OP) 2196, "Preparations for Cold Weather Operations," Revision 13, and the subfreezing operation of cooling towers section of OP 2180, "Circulating Water/Cooling Tower Operation," Revision 36. The inspectors also reviewed event reports to verify that those documents did not reveal issues that could affect the operability of the system.

##### b. Findings

Introduction: A Green inspector identified NCV was identified for a failure to take timely corrective actions, as required by 10 CFR 50, Appendix B, Criterion XVI, "Corrective Actions," to address low temperatures in the CST enclosure.

Description: The CST enclosure houses CST level transmitters LT-5A, B and LT12A, B. These level transmitters provide safety-significant signals for CST level indication as well as an automatic suction swap-over function for the HPCI and RCIC systems from the CST to the suppression pool. Auxiliary operators log CST enclosure temperature once during each 12-hour shift in accordance with VYOPF 0150.01, "Auxiliary Operator Round Sheet Outside," Revision 37.

The minimum allowed CST enclosure temperature listed in the "Required Condition" column of VYOPF 0150.01 is 50 degrees F. A minimum value of 50 degrees F was selected based on Vermont Yankee Calculations (VYC) 706, "CST Level (RCIC) Monitoring," and 0723, "CST Level (HPCI) Monitoring," which state that the calibration of

CST level transmitters LT-5A, B and LT-12A, B is assumed to be at CST enclosure temperatures between 45 and 100 degrees F.

The inspectors identified that on five separate occasions between January 19 and January 22, 2003, auxiliary operators logged condensate storage tank (CST) enclosure temperatures that were below 50 degrees Fahrenheit (F), however no action was taken by the licensee to ensure the CST level instrument was not subjected to temperatures below 45 degrees F during the period of time between log taking activities (outside air temperature at that time was at or below 0 degrees F). On January 23, 2003, the licensee initiated event report (ER) 2003-0186 to document low CST enclosure temperatures and installed temporary heating in the CST enclosure.

Analysis: The inspectors determined that this finding affected the objectives of the Reactor Safety Strategic Performance Area and the Mitigating Systems Cornerstone as discussed in NRC IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening." Specifically, the finding constituted a vulnerability with the automatic swap-over function of the HPCI and RCIC system suctions from the CST to the suppression pool (the safety-related water source) and was therefore considered to be more than minor. The inspectors determined that this finding was of very low safety significance through a review of the SDP Phase 1 screening worksheet because an actual loss of safety function did not occur with the level instrumentation. Additionally, the inspectors determined that in the event that the CST level transmitters were affected by low temperatures, operators could manually transfer the suctions of the HPCI or RCIC systems from the CST to the suppression pool from the control room. This finding was associated with the cross-cutting area of Problem Identification and Resolution, in that, untimely corrective actions resulted in the vulnerability of the CST level instrumentation to cold temperatures.

Enforcement: 10 CFR 50, Appendix B, Criterion XVI "Corrective Action," states, in part, that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. Vermont Yankee Administrative Procedure (AP) 0009, "Event Reports," Revision 14, describes the licensee's process for prompt identification and processing of events, conditions, or activities adverse to quality having impact on nuclear safety, plant reliability, or human performance. AP 0009, Appendix C, Paragraph 3.2 provides examples of events to be documented on an ER including conditions outside proceduralized administrative limits that are indicative of installed plant equipment problems where function is impacted. Contrary to the above, between January 19 and January 22, 2003, auxiliary operators logged CST temperature values which on five separate occasions fell below the proceduralized administrative limit of 50 degrees F listed in the "Required Condition" column of Vermont Yankee Operations Department Procedure Form (VYOPF) 0150.01, "Auxiliary Operator Round Sheet Outside," Revision 37, with no ER written and no action taken to address the low temperature condition until January 23, 2003. Because the finding was of very low safety significance and has been entered into the licensee's Corrective Actions Program (Event Report 2003-0186), this violation is being treated as a Non-Cited Violation (NCV), consistent with Section VI.A of the NRC Enforcement Policy (**NCV 50-271/03-02-01**).

## 1R04 Equipment Alignment

### .1 Full Equipment Alignment

#### a. Inspection Scope

The inspectors performed a complete equipment alignment walkdown of the alternate cooling system (ACS). The walkdown was performed by comparing actual equipment alignment to approved piping and instrumentation diagrams and operating procedure lineups and the licensee's final safety analysis report (FSAR) description of the system. The inspectors observed valve positions, the availability of power supplies, and the general condition of selected components to verify there were no unidentified deficiencies. The inspectors also confirmed that identified equipment problems did not affect operability of the system.

#### b. Findings

No findings of significance were identified.

### .2 Partial Equipment Alignment

#### a. Inspection Scope

The inspectors performed four partial system walkdowns of risk significant systems to verify system alignment and to identify any discrepancies that would impact system operability. Observed plant conditions were compared with the standby alignment of equipment specified in the licensee's system operating procedures. The inspectors also observed valve positions, the availability of power supplies, and the general condition of selected components to verify there were no obvious deficiencies. The inspectors verified the alignment of the following systems:

- The RCIC system on January 6, 2003;
- The "A" residual heat removal (RHR), residual heat removal service water (RHRSW), and core spray systems on January 20, 2003;
- The HPCI system on February 25, 2003;
- The service water (SW) system on March 3, 2003; and
- The "B" emergency diesel generator on March 26, 2003.

#### b. Findings

No findings of significance were identified.

## 1R05 Fire Protection

### a. Inspection Scope

The inspectors identified fire areas important to plant risk based on a review of the licensee's Safe Shutdown Capability Analysis, Revision 6, as well as the Individual Plant Examination of External Events (IPEEE). Additional plant areas were selected based on their increased significance due to on-going plant maintenance. The inspectors toured these plant areas important to safety in order to verify the suitability of the licensee's control of transient combustibles and ignition sources, and the material condition and operational status of fire protection systems, equipment, and barriers. In addition, during the inspection of Fire Area FA-RCIC, the inspectors reviewed licensee exemption request FVY 85-38 and NRC safety evaluation report NVY 86-240. The following fire areas were inspected:

- The west cooling tower, north cell, alternate cooling system (Fire Area FA-16);
- The reactor building, 213-foot elevation, RCIC room (Fire Area FA-RCIC);
- The control building, 248-foot elevation, east switchgear room (Fire Area FA-4);
- The control building, 248-foot elevation, west switchgear room (Fire Area FA-5);
- The turbine building, 248-foot elevation, "A" emergency diesel generator (EDG) room (Fire Area FA-8);
- The turbine building, 248-foot elevation, "B" EDG room (Fire Area FA-9);
- The control building, 260-foot elevation, main station battery rooms (Fire Zone FZ-3);
- The control building, 272-foot elevation, main control room (Fire Zone FZ-1); and
- The reactor building, 303-foot elevation, South (Fire Zone FZ RB6).

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures

a. Inspection Scope

The inspectors reviewed the FSAR and IPEEE to identify areas affected by internal flooding. The inspectors performed walkdowns of areas containing risk-significant systems, structures, and components including:

- Reactor Building, 213-foot elevation, southeast corner room.

Items which were focused on during this inspection included the removal of a floor plug on the 252-foot elevation of the Reactor Building, the condition of watertight doors and penetrations, and floor drains. The inspectors compared the conditions of the focus items to the recommendations and requirements of the licensee's FSAR and IPEEE.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance

a. Inspection Scope

The inspectors observed a performance test conducted on the "B" RHR heat exchanger in accordance with OP 4124, "Residual Heat Removal and RHR Service Water System Surveillance," Revision 55. The inspectors reviewed test data taken, verified the licensee's execution and monitoring of biofouling controls, and cleanliness of heat exchanger tubes. The inspectors ensured inspection results were categorized against pre-established engineered acceptance criteria, ensured that test acceptance criteria considered differences between testing and accident conditions, and that the frequency of testing was sufficient to detect degradation prior to loss of heat removal capabilities below design basis values.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

a. Inspection Scope

The inspectors observed simulator examinations for one operating crew to assess the performance of the licensed operators and the ability of the licensee's Training and Operating Department staff to evaluate licensed operator performance. The crew was evaluated using As-Found Simulator Evaluation Guide (AFG) 33, Revision 0 which included an RPS [Reactor Protection System] Narrow Range Level Transmitter Failure, Main Turbine Trip, Fast Transfer of Bus 1 Failure, ATWS [Anticipated Transient Without Scram], and a Group I Isolation.

The inspectors evaluated the crew's performance in the areas of:

- Clarity and formality of communications;
- Ability to take timely actions;
- Prioritization, interpretation, and verification of alarms;
- Procedure use;
- Control board manipulations;
- Oversight and direction from supervisors; and
- Group dynamics.

Crew performance in these areas was compared to licensee management expectations and guidelines as presented in the following documents:

- Vermont Yankee Administrative Procedure (AP) 0151, "Responsibilities and Authorities of Operations Department personnel, Revision 9;
- AP 0153, "Operations Department Communication and Log Maintenance," Revision 20; and
- Vermont Yankee Department Procedure (DP) 0166, "Operations Department Standards," Revision 7.

The inspectors verified that the crews observed completed the critical tasks listed in the above AFG. The inspectors also compared simulator configurations with actual control board configurations. For any weaknesses identified, the inspectors observed the licensee evaluators to verify that they also noted the issues and discussed them in the critique at the end of the session.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed licensee actions taken in response to the following equipment problems to assess the effectiveness of the licensee's maintenance activities.

- Unexpected "A" residual heat removal (RHR) pump suction valve closure during valve operability testing
- Design control issues related to high pressure coolant injection (HPCI) exhaust check valves

The inspectors reviewed each system's maintenance rule scoping document, most recent system health report, maintenance rule functional failure determination, and corrective actions taken in response to the equipment problem in accordance with station procedures and the requirements of 10 CFR 50.65(a)(1) and (a)(2), "Requirements for Monitoring the Effectiveness of Maintenance." The inspectors also confirmed that the licensee appropriately tracked the occurrences against the systems' performance criteria, both for functional failures and unavailability time, as required.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessment and Emergent Work Evaluation

a. Inspection Scope

The inspectors evaluated on-line risk management for five planned and one emergent maintenance activities. The inspectors reviewed maintenance risk evaluations, work schedules, recent corrective actions, and control room logs to verify that other concurrent or emergent maintenance activities did not significantly increase plant risk. The inspectors also compared these items and activities to requirements listed in procedures AP 0125, "Equipment Release," Revision 11 and AP 0172, "Work Schedule

Risk Management - Online," Revision 4. The inspectors determined the following work activities were effectively managed for on-line risk:

- The planned limiting condition for operation (LCO) maintenance period for the "B" train of RHR;
- The planned LCO maintenance period for the RCIC system;
- Licensee actions in response to a failed surveillance of the "A" RHR pump suction valve;
- The planned LCO maintenance period for the "B" train of SW;
- The planned downpower to 30% and single loop operations to support "B" recirculation pump motor-generator corrective maintenance; and
- The planned LCO maintenance period for the "A" emergency diesel generator.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Non-routine Plant Evolutions

a. Inspection Scope

The inspectors assessed the control room operators' performance during a planned power reduction to less than 30% power and subsequent single loop operation to perform corrective maintenance on the "B" recirculating pump motor generator scoop tube positioner conducted during the week of February 10, 2003. Specifically, the adequacy of personnel performance, procedure compliance, and use of the corrective action process were evaluated against the requirements and expectations contained in the following station procedures:

- AP 0151, "Responsibilities and Authorities of Operations Department Personnel," Revision 9;
- AP 0153, "Operations Department Communication and Log Maintenance," Revision 20;
- DP 0166, "Operations Department Standards," Revision 7;
- OP 0105, "Plant Operations," Revision 10; and
- OP 2110, Recirculation System, Revision 35.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed a sample of operability determinations prepared by the licensee. The inspectors evaluated the selected operability determinations against the

requirements and guidance contained in NRC Generic Letter 91-18, "Resolution of Degraded and Nonconforming Conditions," as well as procedure AP 0167, "Operability Determinations," Revision 1. The inspectors verified the adequacy of evaluations of the following degraded or non-conforming conditions:

- Effect on alternate cooling system operability with ice on the hub of alternate cooling tower fan (CTF) 2-1;
- Interrupting rating of 4KV switchgear exceeded during certain operating lineups;
- Service Water maximum design differential pressure exceeded;
- A potentially incomplete core analysis provided by the vendor; and
- Manufacturing flaws in Marathon control rod blades.

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

The inspectors reviewed post-maintenance test (PMT) activities on risk significant systems to verify that the effect of the test on the plant had been evaluated adequately. Where the testing was specifically observed, the inspectors verified test equipment was appropriate and controlled and the test was properly performed in accordance with station procedures. The inspectors either directly observed or reviewed completed PMT documentation to verify the test data met the required acceptance criteria contained in the licensee's Technical Specification (TS), FSAR, and in-service testing program; the test activity was adequate to verify system operability and functional capability following maintenance; systems were properly restored following testing; and that discrepancies were appropriately documented in the corrective action process. The inspectors reviewed the following PMT activities:

- Testing following planned maintenance on the "D" SW pump discharge check valve, V70-1D;
- Testing of the "A" EDG following planned maintenance on the EDG heat exchangers;
- Operability testing of the "B" RHR and RHRSW pumps following planned maintenance;
- RCIC trip/throttle valve testing following planned maintenance,
- Scram time testing of hydraulic control unit 06-23 following replacement of the unit's accumulator; and
- RCIC turbine and pump testing following planned maintenance.

b. Findings

No findings of significance were identified.

## 1R22 Surveillance Testing

### a. Inspection Scope

The inspectors reviewed and observed surveillance testing to verify that the test acceptance criteria was consistent with TS and FSAR requirements, the test was performed in accordance with the written procedure, the test data was complete and met procedural requirements, and the system was properly returned to service following testing. The inspectors reviewed Administrative Procedure (PP) 7013, "Inservice Testing Program Implementation," Revision 11, AP 4000, "Surveillance Testing Program," Revision 22; observed pre-job briefs for the test activities; and verified that discrepancies were appropriately documented in the corrective action process. The inspectors reviewed the following surveillance testing activities:

- OP 4126, "Diesel Generators Surveillance," Revision 47, Section B ("B" diesel);
- OP 4126, "Diesel Generators Surveillance," Revision 47, Section B ("A" diesel);
- OP 4160, "Turbine Generator Surveillance," Revision 32, Section V;
- OP 4181, "Service Water/Alternate Cooling System Surveillance," Revision 34, Section A;
- OP 4181, "Service Water/Alternate Cooling System Surveillance," Revision 34, Section D; and
- OP 4323, "Main Steam Line High Flow Functional/Calibration," Revision 25, Section A.

### b. Findings

No findings of significance were identified.

## 1R23 Temporary Plant Modifications

### a. Inspection Scope

The inspectors reviewed several temporary modifications to verify that they did not adversely affect the availability, reliability, or functional capability of risk-significant structures, systems, and components. Reviewed modifications were also compared to requirements and expectations contained in procedure AP 0020, "Control of Temporary and Minor Modifications," Revision 25. The inspectors verified that the following temporary modifications were appropriately documented and maintained in applicable requirements:

- Installation of temporary heaters in the "A" and "B" emergency diesel generator rooms due to extreme cold per Vermont Yankee Temporary Modification Package 2003-005; and

- Installation of temporary heaters in the condensate storage tank (CST) enclosure due to extreme cold per Vermont Yankee Temporary Modification Package 2003-007.

b. Findings

No findings of significance were identified.

**Cornerstone: Emergency Preparedness**

1EP4 Emergency Action Level and Emergency Plan Changes

a. Inspection Scope

The inspectors conducted an in-office review of licensee submitted changes for the emergency plan-related documents to determine if the changes decreased the effectiveness of the plan. A thorough review was conducted of documents related to the risk significant planning standards (RSPS), such as classifications, notifications and protective action recommendations. A cursory review was conducted for non-RSPS documents. These changes were reviewed against 10 CFR 50.54(q) to ensure that the changes do not decrease the effectiveness of the plan, and that the changes as made continue to meet the standards of 10 CFR 50.47(b), "Emergency Plans," and the requirements of Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities." These changes are subject to future inspections to ensure that the impact of the changes continues to meet NRC regulations. Documents reviewed during this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation

a. Inspection Scope

The inspectors observed a February 27, 2003, emergency preparedness (EP) practice drill and the subsequent player and lead controller critiques. The licensee had preselected the drill notifications and protective action recommendation (PAR) results to be included in the EP drill performance indicator (PI). The inspector reviewed the industry guidance provided by NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 2, and discussed the performance expectations and results with the drill manager and simulator and emergency operations facility controllers to confirm correct implementation of the PI program. The drill evaluation form and drill critique report were also reviewed to verify proper documentation of results, which included three successful classifications, one successful PAR, and four successful notifications.

b. Findings

No findings of significance were identified.

**2. RADIATION SAFETY**

**Cornerstone: Occupational Radiation Safety**

2OS1 Access Control to Radiologically Significant Areas

a. Inspection Scope

During the period March 17-21, 2003, the inspectors reviewed exposure significant work areas (i.e., High Radiation Areas, Locked High Radiation Areas, Very High Radiation Areas, and Airborne Radioactivity Areas) in the plant and associated controls and surveys of these areas to determine if the controls (e.g., surveys, postings, barricades) were acceptable. For these areas, the inspectors reviewed radiological job requirements and attended job briefings to determine if radiological conditions in the work area were adequately communicated to workers through briefings and postings.

The inspectors verified radiological controls, radiological job coverage, and contamination controls to ensure the accuracy of surveys and applicable posting and barricade requirements. The inspectors obtained this information through interviews with Entergy Nuclear Vermont Yankee (ENVY) personnel; walkdown of systems, structures, and components; and examination of records, procedures, or other pertinent documents.

The inspectors determined if prescribed radiation work permits (RWPs), procedure and engineering controls were in place; whether ENVY surveys and postings were complete and accurate; and if air samplers were properly located. The inspectors conducted reviews of radiation work permits (RWPs), used to access exposure significant work areas, to identify the acceptability of work control instructions or control barriers specified.

The inspectors reviewed electronic pocket dosimeter alarm set points (both integrated dose and dose rate) for conformity with survey indications and plant policy. Seven posted high, locked high or very high radiation areas located in the reactor, radwaste, augmented off-gas and turbine buildings, were reviewed as part of this inspection. The controls implemented by ENVY were compared to those required under plant technical specification (TS) 6.5 and the requirements contained in 10 CFR 20, Subpart G, "Control of Exposure from External Sources in restricted Areas."

The inspectors also reviewed continuing training scheduled for calendar year 2003 to be given to the radiation protection technicians during three training cycles during the year. Topics included annual refresher training (emergency preparedness plan); triennial

refresher training (hazardous materials transportation and radwaste burial requirements); and operating experience.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls

a. Inspection Scope

The inspectors reviewed work performed during calendar year 2002 and focused on work performed during refueling outage (RFO) 23. The inspectors reviewed ALARA job evaluations, exposure estimates, and exposure mitigation requirements and compared ALARA plans with the results achieved. The inspectors obtained this information through interviews with licensee personnel; walkdown of systems, structures, and components; and examination of records, procedures, or other pertinent documents. Total RFO 23 exposure was 76.1 person-rem, against a goal of 85 person-rem. The inspector also reviewed the exposure goal established for calendar year 2003 (a non-outage year) of 60 person-rem.

A review of actual exposure results versus exposure estimates for work performed during RFO 23 was conducted including: a comparison of estimated and actual dose rates and person-hours expended; determination of the accuracy of estimations to actual results; and determination of the level of exposure tracking detail, exposure report timeliness and exposure report distribution to support control of collective exposures to determine conformance with the requirements contained in 10 CFR 20.1101(b), "Radiation Protection Programs." Major RFO 23 work activities, exposure accrued, and the stated outage goal included:

- Leak rate testing, 2.279 roentgen equivalent man (REM) exposure accrued with a goal of 3.425 REM;
- Reactor vessel disassembly and reassembly, 6.000 REM exposure accrued with a goal of 5.265 REM;
- Safety relief valve work, 4.374 REM exposure accrued with a goal of 4.105 REM;
- Staging of equipment, 13.569 REM exposure accrued with a goal of 13.004 REM; and
- Insulation activities, 3.548 REM exposure accrued with a goal of 8.277 REM.

b. Findings

No findings of significance were identified.

2OS3 Radiation Monitoring Instrumentation

a. Inspection Scope

The inspectors reviewed field instrumentation utilized by health physics technicians and plant workers to measure radioactivity including portable field survey instruments, friskers, portal monitors and small article monitors, which were utilized to ensure that occupational exposures were maintained in accordance with 10 CFR 20.1201, "Occupational Dose Limits for Adults." The inspectors conducted a review of seven instruments. This review included verification of proper function and certification of appropriate source checks for these instruments; source traceability to the National Institute of Standards and Technology (NIST); and instrument calibration. The evaluation of ENVY performance was based on interviews with ENVY personnel; walkdown of systems, structures, and components; and examination of records, procedures, and other pertinent documents.

b. Findings

No findings of significance were identified.

**3. SAFEGUARDS**

**Cornerstone: Physical Protection**

3PP2 Access Control

a. Inspection Scope

The inspectors reviewed the requirements of 10 CFR 26.24, "Chemical and Alcohol testing," and AP 0864, "Fitness for Duty," Revision 1. The inspectors reviewed the licensee's 6-month reports of fitness-for-duty testing results, sent to the NRC, for calendar year 2002. The inspectors interviewed Security Department management and staff personnel. The inspectors also reviewed previously issued event reports pertaining to the licensee's fitness-for-duty program.

b. Findings

Introduction: A Green self-revealing NCV was identified for a failure to perform random drug and alcohol testing on an annual rate equal to at least 50 percent of the workforce, as prescribed in 10 CFR 26.24(a)(2).

Description: For calendar year 2002, the licensee had not performed random drug and alcohol testing on an annual rate equal to at least 50 percent of the workforce as prescribed in 10 CFR 26.24 and Administrative Procedure (AP) 0864, "Fitness for Duty." This self-revealing finding became apparent to the licensee through a change in process. The licensee normally relies on a computerized system for the tracking of drug and alcohol test completion. In an effort to validate the results of the computerized tracking system for calendar year 2002, a supervisor from the Security Department performed a manual calculation. Based on discrepancies identified between the manual calculation and the results of the computerized system, the supervisor was able to

determine that data entry errors had resulted in the inflation of the number of individuals tested annually. At the time of discovery, the licensee had no specific requirement to perform a manual calculation to validate the results of the computerized tracking system. The performance of the manual calculation was effectively a change in process. The inspectors also determined that just prior to identifying this problem, the licensee had performed an audit of the drug and alcohol testing program but had not identified the errors resulting in this finding.

Analysis: The inspectors determined that this finding affected the objectives of the Safeguards Strategic Performance Area and the Physical Protection Cornerstone as discussed in IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening." Specifically, the finding constituted a vulnerability that affected the licensee's Access Authorization System (Personnel Screening Program) and was therefore more than minor. The inspectors evaluated the finding using IM 0609, "Significance Determination Process (SDP)," Appendix E, "Interim Physical Protection SDP." The inspectors determined that the finding represented a vulnerability in the licensee's Personnel Screening Program, the finding was not a malevolent act, and that the licensee had not had greater than two similar findings during the last four calendar quarters. Therefore, in accordance with IM 0609, Appendix E, the finding was determined to be of very low safety significance.

Enforcement: 10 CFR 26.24, "Chemical and Alcohol Testing," Paragraph (a)(2) requires, in part, that the random drug and alcohol testing be conducted at an annual rate equal to at least 50 percent of the workforce. The licensee implements the requirements of 10 CFR 26.24 in accordance with Administrative Procedure (AP) 0864, "Fitness for Duty," Revision 1. AP 0864, Paragraph 4.4.1.2 requires, in part, that unannounced drug and alcohol tests be imposed in a statistically random and unpredictable manner. AP 0864, Paragraph 2.19 defines "random testing" as unannounced drug and alcohol testing administered in a statistically random manner to ensure testing of at least 50 percent of the employee, contractor, or vendor workforce per year. Contrary to the above, on February 12, 2003, the licensee identified (through a change in process) that random testing had been performed on only 46.7 percent of the workforce during calendar year 2002. Because the finding was of very low safety significance and had been entered into the licensee's Corrective Actions Program (Event Report 2003-0351), this violation is being treated as a Non-Cited Violation (NCV), consistent with Section VI.A of the NRC Enforcement Policy (**NCV 50-271/03-02-02**).

#### 4. OTHER ACTIVITIES

##### 40A1 Performance Indicator Verification

##### .1 Initiating Events Performance Indicators

##### a. Inspection Scope

The purpose of this inspection was to confirm the information presented in the following licensee December 2002 performance indicators (PIs) was complete and accurate.

- Unplanned Scrams per 7000 Critical Hours,
- Scrams With Loss of Normal Heat Removal,
- Unplanned Power Changes per 7000 Critical Hours.

The inspectors reviewed licensee event reports and selected operator logs, plant process computer data, and licensee monthly operating reports for the period January 1, 2002, through December 31, 2002. The reported data was compared against the criteria contained in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 2, and discussed with the licensee analyst responsible for the inspected PIs to verify that all conditions meeting the outlined criteria were reported.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

.1 Annual Sample Review

a. Inspection Scope

The inspectors performed an in-depth review to verify that the licensee had taken appropriate corrective actions for an engineering design change request (EDCR 98-409), that caused the mechanical failure and inoperability of one HPCI exhaust check valve, V23-4 and impacted the capability of a second, in-series, HPCI exhaust check valve, V23-3, to fully function as a containment isolation valve. This issue was selected for inspection based on the risk significance of the safety systems impacted (e.g., containment isolation and high pressure coolant injection) in the licensee's core damage frequency model. The inspectors reviewed the initial application of the licensee's engineering design change process; intermediate corrective actions (including several revisions to valve designs); extent of condition and operability reviews; safety evaluations; licensee event reports (LERs) 98-008, 98-025, and 01-02; procurement documentation; and long term corrective actions to determine if the following attributes had been adequately addressed by licensee:

- Complete, accurate and timely identification of the problem;
- Evaluation and disposition of operability and reportability issues;
- Consideration of previous failures, extent of condition, generic or common cause implications;
- Prioritization and resolution of the issue commensurate with the safety significance;
- Identification of the root and contributing causes of the problem; and

- Identification and implementation of corrective actions commensurate with the safety significance.

b. Findings and Observations

Introduction: A Green NCV (finding) was identified by inspectors for a failure to establish design control measures (as prescribed in 10 CFR 50, Appendix, B, Criterion III) suitable to ensure that high pressure coolant injection (HPCI) check valves V23-3 and V23-4 would perform their safety-related function of containment isolation.

Description: The licensee replaced HPCI system turbine exhaust check valves V23-3 and V23-4 in December of 1999. A nozzle check valve design was selected as a replacement for the original swing check valve design. The valves were designed and fabricated by a qualified safety-related supplier on the licensee's approved vendor list. The newly installed check valves were subjected to local leak rate testing, in accordance with 10 CFR 50, Appendix J, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors," and both valves passed.

In May of 2001, valves V23-3 and V23-4 were again subjected to local leak rate testing; however, both valves failed the leakage tests. The leakage through these valves caused the calculated minimum leakage pathway to exceed the Technical Specification Section 6.7C limit of 0.60 L<sub>a</sub>. The licensee's investigation of the test failures concluded that the valve disks did not seat properly due to weak springs (internal to the valves) and bent radial guides. To correct these design deficiencies, the licensee worked with the vendor to install stronger springs and stiffer radial guides. Both valves were again subjected to leakage rate testing. Although valve V23-3 successfully passed, valve V23-4 exhibited unacceptable leakage. The licensee determined that inappropriate mounting flange bolt torque values had been established for the valve installation. The torque applied to the bolts caused the valve body to "twist," preventing proper valve seating. Once the proper torque values were determined, valve V23-4 successfully passed leakage rate testing. Finally, in October of 2002, the licensee again replaced valves V23-3 and V23-4 with a more robust design in an effort to provide a long-term fix to the bolt torquing problems.

Analysis: The inspectors determined that this finding affected the objectives of the Barrier Integrity Cornerstone as discussed in NRC Inspection Manual (IM) 0612, "Power Reactor Inspection Corner Reports," Appendix B, "Issue Disposition Screening." Specifically, the inadequate design controls applied to the replacement of HPCI exhaust check valves V23-3 and V23-4 resulted in repeated failures during local leakage rate tests performed on the individual valves and was therefore more than minor. The inspectors determined that the finding could be evaluated in accordance with Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," because the finding impacted the reliability of a containment barrier as described above. The inspectors determined that leakage past valves V23-3 and V23-4 would be into HPCI system piping, which is contained within secondary containment. Any leakage through this pathway would be treated by the standby gas treatment system. For the Phase 1 screening, the inspectors answered "no" to Question 3 under the Containment Barrier

column because the finding did not result in an actual open pathway in the physical integrity of reactor containment. Therefore, the finding was determined to be of very low safety significance.

Enforcement: 10 CFR 50, Appendix B, Criterion III, "Design Control," requires, in part, that design changes be subjected to design control measures (e.g., design reviews, calculational methods, or a suitable testing program) to ensure the suitability of the application of materials, parts, equipment, and processes essential to the safety-related function of structures, systems, and components. Contrary to the above, on March 7, 2003, the inspectors identified that the licensee failed to ensure that design control measures applied to the replacement of high pressure coolant injection (HPCI) check valves V23-3 and V23-4 were suitable to ensure the viability of their safety-related function of containment isolation. Because the finding was of very low safety significance and has been entered into the licensee's Corrective Actions Program (Event Report 2003-0795), this violation is being treated as a Non-Cited Violation (NCV), consistent with Section VI.A of the NRC Enforcement Policy **(50-271/03-02-03)**.

The inspectors concluded that the licensee's corrective actions established subsequent to October of 2002 were adequate to provide reasonable assurance that the two currently installed HPCI system exhaust valves would function adequately throughout the operating cycle and continue to perform their safety function. These corrective actions identified the likely causes of previous performance testing failures and implemented conservative redesigns of the subject valves. Corrective actions established prior to October 2002; however, were determined to not be technically justified in all cases, to be not fully effective in ensuring the viability of the containment isolation function of these valves, and to not be effective at addressing apparent design control problems or preventing reoccurrence of performance testing failures.

.2 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

The inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify these issues were being entered into the licensee's corrective action system at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. A listing of documents reviewed is included in the Attachment to this report.

c. Findings

No findings of significance were identified.

.3 Cross-Reference to PI&R Findings Documented Elsewhere

Section 1R01 describes a finding wherein untimely corrective actions were taken by the licensee to address CST enclosure temperatures that were below administrative limits established in the auxiliary operator's log.

#### 4OA6 Exit Meeting

- .1 On April 14, 2003, the resident inspectors presented the inspection results to Mr. K. Bronson, and other members of his staff who acknowledged the findings presented. The inspectors asked whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.
- .2 On March 18, 2003, a public meeting was conducted with Mr. J. Thayer and other members of the licensee staff at the Vernon Townhall/Library in Vernon, Vermont. The public meeting was held to discuss the results of the Annual Assessment of the Vermont Yankee Nuclear Power Station. A copy of the meeting slides presented during the meeting can be found in ADAMS (Accession Number ML030840820).

#### 4OA7 Licensee-Identified Violations

The following finding of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as an NCV:

- Technical Specification 6.4, "Procedures," requires that written procedures be established, implemented, and maintained covering preventive maintenance operations which could have an effect on the safety of the reactor. Contrary to this, on January 6, 2003, the licensee identified a failure to provide an adequate procedure for preventive maintenance on the "B" train of the standby gas treatment (SBGT) system. Specifically, the procedure used to perform maintenance on a heater switch in the "B" train of the SBGT system directed the alignment of the SBGT system in such a way as to significantly reduce the flow rate of the "B" train, degrading the radiological barrier function provided by the SBGT system. This was entered into the licensee's corrective actions program as ER 2003-0037. This finding was of very low safety significance because it only affected the Barrier Integrity Cornerstone and because the "A" train of SBGT remained operable throughout this time.

**SUPPLEMENTAL INFORMATION****Key Points of Contact**Licensee Personnel:

J. Thayer, Site Vice President  
 M. Balduzzi, Site Vice President, Operations  
 K. Bronson, General Plant Manager  
 P. Corbett, Maintenance Manager  
 M. Desilets, Technical Services Manager  
 J. Geyster, Radiation Protection Superintendent  
 D. Giorowall, Programs Supervisor  
 M. Gosekamp, Superintendent of Operations Training  
 D. Leach, Director of Engineering  
 F. Marcussen, Security Operations Manager  
 M. Pletcher, Radiation Protection Supervisor - Instruments  
 K. Stupak, Technical Training  
 C. Wamser, Operations Manager  
 R. Wanczyk, Director of Nuclear Safety

**List of Items Opened, Closed, and Discussed**Opened

50-271/03-02-01	NCV	CST Enclosure Low Temperature Exceeded with No CR Written (Section 1R01)
50-271/03-02-02	NCV	FFD Testing Not in Accordance with 10 CFR 26.24 (Section 3PP2)
50-271/03-02-03	NCV	Inadequate Design Control for HPCI Exhaust Check Valves (Section 4OA2.1)

Closed

50-271/03-02-01	NCV	CST Enclosure Low Temperature Exceeded with No CR Written (Section 1R01)
50-271/03-02-02	NCV	FFD Testing Not in Accordance with 10 CFR 26.24 (Section 3PP2)
50-271/03-02-03	NCV	Inadequate Design Control for HPCI Exhaust Check Valves (Section 4OA2.1)

## List of Documents Reviewed

### **Section 1EP4: Emergency Action Level and Emergency Plan Changes**

#### Procedures

Vermont Yankee Emergency Plan, Revision 37-41  
 OP 3504, "Emergency Communications," Revision 35-01  
 OP 3510, "Off-site and Site Boundary Monitoring," Revision 26-01  
 OP 3511, "Emergency Communications," Revision 12  
 OP 3524, "Emergency Actions to Ensure Accountability and Security Response," Revision 19-02  
 OP 3540, "Control Room Actions During an Emergency," Revision 2  
 OP 3545, "Activation of the Emergency Operation Facility/Recovery Center," Revision 1-02  
 OP 3546, "Operation of the Emergency Operation Facility/Recovery Center," Revision 2-01

### **Section 4OA2.2: Routine Review of Problem Identification and Resolution**

#### Assessment and Surveillance Reports

Quality Assurance Assessments Reports (AR) 2002-03, "Radiation Protection"  
 Standard Surveillance Reports (SR) 2002-009, "Radiation Protection & Radwaste"  
 SR 2002-014, "Radwaste"  
 SR 2002-018, "Mid Cycle Outage 22A Integrated Surveillance"  
 SR 2002-031, "Radiation Protection"  
 SR 2002-036, "Radiation Protection"  
 SR 2002-037, "Chemistry and Radiation Protection"  
 SR 2002-041, "Refueling Outage 23: Outage Safety"  
 SR 2002-042, "Radiation Protection"  
 SR 2002-043, "Radiation Protection"  
 Self-Assessments Radiological Protection (SARP) 2002-03, "Peer Observations"  
 SARP 2002-06, "Read and Sign Radiation Work Permits"  
 SARP 2002-08, "Outage Critique Process"  
 SARP 2002-09, "Radiological Surveys"  
 SARP 2002-10, "Personnel Dosimetry"  
 SARP 2002-11, "Unplanned Radiation Exposures"  
 SARP 2002-12, "Sea-land Containers"  
 SARP 2003-01, "Managerial and Supervisory Assessments"  
 SARP 2003-03, "Human Performance Related Event Reports During RFO-23"  
 SARP 2003-04, "Human Performance Event Reports (November 1, 2002 - January 31, 2003)"

#### Event Reports

*ER 2000-1575	SSDI Inspection identified lack of administrative controls to monitor freeze protection of CST tank enclosure general area temperatures
ER 2001-0901	V23-3 and V23-4 local leak rate test results exceeded the acceptance criteria

ER 2001-1312	V23-4 App. J leak test would not work at expected acceptable flange bolt torque values
ER 2001-1341	Unexpected check valve chatter during startup and shutdown for surveillance
ER 2001-1968	Inadequate status control causes unawareness of inoperable equipment
ER 2002-1698	Failure to submit "blind" urine specimens as required by 10 CFR Part 26
ER 2002-2778	Inoperable core spray indication
ER 2003-0037	SBGT-1B not declared inoperable prior to I&C flow switch calibration
*ER 2003-0186	CST pipe enclosure temperature low out-of-spec
ER 2003-0145	Unanticipated water in the SE corner room due to cycling RHR-27B
*ER 2003-0155	Not all critical plant equipment signs required by "B" RHR LCO plan were hung
*ER 2003-0206	Local barrier breached to support "B" RHR LCO, 252 floor plate removed did not have a copy of the permit posted locally
ER 2003-0222	Unexpected "A" RHR pump suction valve closure during valve operability testing
ER 2003-0351	FFD random testing rate for year 2002
ER 2003-0389	Service Water Header pressure Above its Required Pressure Band
*ER 2003-0402	Multiple Rosemont and GE D/P detectors identified to have plastic shipping plugs installed verses steel plugs - EQ
ER 2003-0531	Cold Weather has Left Ice on Hub of CTF 2-1
ER 2003-0626	Excessive tubercles in SW pipe to and from DG-1A coolers
*ER 2003-0747	SW flow indication not continuously monitored during SW capacity testing as required
*ER 2003-0795	Design Control Issues Related to HPCI Exhaust Check Valves Not Addressed

\* Inspector-identified issue.

### List of Acronyms

ACS	Alternate Cooling System
ADAMS	Automated Document Access Management System
AFG	As-Found Simulator Evaluation Guide
ALARA	As Low as is Reasonably Achievable
AP	Vermont Yankee Administrative Procedure
CFR	Code of Federal Regulation
CST	Condensate Storage Tank
CTF	Cooling Tower Fan
CY	Calendar Year
DP	Vermont Yankee Department Procedure
ENVY	Entergy Nuclear Vermont Yankee
ER	Event Report
FSAR	Final Safety Analysis Report
HPCI	High Pressure Coolant Injection
ICM	Interim Compensatory Measures
IMC	Inspection Manual Chapter
IPEEE	Individual Plant Evaluation of External Events
IR	Inspection Report
LER	Licensee Event Report
LCO	Limited Condition for Operation
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
OP	Vermont Yankee Operating Procedure
PI	Performance Indicator
PMT	Post Maintenance Testing
RCIC	Reactor Core Isolation Cooling
REM	Roentgen Equivalent Man
RFO	Refueling Outage
RHR	Residual Heat Removal
RHRSW	Residual Heat Removal Service Water
RSPS	Risk Significant Planning Standards
RWP	Radiation Work Permit
SBGT	Standby Gas Treatment
SDP	Significance Determination Process
SW	Service Water
TS	Technical Specification
VY	Vermont Yankee