U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-271/85-34

Docket No. 50-271

License No. DPR-28

Licensee: Vermont Yankee Nuclear Power Corporation

RD5, Box 169, Ferry Road

Brattleboro, Vermont 05301

Facility Name: Vermont Yankee Nuclear Power Station

Inspection At: Vernon, Vermont

Inspection Conducted: October 28 - November 1, 1985

Inspectors: C Petrone — 11/25/85
C. Petrone, Lead Reactor Engineer — date

S. Kucharski — 11/26/85
S, Kucharski, Reactor Engineer — date

Approved by: Jon R. Johnson — 11/26/85
J. Johnson, Chief, Operational Programs Section, OB, DRS — date

Inspection Summary: Inspection on October 28 - November 1, 1985 (Report No. 50-271/85-34)

Areas Inspected: Routine unannounced inspection of the Surveillance Testing and Calibration Control Program, startup testing of modified systems, and licensee actions on previous NRC findings. The inspection involved 58 hours onsite by two region-based inspectors.

Results: No violations were identified.

DETAILS

1. Persons Contacted

Vermont Yankee

*F. Burger, QA Coordinator
*L. Doane, Shift Supervisor
*R. Lopriore, Maintenance Supervisor
M. Metill, Engineering Support
*J. Pelletier, Plant Manager
R. Wanczyk, Technical Services Superintendent
T. Watson, I&C

NRC

*W. Raymond, Senior Resident Inspector

2. Licensee Action on Previous Inspection Items

2.1 (Closed) Unresolved Item 83-31-02 Surveillance Test Program

A review of procedure AP 4000, "Surveillance Testing Control", during inspection 83-31 identified that the procedure did not contain instructions to require that Technical Specification (T.S.) amendments be reviewed for possible changes to surveillance test procedures.

During this inspection, the latest revision (revision 8) of AP 4000 was reviewed and found to contain specific instructions for the review of Technical Specification amendments. The inspector also reviewed a sample of recent T.S. amendments and verified that the appropriate surveillance test procedures had been revised to reflect these changes. This item is now closed.

2.2 (Closed) Unresolved Item 84-07-01 Effluent Monitoring Instrumentation

Review of effluent monitoring instrumentation during inspection 84-07 identified that procedure OP 4315, "Main Steam Line Radiation Monitor Scram - Isolation Functional/Calibration" did not indicate the tolerance limits that must be met when functional tests are performed and did not require that a re-calibration be performed when the monitors are found outside tolerance limits.

Subsequently the licensee revised procedure OP4315 to correct these deficiencies. The inspector reviewed revision 7 of the procedure, dated April 12, 1985, and confirmed that these changes had been

completed satisfactorily. This item is now closed.

2.3 (Closed) Inspector Follow-up Item 83-17-05 Reactor Mode Switch

On June 15, 1983, an inadvertent scram signal was generated when the operators attempted to change the mode switch position from "Shutdown" to "Start-up". The scram signal occurred when the mode switch hung-up momentarily between the "Shutdown" and the "Refuel" positions due to excessive play in the operating linkage which, at times, makes it difficult to make a smooth transfer between positions. This item was left open pending completion of the licensee's long-term plans to improve the mode switch operation.

During this inspection, the inspector reviewed the licensee's plans to correct this problem and confirmed that the mode switch would be replaced during the current pipe replacement outage. These plans were reviewed and found satisfactory to resolve the inspectors concern. This item is now closed.

2.4 (Closed) Unresolved Item 45-99-H2 Vermont Yankee Containment Isolation valves - compliance with Appendix J

On August 19, 1983 the licensee received NRR acceptance of their latest proposal of the containment isolation valves for type C testing. This item is now closed.

2.5 (Closed) Unresolved Item 76-16-01 Containment Leak Rate Testing Conformance to Appendix J

Review of the integrated leak rate test program during inspection 76-16 identified various areas of the procedure and the technical specifications which involved changes to the penetrations and containment isolation valves which are subject to type B and C testing and also which are exempt from type B and C testing. Based on NRC's August 19, 1983 response to Vermont Yankee's proposal (NVY 83-192), this item is now closed.

2.6 (Closed) Unresolved Item 76-16-04 Containment Integrity

The licensee's procedure now requires any containment isolation valve or substitute valve to meet the leak test requirements of the type C test. This item is now closed.

2.7 (Closed) Unresolved Item 76-16-05 Drywell to Torus Bypass Flow Area Test Adequacy

The inspector reviewed procedure OP4115, Vacuum Breaker Operability and Technical File Calculation (Drywell Leak Detection). Based on this review the constant temperature assumption is a conservative method of calculating a bypass leakage. This item is now closed.

2.8 (Closed) Unresolved Item 78-06-01 Administrative Control over RCIC, LPCI and HPCI - Torus suction drain line valves

The inspector reviewed the P&ID and also reviewed OP-4030 (Containment Leakage Rate Test) for valve alignment. The torus suction drain line valves are closed and capped. This item is now closed.

2.9 (Closed) Unresolved Item 78-06-02 TIP purge line isolation provisions and CILRT Alignment

The inspector reviewed OP4030 (Containment Leakage Rate Test Type C Leak Rate Test) for the adequacy of isolation and testing for the TIP purge line valves. The licensee now has adequate provisions for testing and isolation. This item is now closed.

2.10 (Closed) Inspector Follow-up Item 83-01-01 Reactor Vessel Level Calibration Error

An error was discovered in the calibration data used for calibration of the Rosemount level instrumenta ion. General Electric Co. was supplying the calibration data for the Yarway instruments assuming no heat clamps were installed. When installation was made heat clamps were used. The instrument setpoints were set sufficiently high such that, even with the error, all the trips occur within the technical specification required values. During the 1983 outage, the heat clamps were removed from the Yarway columns and the Rosemount level instruments were recalibrated. This item is now closed.

2.11 (Closed) Inspector Follow-up Item 83-18-01 MSIV Leakage to be added to Type B and C Sum

The inspector reviewed FVY 83-97, Primary Containment Leak Rate Test Report, and determined that the licensee now accounts for MSIV leakage in the total for Type C leakage. This item is closed.

2.12 (Closed) Inspector Follow-up Item 83-18-03 Corrections to Preliminary ILRT results to be reported in Summary Technical Report

Review of FVY 83-97, Primary Containment Leak Rate Test Report, shows that the licensee now accounts for the increase in drywell sump levels, increase in reactor vessel water level and leakage of isolation valves that were not accounted for during the test. This item is now closed.

3.0 Surveillance Testing Program

The inspector reviewed the program for surveillance tests, calibrations, calibration checks, and instrument functional tests required by Technical Specifications. The program and administrative procedures were examined to verify that:

-- Responsibilities have been assigned for performance of tests and test schedule;

-- Implementing procedures for performance of tests have been established;

-- A master schedule for surveillance and calibration tests has been established; and, that

-- Methods and responsibilities have been established for review and evaluation of data, for reporting of deficiencies and failures identified during surveillance test and calibration.

The licensee's procedure A.P. 4000, "Surveillance Testing Control", dated September 6, 1984, provides instructions to plant personnel for implementing the surveillance testing programs required by Technical Specifications 6.5.A.6. Most surveillance activities with a recurring frequency of once per week or less are contained in a surveillance test schedule which is maintained, published, and independently verified by the Engineering Support Supervisor or Surveillance Test Coordinator (STC). It requires that changes to the schedule caused by published changes to plant procedures be submitted to the STC in writing by the department supervisor. The STC also maintains a controlled copy of Plant Technical Specifications and incorporates TS amendments into the Surveillance Test Schedule. The scheduling of tests with a frequency greater than once per week is assigned to the responsible Department Head. Actual development and implementation of test procedures and collection, review, and retention of data are the responsibility of the department performing these tests.

3.1 Surveillance Test Review

The inspector reviewed a sample of completed weekly surveillance test status sheets which included all tests performed during the month of September, 1985. The status sheets dated September 1, 9, 17 and 24 indicated that all required surveillance tests had been completed as scheduled, or rescheduled and completed within the required surveillance interval. The inspector chose a sample of these tests for review of the completed test procedures. The test procedures were reviewed to verify the following: they had been completed on the date specified on the status sheets; all required

data had been recorded; results met acceptance criteria; all required pre-requisite and verification signatures were complete; and, QC review had been performed where required. The following tests were reviewed:

Date Complete	Test Description	Test Procedure	Technical Specification Requirement
9/9/85	1-High Steam Line Radiation Funct. Test	4315	4.1.1
9/13/85	2-APRM High Flux Funct. Test	4302	4.1.1
9/13/85	3-Drywell/Torus Diff.Pressure Funct. Test	4379	4.7.A.9.B
9/13/85	5-APRM Inop Funct. Test	4302	4.1.1
9/13/85	7-APRM Downscale Funct. Test	4302	4.1.1
9/10/85	9-Backfill Torus Level Reference Chamber	5374	N/A
9/12/85	122-LPCI Low-Low Reactor Vessel Water Level Funct. Test	4337	4.2.1
9/12/85	123-LPCI Reactor Vessel Shroud Level Funct. Test	4337	4.2.1
9/12/85	129-LPCI Low-Low Reactor Vessel Water Level Funct. Test	4337	4.2.1
9/12/85	134-ADS-Low-Low Reactor Vessel Water Level Funct. Test	4337	4.2.1
9/9/85	136-ADS-Bus Power Monitors Funct. Test	4345	4.2.1
9/12/85	137-Primary Containment Isolation-Low-Low Reactor Vessel Water Level Funct. Test	4313	4.2.2
9/10/85	138-Primary Containment Isolation-Steam Line Area High Temperature Funct. Test	4322	4.2.2
9/11/85	140-Primary Containment Isolation-Steam Line Low Pressure Funct. Test	4324	4.2.2
9/12/85	141-Primary Containment Isolation-Low Reactor Vessel Water Level Funct. Test	4313	4.2.2
9/12/85	144-Low Reactor Water Level Instrumentation Funct. Test	4313	4.1.1
9/13/85	146-Turbine Control Valve Fast Closure Funct. Test	4314	4.1.1
9/12/85	151-Core Spray Actuation-Low-Low Reactor Vessel Water Level Funct. Test	4337	4.2.1
9/9/85	156-Primary Containment Isolation-Main Steam Line High Radiation Funct. Test	4315	4.2.2
9/12/85	158-HPCI Isolation-Reactor High Water Level Funct. Test	4337	4.2.2
9/9/85	164-RCIC Isolation-Main Steam Line Tunnel Temperature Funct. Test	4366	4.2.2
9/9/85	165-RCIC Isol-Steam Line Space Temperature Funct. Test	4366	4.2.2
9/10/85	166-RCIC Isolation-Steam Line High dp Funct. Test	4364	4.2.2

9/12/85	167-RCIC Isolation-Reactor High Water Level Funct. Test	4337	4.2.2
9/10/85	168-RCIC Isolation-Steam Supply Low Press. Funct. Test	4365	4.2.2
9/9/85	169-RCIC Isolation-Bus Power Monitor Funct. Test	4367	4.2.2
9/12/85	170-RBV & SGTS Isolation-Low Reactor Vessel Water Level Funct. Test	4313	4.2.3
9/12/85	258-Reactor Water Level-Main Turbine Trip Funct. Test	4337	N/A
9/12/85	289-RPT Low Low Reactor Vessel Water Level Funct. Test	4337	4.2.1
9/12/85	291-RPT Trip System Logic Funct. Test	4342	4.2.1
9/10/85	310-Primary Containment Isolation Main Steam Line Low Pressure Cal.	4324	4.2.2
9/13/85	327-Turbine Control Valve Fast Closure Instrumentation Cal.	4314	4.1.2
9/13/85	328-H_2 and O_2 Monitors Funct. Cal.	4344	Pending
9/10/85	415-Strong Motion Accelerograph Funct. Test	4396	N/A
9/9/85	80-MSIV Partial Closure	4113	4.7.D.1.c
9/12/85	80-MSIV Partial Closure	4113	4.7.D.1.c
9/9/85	15-H^2 Leakage Check	4161	N/A
9/9/85	20-Alt. Condensate and Demin. Water Transfer Pumps	2185	N/A
9/15/85	41-Control Rod Exercise	4111	4.3.A.2
9/5/85	182-Reactor Vessel Water Level Perturbation Test (Upon Completion of I&C Surveillance)	4172	4.1.1
9/9/85	186-SLCS Pumps Test	4114	4.4.A.1
9/11/85	189-HPCI Pump and Motor Operated Valve Oper. Test	4120	4.5.E.1
9/11/85	190-RCIC Pump and Motor Operated Valve Oper. Test	4121	4.5.G.1
9/11/85	294-Vacuum Breaker Operability	4115	4.7.A.6.a
9/10/85	197-Standby Gas Treatment Heater Operability Test	4117	4.7.B.2.d

3.2 Test Results

During this review the inspector identified that the shift supervisor's signature was missing from data sheets VYOPF 4114.01, dated September 19, 1985 for pumps A and B. This signature is required by OP 4114, "Standby Liquid Control System Surveillance Procedure

Rev. 14, Step 1. The licensee corrected the signoff sheets. The inspector noted that the shift supervisor had signed the other signature block at the bottom of the data sheet verifying that the test had been completed satisfactorily.

During review of a HPCI Monthly Valve Test Data Sheet VYPOF 4120.02, performed on September 11, 1985, the inspector noted that the ISI test coordinator's review signature was missing from two of the three data sheet pages. The test coordinator subsequently re-reviewed and signed these data sheets.

As a result, the inspector chose a random sample of fifty additional data sheets, from various surveillance tests, and reviewed them to determine if any verification signatures were missing. No additional missing signatures were identified. Based on this review, the inspector concluded that these examples were isolated cases. The surveillance records were generally well maintained, complete, and adequately controlled.

3.3 Technical Specification Amendments

The inspector reviewed a sample of TS amendments to determine if these changes had been incorporated in the surveillance program. The inspector verified that the licensee had administrative controls in place to ensure TS amendments are reviewed by appropriate personnel for possible changes to surveillance procedures and schedules. The six most recent TS amendments (84-89) were selected for review. The inspector verified that the appropriate procedures had been revised to reflect changes in required frequency, and set points. No discrepancies were identified.

3.4 Quality Control Review of Surveillances Activities

The inspector reviewed the Quality Control inspection records and noted that QC had reviewed the results of surveillance procedures OP-4313, OP-4337, OP-4363, and OP-4340, during the month of September. The inspector concluded that Quality Control is actively involved in the witnessing and review of surveillance testing.

3.5 Reactor Mode Switch Replacement

The inspector reviewed the licensee's plans to replace the reactor mode switch during the present outage. The inspector discussed the planned replacement with cognizant licensee personnel and reviewed a preliminary draft of the procedure "Installation/Test Procedure For Replacement of SB-1 Reactor Mode Switch". The licensee purchased a replacement SB-1 mode switch from GE, the original vendor. Due to limited space under Control Room Panel (CRP) 9-5, the switch will be

removed with the wiring harness attached. The switch will be taken to tne I&C shop where the wiring configuration will be compared to applicable plant drawings. The harness will be inspected and then transferred to the new switch. The configuration will be verified to ensure that it will match the configuration of the old switch, then reinstalled in CRP 9-5.

This procedure was reviewed to ensure it contained adequate prerequisites, appropriate precautions, clear procedure steps, acceptance criteria, system lineups and tagouts, QC holdpoints, and post modification testing. The inspector noted several minor discrepancies in the draft procedure which the licensee agreed to correct. The inspector noted that the post-installation checkout included comprehensive continuity checks of the switch and wiring harness. The inspector had no further concerns.

4.0 Calibration Program

4.1 Documents Reviewed

-- O.P. 4301, Intermediate Range Monitor Functional/Calibration, Revision 5, February 2, 1984.

-- O.P. 4302, Average Power Range Monitor Functional, Revision 7, March 6, 1985.

-- O.P. 4311, Drywell High Pressure Scram/Isolation Functional/ Calibration, Revision 10, August 3, 1984.

-- O.P. 4313, Reactor Water Lo Level Scram - Isolation/Lo Lo Level Isolation Functional/Calibration, Revision 17, July 30, 1984.

-- O.P. 4315, Main Steam Line Radiation Monitor Scram-Isolation Functional/Calibration, Revision 7, April 12, 1985.

-- O.P. 4322, Main Steam Line Area High Temperature Functional/ Calibration Test, Revision 6, August 4, 1984.

-- O.P. 4323, Main Steam Line High Flow Functional/Calibration Revision 13, June 27, 1985.

-- O.P. 4335, Reactor Building Vent and Standby Gas Treatment System Logic Power Monitor Functional Test, Revision 9, June 21, 1984.

-- O.P. 4337, Reactor Water Level ECCS Initiation-Isolation Functional/Calibration, Revision 16, August 24, 1984.

-- O.P. 4338, Drywell High Pressure ECCS Functional/Calibration, Revision 11, August 2, 1984.

-- O.P. 4342, Reactor Pressure ATWS/RPT/ECCS Functional/Calibration, Revision 3, August 4, 1984.

-- O.P. 4345, Auto Depressurization System Power Monitor Functional Test, Revision 9, January 21, 1985.

-- O.P. 4347, Core Spray Header Differential Pressure Functional/ Calibration, Revision 9, January 21, 1985.

-- O.P. 4352, RHR Pump Discharge Pressure Functional/Calibration, Revision 10, January 21, 1985.

-- O.P. 4359, HPCI System Power Monitor Functional Test, Revision 11, January 21, 1985.

-- O.P. 4363, Functional Test of the HPCI Suction Valves Auto Transfer due to Condensate Storage Tank (CST) Low Level and Calibration of CST Level Loops and Associated Instruments, Revision 13, July 16, 1985.

-- ICO2.1.1, Administrative Control of Technical Specification Insturment Setpoints, Revision 1, March 28, 1985.

-- File No. 3.3, Master Surveillance Test, April 15, 1985.

4.2 Scope of Review

The inspector reviewed the above listed documents for technical adequacy and to ascertain compliance with regulatory requirements, technical specifications and applicable industry standards. The inspector also held discussions with the licensee regarding the implementation of the procedures, documentation of the results, and the frequency in which they are performed. Further details are discussed below.

4.3 Procedure Review

The inspector noted in reviewing procedure ICO2.1.1, Administrative Control of Technical Specification Instrument Setpoints, that each plant instrument which has technical specifications requirements is listed with the technical specification limit, the Vermont Yankee trip setting limit and the functional and calibration frequency. Also given for each instrument is the operations procedure for that instrument which verifies the information given in the Administrative procedure. No unacceptable conditions were identified.

4.5 Results Review

The inspector reviewed the latest functional test and calibrations performed in the procedures listed in Section 4.1. They were reviewed to see if the acceptance criteria was met, the documentation was complete, and the latest approved revision of the test procedure was reviewed. No unacceptable conditions were identified.

4.6 QA/QC Involvement

During review of the results for individual functional test and calibrations, the inspector noted that seven of the 17 procedures reviewed were witnessed and audited by QA. No unacceptable conditions were identified.

5.0 Facility Tours

The inspector made several tours of the facility during the course of the inspection including the reactor building, turbine building and control room. The inspector observed work in progress, housekeeping and cleanliness. No unacceptable conditions were identified.

6.0 Exit Meeting

An exit meeting was held on November 1, 1985 to discuss the inspection scope and findings as detailed in this report (see paragraph 1 for attendees). At no time during the inspection was written material given to the licensee.