September 7, 2000

Mr. Michael A. Balduzzi
Vice President, Operations
Vermont Yankee Nuclear Power Corporation
185 Old Ferry Road
PO Box 7002
Brattleboro, Vermont 05301

SUBJECT: NRC'S VERMONT YANKEE REPORT 05000271/2000-006

Dear Mr. Balduzzi:

On August 19, 2000, the NRC completed an inspection at your Vermont Yankee facility. The enclosed report presents the results of that inspection. The preliminary findings were presented to Vermont Yankee management led by Mr. Kevin Bronson in an exit meeting on September 5.

This inspection was an examination of 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. Within these areas, the inspection consisted of a selected examination of procedures and representative records, observations of activities, and interviews with personnel. Specifically, this inspection involved seven weeks of resident inspection, and a region-based inspection of access control to radiologically significant areas.

The NRC identified one finding that was evaluated under the risk significance determination process and was determined to be of very low safety significance (Green). This finding has been entered into your corrective action program and is discussed in the summary of findings and in the body of the attached inspection report. The finding was determined to involve a violation of NRC requirements, but because of its very low safety significance, the violation is non-cited.

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/NRC/ADAMS/index.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Glenn W. Meyer, Chief
Reactor Projects Branch 3
Division of Reactor Projects

Enclosure: Inspection Report 05000271/2000-006
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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.	05000271
Licensee No.	DPR-28
Report No.	05000271/2000-006
Licensee:	Vermont Yankee Nuclear Power Corporation
Facility:	Vermont Yankee Nuclear Power Station
Location:	Vernon, Vermont
Dates:	July 2 - August 19, 2000
Inspectors:	Brian J. McDermott, Senior Resident Inspector Edward C. Knutson, Resident Inspector Richard S. Barkley, Senior Project Engineer Laurie A. Peluso, Radiation Protection Specialist
Approved by:	Glenn W. Meyer, Chief Projects Branch 3 Division of Reactor Projects

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SUMMARY OF FINDINGS

Vermont Yankee Nuclear Power Station
NRC Inspection Report 5000271/2000-006

IR 05000271/2000-006 on July 2 - August 19, 2000; Vermont Yankee Nuclear Power Station; Vermont Yankee Nuclear Power Corporation; Equipment Alignment; Other Activities

This inspection was performed by resident inspectors and a region-based radiation protection specialist. This inspection identified one green issue, which was a non-cited violation. The significance of issues is indicated by their color (green, white, yellow, red) and was determined by the Significance Determination Process (SDP) in Inspection Manual Chapter 0609 (see Attachment 1).

Mitigating Systems

- **Green.** The inspectors identified that a compensatory measure, specified by procedure, was not implemented prior to removing the John Deere diesel generator from service for planned maintenance. The operating crews' review of the system operating procedure had been the only process to ensure this action was taken. VY management has initiated corrective action to address the identification of compensatory actions as part of the maintenance planning process (reference ER 2000-1235).

  This finding was determined to be Green (of very low safety significance) using Phase 1 of the SDP, because no cornerstones were degraded by the failure to implement the compensatory measure, and VY demonstrated that the temporary generator, which had not been staged as required, was readily available. VY's failure to implement the procedure was determined to be a non-cited violation of NRC requirements. (Section 1R04.1)

Report Details

Summary of Plant Status: The plant operated at 100 percent power throughout the inspection period except for a planned power reduction to facilitate maintenance on the recirculation pump motor-generators on August 19.

1. REACTOR SAFETY
Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R04 Equipment Alignments

.1 Compensatory Measures During John Deere Diesel Generator (JDDG) Maintenance

a. Inspection Scope

The inspectors surveillance procedure OP 4127, "John Deere Diesel Generator Surveillance," and walked down the equipment in anticipation of a post-maintenance test on August 16.

b. Issues and Findings

VY's surveillance procedure OP 4127 and operating procedure OP 2127, "John Deere Diesel Generator System," both contain Administrative Limits that pertain to removal of the JDDG from service. Administrative Limit "e" states, "If the diesel is removed from service, a portable generator (minimum capacity 2 kW) to power two Red Devil blowers should be staged next to the diesel shed. (VYC-1588)." On August 16 the inspectors operators failed to stage this equipment prior to removing the JDDG from service. This problem was discussed with the Operations Shift Supervisor and subsequently maintenance personnel were able to stage a portable generator at the required location within approximately 10 minutes.

VY's procedural guidance to stage this equipment was driven by VYC-1588, "Habitability Analysis for CO_2 Discharges." The calculation relies upon temporary blowers to reduced the concentration of carbon dioxide from a discharge in either the West Switchgear Room or Cable Vault to below "Immediately Dangerous to Life and Health" levels within a short period of time, for the effected portions of the emergency response facilities.

This issue was considered more than minor because, if uncorrected, the failure to review and implement administrative guidance prior to taking equipment out of service would become a more significant safety concern. This issue was determined to be Green (of very low safety significance) using the SDP, in consultation with a regional emergency preparedness specialist, since this finding did not degrade VY's ability to meet an Emergency Preparedness planning standard.

The inspectors noted that the operating crews' review of the Administrative Limits in a given system's operating procedure - prior to tagging equipment out of service - is the sole process for identification of compensatory measures or administrative controls

intended to limit out-of-service time for important equipment. During the Event Report (ER) Screening Meeting, VY management recognized that administrative limits should be identified during the work planning process, and initiated action to address this issue.

Technical Specification 6.4.A, requires that written procedures for the normal startup, operation and shutdown of systems and components be established, implemented and maintained. Contrary to the above, on August 16, a portable generator was not staged when the John Deere Diesel Generator was removed from service, as required by VY OP 2127. This violation is being treated as a non-cited violation, consistent with Section VI.A of the NRC Enforcement Policy, issued on May 1, 2000 (65 FR 25368). This issue was entered in VY's corrective action program as ER 2000-1235.
(NCV 05000271/2000-006-001)

.2 Partial System Walkdowns

a. Inspection Scope

The inspectors performed the following partial system walkdowns (visual inspections) to verify the operability of redundant systems or equipment during periods of on-line maintenance.

- On July 6 the inspectors performed a partial system walkdown of the A core spray (CS) subsystem during a planned maintenance outage of the B CS subsystem.

- On July 13 the inspectors performed partial system walkdowns of the high pressure coolant injection (HPCI) and reactor core isolation cooling (RCIC) systems during planned maintenance on the A reactor feedwater pump minimum flow valve.

- On August 1 the inspectors performed a partial system walkdown of the B residual heat removal (RHR) subsystem during a planned maintenance outage of the A RHR subsystem.

b. Issues and Findings

There were no findings identified.

1R05 Fire Protection

a. Inspection Scope

The inspectors evaluated plant areas important to reactor safety in order to assess VY's control of transient combustibles and ignition sources, and the material condition and operational status of fire protection systems, equipment, and barriers. The following areas were toured during this inspection period:

- A and B emergency diesel generator rooms

- Reactor building southeast corner room
- Reactor building 252-foot elevation (based on IPEEE insights)
- Areas identified as "critical plant equipment" in VY's LCO maintenance plan for the B CS subsystem outage (switchgear rooms, the control rod drive (CRD) pump room, and the HPCI and RCIC rooms)

b. Issues and Findings

There were no findings identified.

1R12 Maintenance Rule Implementation

a. Inspection Scope

The inspectors reviewed VY's implementation of program procedure PP 7009, "10 CFR 50.65, Maintenance Rule Program," as related to the following events associated with high safety significant systems:

- Core Spray system, to evaluate the effect of the July 5 - 6 maintenance period on system performance monitoring criteria.
- Residual heat removal service water (RHRSW) system, to evaluate a degrading trend in RHRSW pump performance relative to outstanding corrective actions identified in the Performance Improvement Plan. This review principally focused on efforts to address pump performance degradation, particularly RHRSW pump D, caused by micro biologically influenced corrosion.
- Service water (SW) system, to evaluate the effect of planned system maintenance during the week of August 7-11 on system performance monitoring criteria. In addition, the inspector's review of the decision by VY's expert panel to remove the SW system from (a)(1) status due to the successful implementation of their long-term action plan to improve system reliability.

b. Issues and Findings

There were no findings identified.

1R13 Maintenance Risk Assessment and Emergent Work Evaluation

a. Inspection Scope

The inspectors reviewed the maintenance risk assessment and work controls associated with the following activities:

- Maintenance of the B core spray subsystem on July 6.
- Maintenance of the A RHR subsystem between July 28 and August 2.

b. Issues and Findings

There were no findings identified.

1R14 Personnel Performance During Non-routine Plant Evolutions

a. Inspection Scope

The inspectors observed portions of the following evolutions:

- Reactor power reduction and single loop operations associated with planned maintenance on August 19.

b. Issues and Findings

There were no findings identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed operability determinations associated with the following plant equipment deficiencies:

- Pin-hole leak in the 3-inch service water header supplying the intake structure screen wash system (ER 2000-1177)

- Ground indication on the DC-1 bus with the potential to impact HGA style relays in the emergency core cooling system logic circuits (ER 2000-1194)

b. Issues and Findings

There were no findings identified.

1R19 Post Maintenance Testing

a. Inspection Scope

The inspectors reviewed and/or observed portions of the post maintenance testing associated with the following work activities:

- Replacement of containment hydrogen/oxygen monitor sample pump and verification of system integrity as an extension of primary containment for its post-accident sampling function (work order 00-001934-000).

- Motor-operator inspections and testing of low pressure coolant injection (LPCI) system valves V10-25A (inboard injection valve), V10-34A (outboard spray isolation valve), and V10-27A (outboard injection valve), in conjunction with the A LPCI subsystem outage work on August 3 (work order 00-002166-000).

b. Issues and Findings

There were no findings identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors reviewed and observed portions of the following surveillance testing:

- Quarterly surveillance testing of reactor building/torus vacuum breakers, V16-19-12A/B, in accordance with OP 4202, on July 19.
- Monthly surveillance testing of the A emergency diesel generator in accordance with OP 4126, on July 24.
- Quarterly surveillance testing of the standby liquid control system in accordance with OP 4114, on July 27.
- Quarterly surveillance testing of the service water system in accordance with OP 4181, on August 8.

b. Issues and Findings

There were no findings identified.

2. RADIATION SAFETY
Cornerstone: Occupational Radiation Safety (OS)

2OS1 Access Control To Radiologically Significant Areas

a. Inspection Scope

The effectiveness of access controls to radiologically significant areas was determined during July 24-28, 2000.

Work for exposures estimated to be greater than 1 person-rem in high radiation areas less than 1R/hr was observed and verified. Work packages for work performed on the main steam isolation valves and motor operated valves in the drywell during refuel outage 21 were reviewed. During July 24-27, work to remove, rebuild, and replace the reactor water cleanup (RWCU) B pump and motor was observed and reviewed. The following aspects were reviewed: Radiation work permit (RWP), surveys, postings, and barricades. The job briefing was reviewed and observed, which included ALARA, access, and engineering controls for decontaminating the room and the pump, rebuilding and replacing the pump, and replacing the motor. Engineering controls were observed, including operating a portable high efficiency particulate air (HEPA) filter to reduce the airborne radiation conditions and using lead shielding on the contaminated components to reduce worker exposures.

Entry and egress to and from the RCA were observed. A walkdown of all areas in the RCA, including the Reactor Building, Turbine Building, and the Radwaste Building was conducted. Independent measurements were made of radiation levels of selected areas within the RCA. Location of air samplers throughout the RCA was observed. Access control for high radiation areas (HRAs) and very high radiation areas (VHRAs) were verified. All locked high radiation areas (LHRAs) were physically challenged and verified. Locked high radiation area keys were inventoried. High dose rate for HRA and VHRA was discussed with management and radiation technicians.

Selected radiation workers and radiation protection technicians were interviewed and observed regarding: RWPs and requirements, dosimeter set points, and job-site radiological conditions.

Several procedures were reviewed: Access to HRA and VHRA, Personnel Monitoring when Exiting Restricted Areas, LHRA Door Key Control, Personnel Monitoring, and Establishing and Posting Restricted Areas.

Six ERs between January-July, 2000 and associated corrective actions and cause evaluations were reviewed for HRA events (non-PI), and radiation worker and radiation protection technician performance errors. The ERs reviewed were 2000-0339, 2000-0449, 2000-0701, 2000-0708, 2000-0766, and 2000-0809.

b. Issues and Findings

There were no findings identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification

.1 Safety System Unavailability - Residual Heat Removal System

a. Inspection Scope

The inspectors reviewed the first quarter 2000 performance indicator (PI) data for Safety System Unavailability associated with the RHR system, to verify that VY characterized past events in accordance with the criteria described in NEI 99-02, "Regulatory Assessment of Performance Indicator Guideline," Revision 0.

The inspectors also reviewed VY's data collecting and reporting process for this performance indicator in accordance with NRC Temporary Instruction 2515/144.

b. Issues and Findings

There were no findings identified.

The inspectors observed that VY's program procedure AP 0094, "NRC Performance Indicator Reporting," dated May 19, 2000, specifies that VY Department Heads to

establish the necessary process for collecting, documenting, and validating the source PI data. The inspectors found that VY does not have written guidance on how their system configurations compare to the guidance in NEI 99-02 relative to the Safety System Unavailability performance indicators. The inspectors noted that this could lead to inconsistencies in future reporting. However, there were no problems noted in the data reviewed during this inspection.

.2 Occupational Exposure Control Effectiveness

a. Inspection Scope

The accuracy and completeness of VY's performance indicator (PI) data, specifically, the Occupational Exposure Control Effectiveness PI, was verified and validated. The following items were reviewed and assessed: (1) A list of ERs from July 1999 through July 2000; and (2) dosimetry records from July 1999 through July 2000.

In addition, a review of VY's data collecting and reporting process for these performance indicators was performed in accordance with NRC Temporary Instruction 2515/144.

b. Issues and Findings

There were no findings identified.

4OA4 Cross-Cutting Issues

The failure to implement an administratively required compensatory measure when removing the John Deere diesel generator from service was the result of human error on the part of the operating crew and a poor process for planning the work (see Section 1R04 of this report).

4OA5 Management Meetings

.1 Exit Meeting Summary

On September 5, 2000, the inspectors presented their overall findings to members of VY management led by Mr. Kevin Bronson, Plant Manger. VY management acknowledged the findings presented and did not contest any of the inspectors' conclusions. Additionally, they stated that none of the information reviewed by the inspectors was considered proprietary.

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed During this Inspection

NCV 05000271/2000-006-001: Failure to Implement Compensatory Measures Prior to Removing John Deere Diesel Generator from Service.

LIST OF ACRONYMS USED

ALARA	As Low as Is Reasonably Achievable
CRD	Control Rod Drive
CS	Core Spray
ER	Event Report
HEPA	High Efficiency Particulate Filter
HPCI	High Pressure Coolant Injection
HRA	High Radiation Areas
IPEEE	Individual Plant Examination of External Events
JDDG	John Deere Diesel Generator
LCO	Limiting Condition for Operation
LHRA	Locked High Radiation Area
LPCI	Low Pressure Coolant Injection
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
PARS	Publicly Available Records
PI	Performance Indicator
RCA	Radiologically Controlled Areas
RCIC	Reactor Core Isolation Cooling
RHR	Residual Heat Removal
RHRSW	Residual Heat Removal Service Water
RWCU	Reactor Water Cleanup
RWP	Radiation Work Permits
SDP	Significance Determination Process
SW	Service Water
VHRA	Very High Radiation Area
VY	Vermont Yankee

ATTACHMENT 1

NRC's REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) recently revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

Reactor Safety	Radiation Safety	Safeguards
● Initiating Events	● Occupational	● Physical Protection
● Mitigating Systems	● Public	
● Barrier Integrity		
● Emergency Preparedness		

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. And RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance

(as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

More information can be found at: http://www.nrc.gov/NRR/OVERSIGHT/index.html.