June 20, 2000

Mr. Samuel L. Newton
Vice President, Operations
Vermont Yankee Nuclear Power Corporation
185 Old Ferry Road
PO Box 7002
Brattleboro, Vermont 05302-7002

SUBJECT: VERMONT YANKEE INSPECTION REPORT 05000271/2000-004

Dear Mr Newton:

On May 13, 2000, the NRC completed an inspection at your Vermont Yankee reactor facility. The enclosed report presents the results of that inspection. The preliminary findings were presented to Vermont Yankee management led by Mr. Mike Balduzzi in an exit meeting on May 23.

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. There were no findings.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosures will be placed in the NRC Public Document Room, and will be available on the NRC Public Electronic Reading Room (PERR) link at the NRC home page, http://www.nrc.gov/NRC/ADAMS/index.html.

Sincerely,

/RA/

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

Docket No.: 50-271

Enclosure: Inspection Report 05000271/2000-004

cc w/encl:
R. McCullough, Operating Experience Coordinator - Vermont Yankee
G. Sen, Licensing Manager, Vermont Yankee Nuclear Power Corporation
D. Rapaport, Director, Vermont Public Interest Research Group, Inc.
D. Tefft, Administrator, Bureau of Radiological Health, State of New Hampshire
Chief, Safety Unit, Office of the Attorney General, Commonwealth of Massachusetts
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G. Bisbee, Esquire
J. Block, Esquire
T. Rapone, Massachusetts Executive Office of Public Safety
D. Katz, Citizens Awareness Network (CAN)
M. Daley, New England Coalition on Nuclear Pollution, Inc. (NECNP)
State of New Hampshire, SLO Designee
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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.	05000271
Licensee No.	DPR-28
Report No.	05000271/2000-004
Licensee:	Vermont Yankee Nuclear Power Corporation
Facility:	Vermont Yankee Nuclear Power Station
Location:	Vernon, Vermont
Dates:	April 2 - May 13, 2000
Inspectors:	Brian J. McDermott, Senior Resident Inspector Edward C. Knutson, Resident Inspector Robert J. Summers, Senior Project Engineer Jason C. Jang, Senior Health Physicist Gregory C. Smith, Senior Physical Security Inspector Paul R. Frechette, Physical Security 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 5000271/2000-004

This report covers a six-week period of resident inspection and the inspection of security and radiological effluents by regional specialists, using the guidance contained in NRC Inspection Manual Chapter 2515*. The significance of issues is indicated by their color (green, white, yellow, red) and was determined by the Significance Determination Process in Inspection Manual Chapter 0609 (see Attachment 1).

- There were no inspection findings.

Report Details

Summary of Plant Status: The plant operated at 100 percent power throughout the inspection period except for a planned power reduction on April 9. Operators reduced reactor power to 68 percent in support of a control rod pattern exchange and maintenance to repair a steam leak from a reactor core isolation system steam supply isolation valve.

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

1R04 Equipment Alignment

a. Inspection Scope

On April 3, the inspectors performed a partial system walkdown (visual inspection) of the B core spray (CS) subsystem during a two day planned maintenance outage for the A subsystem.

On April 3 VY identified that a reactor core isolation cooling (RCIC) steam supply valve had developed a packing leak. Repair of the packing required the RCIC steam supply to be isolated and tagged out of service. Prior to the corrective maintenance activity, the inspector performed a partial system walkdown of the high pressure coolant injection (HPCI) system on April 7.

b. Issues and Findings

There were no findings identified.

1R05 Fire Protection

a. Inspection Scope

The inspectors focused on fire protection equipment during tours of the reactor building elevation 303', the residual heat removal (RHR) system corner rooms, the emergency diesel generator (EDG) rooms, and the torus catwalk.

b. Issues and Findings

There were no findings identified.

1R12 Maintenance Rule Implementation

a. Inspection Scope

The inspectors reviewed implementation of the Maintenance Rule as related to the following:

- Steam leakage from degraded packing on the RCIC system steam supply isolation valve (RCIC-16), and its effect on containment isolation signals generated by steam tunnel radiation and temperature.

- Control rod drive pump A bushing degradation that led to high discharge filter differential pressure and operators removing the pump from service.

b. Issues and Findings

There were no findings identified.

1R13 Maintenance Work Prioritization

a. Inspection Scope

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

- Two day maintenance outage of the A CS subsystem.
- Corrective maintenance to repair a steam leak from valve RCIC-16.
- Corrective maintenance to add shaft packing to the C service water pump.
- Four day maintenance outage of the A emergency diesel generator. (This work was subsequently deferred until after the inspection period due to an emergent problem with one of the off-site electrical supplies.)

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 challenges:

- Main station battery B-1-1B, cell #10 below the individual cell voltage criteria contained in Technical Specification Bases 3.10. VY identified this problem in ER 2000-0313 and a detailed basis for maintaining operation was developed (BMO 2000-04, Revision 0).
- Inadequate inservice test for the partial open stroke testing of turbine exhaust line vacuum breakers for HPCI and RCIC. These issues were entered in VY corrective action program as ER 2000-0639 and ER 2000-0640.
- Degraded position indication for control rod 10-35. This problem was identified by VY in ER 2000-0608.

b. Issues and Findings

There were no findings identified.

1R19 Post-Maintenance Testing

a. Inspection Scope

The inspectors reviewed and observed portions of the following post maintenance testing:

- A CS subsystem testing following the two day maintenance period.

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:

- Monthly operational checks of the electric and diesel fire water pumps performed in accordance with OP 4105 on April 13, 2000.

- RCIC Pump Operability and Full Flow Test from the Alternate Shutdown Control Panel - Once Per Cycle, performed in accordance with OP 4121, on May 9, 2000.

b. Issues and Findings

There were no findings identified.

2. RADIATION SAFETY
Cornerstone: Public Radiation Safety

2PS1 Gaseous and Liquid Effluents

a. Inspection Scope

The inspectors reviewed the following documents to verify compliance with the Technical Specifications/Offsite Dose Calculation Manual (TS/ODCM): (1) the 1998 Radiological Annual Effluent Release Report; (2) the most recent Offsite Dose Calculation Manual (ODCM, Revision 25, December 2, 1999) and technical justifications for ODCM changes; (3) monthly, quarterly, and annual projected doses to the public; (4) sampling and analyses for charcoal cartridge, particulate filter, and noble gas samples; (5) calibration records for laboratory measurements equipment; (6) measurement laboratory quality control programs; (7) quarterly self-assessments; and (8) QA audits for the RETS/ODCM implementations and for the contractor laboratory.

The following systems were reviewed for operability: (1) main stack sampling devices; (2) augmented off-gas system; and (3) effluent radiation monitoring systems.

The most recent channel calibration and functional testing results for the following effluent radiation monitoring systems were reviewed: (1) liquid radwaste discharge monitor; (2) service water discharge monitor; (3) steam jet air ejector noble gas monitor; (4) augmented off-gas system noble gas monitor and its flow rate monitor; and (5) plant stack noble gas monitor.

Surveillance testing results for the standby gas treatment system required by Section 4.7.B of the TS, and HEPA test results for the augmented off-gas building required by Section 10.12.4 of FSAR were reviewed.

b. Issues and Findings

There were no findings identified.

3. SAFEGUARDS
Cornerstone: Physical Protection

3PP1 Access Authorization Program

a. Inspection Scope

The inspectors performed the following activities to determine the effectiveness of the behavior observation portion of the personnel screening and fitness-for-duty programs:

Five supervisors representing the maintenance, radiation protection, and instrumentation & control departments were interviewed regarding their understanding of behavior observation responsibilities and the ability to recognize aberrant behavior traits. Two access authorization/ fitness-for-duty self-assessments, event reports for four quarters, an audit, and loggable events for four quarters were reviewed. Five individuals who perform escort duties were interviewed. Behavior observation training procedures and records were reviewed.

b. Issues and Findings

No findings were identified.

3PP2 Access Control

a. Inspection Scope

The inspectors performed the following activities to verify that VY had effective site access controls, and equipment in place designed to detect and prevent the introduction of contraband (firearms, explosives, incendiary devices) into the protected area:

A random sample of twenty personnel, granted unescorted access to the protected and vital areas, was checked to assure that they were properly screened, identified and authorized. Site access control activities were observed, including personnel processing through the search equipment during multiple peak ingress periods, package searches, and vehicle searches. Testing of all access control equipment, including metal detectors, explosive material detectors, and X-ray examination equipment, was observed. The access control event log, an audit, and three maintenance work requests were also reviewed.

b. Issues and Findings

No findings were identified.

3PP4 Security Plan Changes

a. Inspection Scope

Security Plan Changes. An in-office review was conducted of changes to the Vermont Yankee Physical Security Plan, identified as Revision 29, submitted to the NRC on December 10, 1999, in accordance with the provisions of 10 CFR 50.54(p).

b. Issues and Findings

No findings were identified.

Based on a limited review of the changes, as described in the plan revision, no NRC approval of this change is required, in accordance with 50.54(p). These changes will be subject to future inspection to confirm that the changes, as implemented, have not decreased the overall effectiveness of the security plan.

4. OTHER ACTIVITIES

4OA4 Other

.1 (Closed) LER 50-271/2000-001-00: Apparent Degradation of Main Steam Isolation Valve Solenoid Operated Test Valve Leads to a Request for Enforcement Discretion and a Subsequent Violation of Plant Technical Specifications.

This issue was reviewed in NRC Inspection Report 05000271/2000-002 and no violations leading to the request for enforcement discretion were identified. The LER was closed during an on-site review.

.2 (Closed) LER 271/1999-006-00: Limitorque Actuator Malfunction Results in Failure of an RHR Heat Exchanger Bypass Valve.

This event was previously discussed in NRC Inspection Report 05000271/1999-009. The LER summarizes the results of VY's root cause investigation associated with ER 99-471 and ER 99-1838. VY concluded the cracks in the RHR-65A and RHR-65B stems originated at minor defects, and were propagated by the tensile stress caused by torquing the valves into their backseats during the open stroke. The backseating practice was halted in 1988 when a design change was made to the valve actuator control circuit. Based on metallurgical analysis of the RHR-65A stem, VY determined that this change had stopped the crack propagation. However, in 1998, the stem for RHR-65B was subjected to a very high tensile stress when a failure occurred in the valve actuator. This additional stress caused the previously arrested crack in RHR-65B's stem to further propagate, reaching the point where normal operational stress was sufficient to cause the stem to fail. VY's analysis confirmed that the valve stem hardness was in the acceptable range and did not contribute to an accelerated failure.

VY assessed the condition of the valve stems and determined the following: (1) the RHR-65A valve was degraded but operable for all functions of RHR; (2) the RHR-65B valve's "as-found" condition would not have prevented low pressure coolant injection flow; (3) the RHR-65B valve's internal disk guides provided sufficient alignment between the stem segments to allow the valve to close in support of suppression pool cooling and shutdown cooling functions.

VY's review of this event identified some other issues that were not directly related to the cause of the RHR-65B stem failure and corrective actions have been implemented. These issues were minor and the LER was closed.

4OA6 Management Meetings

.1 Exit Meeting Summary

The inspectors presented the inspection results to Mr. Mike Balduzzi, plant manger, and other members of VY management at the conclusion of the inspection on May 23, 2000. The managers acknowledged the findings presented.

The inspectors asked whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

.2 Plant Performance Review Meeting

On April 19, NRC Region I management met with members of VY management to discuss results of the February 23, 2000, Plant Performance Review of Vermont Yankee. The meeting was held in Vernon, Vermont, and was open to the public for observation.

PARTIAL LIST OF PERSONS CONTACTED

Vermont Yankee

M. Balduzzi, Plant Manager
K. Bronson, Operations Superintendent
J. Dreyfuss, Technical Services Superintendent
E. Harms, Assistant Operations Manager
C. Wamser, Operations Supervisor
S. Naeck, Mechanical Maintenance Manager
C. Nichols, Instrument and Controls Manager
R. Rusin, System Engineering Manager
M. Laporte, Work Management Supervisor
R. Burns, Maintenance Rule Program Coordinator
D. Voland, Environmental Chemistry
J. Moriarty, Security Manager

NRC

R. Croteau, VY Project Manager

ITEMS OPENED, CLOSED, AND DISCUSSED

Previous Items Closed

LER 50-271/2000-001-00: Apparent Degradation of Main Steam Isolation Valve Solenoid Operated Test Valve Leads to a Request for Enforcement Discretion and a Subsequent Violation of Plant Technical Specifications

LER 50-271/1999-006-00: Limitorque Actuator Malfunction Results in Failure of an RHR Heat Exchanger Bypass Valve

LIST OF ACRONYMS USED

ALARA	as low as is reasonably achievable
CS	Core Spray
EDG	Emergency Diesel Generator
FSAR	Final Safety Analysis Report
HEPA	High Efficiency Particulate Filter
HPCI	High Pressure Coolant Injection
LER	Licensee Event Report
ODCM	Offsite Dose Calculation Manual
QA	Quality Assurance
QC	Quality Control
RCIC	Reactor Core Isolation Cooling
RHR	Residual Heat Removal
RETS	Radiological Effluents Technical Specification
TS	Technical Specifications
VY	Vermont Yankee

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.