March 18, 2002

Mr. Michael A. Balduzzi
Senior Vice President
and Chief Nuclear Officer
Vermont Yankee Nuclear Power Corporation
185 Old Ferry Road
P.O. Box 7002
Brattleboro, Vermont 05302-7002

SUBJECT: VERMONT YANKEE - NRC INSPECTION REPORT 50-271/01-13

Dear Mr. Balduzzi:

On February 16, 2002, the NRC completed an inspection at your Vermont Yankee facility. The enclosed report documents the inspection findings which were discussed on February 28, 2002, with you and other members of your staff.

This 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. There were no findings of significance identified.

Immediately following the terrorist attacks on the World Trade Center and the Pentagon, the NRC issued an advisory recommending that nuclear power plant licensees go to the highest level of security, and all promptly did so. With continued uncertainty about the possibility of additional terrorist activities, the Nation's nuclear power plants remain at the highest level of security and the NRC continues to monitor the situation. This advisory was followed by additional advisories, and although the specific actions are not releasable to the public, they generally include increased patrols, augmented security forces and capabilities, additional security posts, heightened coordination with law enforcement and military authorities, and more limited access of personnel and vehicles to the sites. The NRC has conducted various audits of your response to these advisories and your ability to respond to terrorist attacks with the capabilities of the current design basis threat (DBT). On February 25, 2002, the NRC issued an Order to all nuclear power plant licensees, requiring them to take certain additional interim compensatory measures to address the generalized high-level threat environment. With the issuance of the Order, we will evaluate VY's compliance with these interim requirements.

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.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 50-271/01-13

Attachment: Supplementary Information

cc w/encl: M. Hamer, Operating Experience Coordinator - Vermont Yankee
G. Sen, Licensing Manager, Vermont Yankee Nuclear Power Corporation
D. Tefft, Administrator, Bureau of Radiological Health, State of New Hampshire
Chief, Safety Unit, Office of the Attorney General, Commonwealth of Massachusetts
D. Lewis, Esquire
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)
R. Shadis, New England Coalition Staff
State of New Hampshire, SLO Designee
State of Vermont, SLO Designee
Commonwealth of Massachusetts, SLO Designee

Distribution w/encl: H. Miller, RA/J. Wiggins, DRA (1)
C. Anderson, DRP
R. Summers, DRP
P. Bonnett, DRP
R. Junod, DRP
B. McDermott, DRP - NRC Resident Inspector
T. Bergman, RI EDO Coordinator
E. Adensam, NRR (ridsnrrdipmlpdi)
R. Pulsifer, PM, NRR
D. Starkey, Backup PM, NRR
Region I Docket Room (with concurrences)

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No. 50-271

License No. DPR-28

Report No. 50-271/01-13

Licensee: Vermont Yankee Nuclear Power Corporation

Facility: Vermont Yankee Nuclear Power Station

Location: Vernon, Vermont

Dates: December 30, 2001 - February 16, 2002

Inspectors: Brian J. McDermott, Senior Resident Inspector
Edward C. Knutson, Resident Inspector
Joseph T. Furia, Senior Health Physicist
Robert J. Summers, Senior Project Engineer
David M. Silk, Senior Emergency Preparedness Inspector

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

SUMMARY OF FINDINGS

IR 05000271-01-13, on 12/30/01-02/16/2002; Vermont Yankee Nuclear Power Station; Vermont Yankee Nuclear Power Corporation; Resident Inspection Report.

This inspection was performed by the resident inspectors and region-based inspectors specializing in radiation safety, plant operations, and emergency preparedness. No findings of significance were identified during this inspection. The significance of a finding is indicated by its color (Green, White, Yellow, Red), as determined using Inspection Manual Chapter 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply are indicated by "No Color" or by the severity level of the applicable violation. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described at its Reactor Oversight Process website at:
http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/index.html.

A. Inspector Identified Findings

None.

B. Licensee Identified Violations

None.

Report Details

Summary of Plant Status: Vermont Yankee (VY) operated at 100 percent power during most of the inspection period, with a few exceptions. On January 16, the electronic pressure regulator failed and reactor pressure increased by approximately 12 psig during the transfer to the backup mechanical pressure regulator. The peak reactor pressure during this event was not sufficient to actuate any automatic safety features and the backup pressure regulator functioned as designed. Also, during this period operators reduced reactor power to approximately 90 percent in support of weekly control rod surveillance testing. VY's reactor engineering department and fuel vendor recommended these power reductions as part of their action plan to address fuel defects. Radiation levels at the outlet of the steam jet air ejector system remain at a small fraction of the Technical Specification limits.

1. REACTOR SAFETY

Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness [REACTOR - R]

1R01 Adverse Weather Protection

a. Inspection Scope

The inspectors assessed VY's actions associated with cold weather operations in accordance with NRC Inspection Procedure 71111, Attachment 1, "Adverse Weather." The inspectors reviewed procedure, OP 2196, "Preparations for Cold Weather Operations," and completion and accuracy of its implementing enclosures; reviewed periodic surveillance activities of cold weather operations features conducted through procedure, OP 0150, "Auxiliary Operator Round Sheet Outside;" reviewed selected cold weather related event reports, ER 2000-0090, ER 2000-0100, ER 2000-0105, ER 2000-1894, ER 2001-0045, ER 2001-0203, and ER 2001-0345 and the corrective actions implemented; verified procedure-related improvements identified in the selected event reports were implemented; and performed walkdowns of systems and structures, including the intake service water structure, diesel generator rooms, and the Condensate Storage Tank, to verify that required freeze protection measures were in place and operable.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

a. Inspection Scope

The inspectors performed partial system walkdowns (visual inspections) to verify system alignments and to identify any discrepancies that would impact system operability. Observed plant conditions were compared with the standby alignment of equipment specified in VY's system operating procedures. In addition, the inspectors referenced the general guidance in NRC Inspection Procedure 71111, Attachment 4, "Equipment Alignment."

The inspectors observed valve positions, the availability of power supplies, and the general condition of selected components in the following systems:

- Residual heat removal (RHR) subsystem "B" and its support equipment, during preventive maintenance on the RHR subsystem "A". The operability requirements for this system are listed in technical specification (TS) 3.5 and the system's standby alignment is defined by VY operating procedure OP 2124.

- The core spray system and its support equipment, during preventive maintenance on the RHR subsystem "A". The operability requirements for this system are listed in technical specification (TS) 3.5 and the system's standby alignment is defined by VY operating procedure OP 2123.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

The inspectors toured plant areas important to 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 inspectors identified fire areas important to plant risk based on the Fire Protection Program and the Individual Plant Examination of External Events (IPEEE). Additional plant areas were selected based on their increased significance due to ongoing plant maintenance. The inspection elements identified in NRC Inspection Procedure 71111, Attachment 5, "Fire Protection," were used in evaluating the following plant areas:

- West switchgear room, due to increased risk significance during RHR subsystem "A" maintenance.

- Reactor building 252' elevation cable penetration area, due to safety significance.

- Cable vault, due to increased risk significance during AS-2 alternate shutdown battery replacement.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation

a. Inspection Scope

The inspectors reviewed VY's implementation of the Maintenance Rule for structures, systems and components that exhibited performance problems. The inspectors also reviewed a sample of risk significant systems to verify proper identification and resolution of maintenance rule-related issues. NRC Inspection Procedure 71111, Attachment 12, "Maintenance Rule Implementation," and VY Program Procedure PP 7009, "10 CFR 50.65, Maintenance Rule Program," were used as references during this inspection. VY's performance monitoring for the following systems and/or assessments of component failures were reviewed during this inspection period:

- The standby gas treatment system was examined based on the failure of test equipment during this report period that impacted VY's ability to perform efficiency testing of the charcoal adsorber.

- The station service water (SW) system was reviewed to assess VY's characterization of functional failures, maintenance preventable functional failures, and repetitive maintenance preventable functional failures.

- The reactor building closed cooling water (RBCCW) system was reviewed to assess VY's characterization of functional failures, maintenance preventable functional failures, and repetitive maintenance preventable functional failures.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessment and Emergent Work Evaluation

a. Inspection Scope

The inspectors reviewed two planned maintenance activities based on the guidance in NRC Inspection Procedure 71111, Attachment 13, “Maintenance Risk Assessment and Emergent Work Control.” VY procedures AP 0125, "Equipment Release" and AP 0172, "Work Schedule Risk Management - Online," were used as criteria to assess VY's activities.

- Planned maintenance for RHR subsystem "A" on January 28 and 29 that impacted multiple components required for low pressure injection and containment heat removal.

- Planned maintenance for service water (SW) pump "C" on February 5 due to recent changes in VY's risk characterization for one inoperable SW pump.

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 one non-routine evolution. Specifically, the adequacy of personnel performance, procedure compliance and use of the corrective action process were evaluated using the guidance in NRC Inspection Procedure 71111, Attachment 14, "Personnel Performance Related To Non-routine Plant Evolutions and Events." The following non-routine evolution was observed:

- Testing of the newly installed hydrogen water chemistry system, performed in accordance with Special Test Procedure 2000-006.01, "Hydrogen Water Chemistry System, Startup and Tuning Test Procedure, and Hydrogen Benchmark Test Procedure." The injection of hydrogen into the reactor coolant increases radiation levels in the steam system during operation. As a result, the normal full power background radiation level detected by the main steam line radiation monitors increases. This test was a potential transient initiator because it resulted in variable, elevated radiation levels and therefore increased the possibility of an automatic isolation of the main steam lines.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed a sample of operability determinations prepared by VY using the guidance in NRC Generic Letter 91-18 for evaluation of degraded or non-conforming conditions. The following plant issues were reviewed:

- Improper calibration of ultrasonic flow meters used during a Torus Spray flow surveillance (ER 2002-0205).

- Failure of the APRM "F" power supply and its impact on the APRM rod block features required by Technical Specification 3.2.5 (ER 2002-0037).

- Stored materials partially blocking a high energy line break (HELB) blowout panel on the 345' elevation of the reactor building (ER 2002-0234)..

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing

a. Inspection Scope

The inspectors reviewed documentation and/or observed portions of the post-maintenance testing associated with online maintenance. The review was performed using the guidance provided in NRC Inspection Procedure 71111, Attachment 19, "Post-Maintenance Testing." VY operating procedures, work documents and TS requirements were used as criteria, when applicable, for this inspection.

The following post-maintenance testing activities were evaluated:

- Pump and valve operability testing for RHR Subsystem "A", performed in accordance with OP 4124 on January 29.
- Pump and valve operability testing for RHR Service Water Subsystem "A", performed in accordance with OP 4124 on January 29.
- Testing of uninterruptible power supply MG-UPS-1A following maintenance to refurbish its DC motor, as specified in work order 00-005058-000.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors reviewed documentation and/or observed portions of testing related to the following surveillance tests using the guidance provided in NRC Inspection Procedure 71111, Attachment 22, "Surveillance Testing":

- Scram discharge instrument volume high water functional/calibration, performed in accordance with OP 4310 on January 7.
- RHR Service Water Pump "B" surveillance test, performed in accordance with OP 4121 on January 28. Based on the test results, this pump will be tested at an increased frequency in accordance with the ASME code and VY Technical Specifications.

b. Findings

No findings of significance were identified.

Emergency Preparedness [EP]

EP4 Emergency Action Level and Emergency Plan Changes

a. Inspection Scope

The inspector conducted an in-office review of licensee submitted changes for the emergency plan (Change #37) to determine if the changes decreased the effectiveness of the plan:

Section 8, Organization
Section 9, Emergency Response
Section 12, Maintaining Emergency Preparedness
Appendix A, Emergency Classification System and Emergency Action Levels
Appendix E, Letters of Agreement
Appendix H, Public Notification System Description

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Occupational Radiation Safety [OS]

2OS1 Access Control to Radiologically Significant Areas

a. Inspection Scope

The inspectors identified exposure significant work areas (e.g., high radiation areas and potential airborne radioactivity areas) in the turbine, radwaste and reactor buildings, and reviewed associated controls and surveys of these areas to determine if the controls (i.e., radiological surveys, postings, barricades) were adequate to identify and control radiation exposures. The inspectors observed health physics activities associated with the initiation of hydrogen water chemistry. For these areas, the inspectors reviewed radiological job requirements and attended job briefings; determined if radiological conditions in the work area were adequately communicated to workers through briefings and postings; verified the implementation of radiological job coverage and contamination controls; and verified the accuracy of surveys and applicable posting and barricade requirements. The inspectors examined whether prescribed radiation work permit (RWPs) controls were in-place, procedure and engineering controls were in place, licensee surveys and postings were complete and accurate, and whether air samplers were properly located. The inspectors reviewed electronic pocket dosimeter alarm set points (both integrated dose and dose rate) for conformity with survey indications and

plant policy. Technical Specification 6.5 and the requirements contained in 10 CFR 20, Subpart G were utilized as the standard for necessary barriers.

The inspectors reviewed VY's actions in the area of radiological controls based on the discovery of fuel pin defects. Specifically, information pertaining to the size of the defects, changes in radiological source terms, frequency of radiological surveys in currently and potentially affected areas, and the licensee's efforts to conduct radiological surveys to identify the presence of alpha emitters and hard to detect nuclides. The inspectors also reviewed VY's efforts to reduce the introduction of fission products and transuranic isotopes into the primary coolant.

The inspectors examined the committed effective dose equivalent (CEDE) exposure results for workers who sustained intakes of radioactive materials during calendar year 2001 and reviewed the total effective dose equivalent (TEDE) exposure results for all workers during calendar year 2001.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls

a. Inspection Scope

The inspector reviewed ALARA job evaluations, reviewed exposure estimates and exposure mitigation requirements, and reviewed ALARA plans. The inspector conducted a review of: the integration of ALARA requirements into work procedures and RWP documents; the accuracy of person-hour estimates and person-hour tracking; and the generation of shielding requests including their effectiveness in dose rate reduction.

For the work areas identified in section 2OS1 (above), the inspector: evaluated the licensee's use of engineering controls to achieve dose reductions; determined if workers utilized the low dose waiting areas and were effective in maintaining their doses ALARA; determined if workers received appropriate on-the-job supervision to ensure ALARA requirements were met; and reviewed individual exposures of selected work groups.

The inspector conducted a review of actual exposure results versus initial exposure estimates including 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. The review was against requirements contained in 10 CFR 20.1101(b).

The inspector reviewed the ALARA goal established for 2001 (170 person-rem) and compared this goal to actual plant results (142.8 person-rem, including fourth quarter 2001 results from electronic dosimetry measurements), including the spring 2001 refueling outage (RFO22). The inspector also reviewed exposure goals established for

2002 (corporate goal of 185 person-rem, based on projections for maintaining the station's 3-year rolling average low), including the fall 2002 refueling outage (RFO23).

b. Findings

No findings of significance were identified.

2OS3 Radiation Monitoring Instrumentation

a. Inspection Scope

The inspector 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. The inspector conducted a review of instruments observed, specifically verification of proper function and certification of appropriate source checks for these instruments, which were utilized to ensure that occupational exposures were maintained in accordance with 10 CFR 20.1201. The inspector also reviewed the calibration records, including source traceability documentation, for selected survey instruments used by the licensee during the week of January 7, 2002.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES [OA]

4OA6 Exit Meeting

On February 28, 2002, the resident inspectors presented their overall findings to members of VY management led by Michael Balduzzi, Senior Vice President and Chief Nuclear Officer, who acknowledged the findings presented.

The inspectors asked whether any materials examined during the inspection should be considered proprietary. Where proprietary information was identified, it was returned to VY after review.

ATTACHMENT 1

SUPPLEMENTARY INFORMATION

A. List of Items Opened, Closed and Discussed

None.

B. List of Acronyms Used

ALARA	As Low As Reasonably Achievable
AP	Administrative Procedure
APRM	Average Power Range Monitor
CEDE	Committed Effective Dose Equivalent
CFR	Code of Federal Regulations
DC	Direct Current
ER	Event Report
HELB	High Energy Line Break
IPEEE	Individual Plant Evaluation of External Events
MG	Motor Generator
NRC	Nuclear Regulatory Commission
OP	Operating Procedure
PP	Program Procedure
RBCCW	Reactor Building Closed Cooling Water
RFO	Refueling Outage
RHR	Residual Heat Removal
RWP	Radiation Work Permit
SDP	Significance Determination Process
SGTS	Standby Gas Treatment System
SW	Service Water
TEDE	Total Effective Dose Equivalent
TS	Technical Specification
UPS	Uninterruptable Power Supply
VY	Vermont Yankee