

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-443/85-16

Docket No. 50-433

License No. CPPR-135 Priority -- Category B

Licensee: Public Service Co. of New Hampshire
1000 Elm Street
Manchester, New Hampshire 03105

Facility Name: Seabrook Station, Unit 1

Inspection At: Seabrook, New Hampshire

Inspection Conducted: May 28-31, 1985

Inspectors: for M. Edelgruth
L. Briggs, Lead Reactor Engineer

7/8/85
date

Approved by: L. Bettenhausen
L. Bettenhausen, Chief
Operations Branch, DRS

7/11/85
date

Inspection Summary: Inspection on May 28 - May 31, 1985 (Report No. 50-443/85-16)

Areas Inspected: Routine, unannounced inspection by one region-based inspector (30 hours) of preoperational test witnessing, preoperational and acceptance test results evaluation review, QA interface with preoperational testing and facility tours.

Results: No violations were identified.

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DETAILS

1.0 Persons Contacted

J. Arduis, Startup Test Engineer (Residual Heat Removal System) (NHY)
*J. Azzopardi, Quality Assurance (QA) Engineer (NHY)
S. Baldacci, QA Engineer (YAEC)
S. Barraclough, QA Engineer (YAEC)
D. Covill, Field QA Surveillance Manager (NHY)
*G. Kann, Phase 2-6 Test Group Manager (NHY)
*G. Kingston, Station Staff Compliance Manager (NHY)
J. Lavalley, Unit Shift Supervisor
R. Leclerc, Shift Test Director
D. Lynch, QA Engineer (NHY)
W. Mackensen, Preoperational Test Supervisor
D. McLain, Startup Manager (NHY)
*P. Massicotte, Staff Engineer (NHY)
*W. Middleton, QA Staff Engineer (NHY)
*D. Perkins, QA Engineer (NHY)
*W. Sanchez, Engineer, Licensing (NHY)
*J. Singleton, Assistant QA Manager (NHY)
*J. Tefft, Startup and Test Department Special Assistant (NHY)
D. Turner, Electrical QA Engineer (NHY)
T. Waechter, Startup Test Engineer (Safety Injection System)

2.0 Preoperational Test Witnessing

During the entrance meeting on May 28, 1984 the licensee informed the inspector that two preoperational tests of safety related systems were scheduled to be conducted during the week. The scheduled tests were 1-PT-7, Residual Heat Removal System (due to be completed on May 28, 1985) and 1-PT-8, Emergency Core Cooling System (ECCS) Performance Test, scheduled to start on 2nd shift on May 30, 1985. In preparation for test witnessing the inspector reviewed the latest revision of both preoperational tests.

2.1 Test Witnessing Scope

Testing witnessed by the inspector included the following observations of overall crew performance:

- Approved procedure with latest revision available and in use by test personnel;
- A designated person in charge and conducting the test;
- Minimum test personnel requirements met;
- Qualified personnel performing the test;
- Test precautions followed and prerequisites met;

- QA/QC notification and witness requirements met (QA engineer present);
- Proper plant supporting systems in service;
- Special test and measuring equipment required by the test procedure, its calibration and use;
- Procedure technically adequate for the test;
- Testing being performed as required by the test procedure;
- Test personnel actions correct and timely during performance of the test; and,
- adequate communications established for test performance.

2.2 Findings

2.2.1 Residual Heat Removal (RHR) System, 1-PT-7

The inspector observed performance of Paragraphs 6.4.1 through 6.4.21, Safety Injection (SI) Actuation and Sequencer Test of the 8A RHR pump breaker. The inspector verified that testing was being conducted in a controlled manner and met the inspector's criteria stated in Paragraph 2.1 above.

One minor problem occurred during the Sequencer test when an incorrect terminal board link was specified in the procedure. The licensee took appropriate corrective action to determine the problem and issued a Field Change to correct the procedure. No other problems were encountered. A complete review of 1-PT-7 test results will be conducted during a future routine inspection.

No unacceptable conditions were observed.

2.2.2 ECCS Performance Test, 1-PT-8

The inspector observed 1-PT-8 prerequisite signoff and shift briefing prior to test conduct. The test performance (section 6) was actually started at about 6 p.m. on May 30, 1985. The first part of the test was to obtain data to verify vendor pump curves for the 'A' centrifugal charging pump. Initial charging pump checkout and venting was conducted in accordance with approved procedures.

The charging pump was initially started and placed on the minimum flow valve. When the licensee remote manually closed the minimum flow valve to begin data taking the minimum flow

valve stroked to its full open position. Since recirculation flow was not measured by the installed test equipment the necessary data could not be taken to verify the vendor pump curve. Licensee investigation and control schematic review identified the problem. A test engineer responsible for the charging pumps had valved out the installed charging pump flow instrument for QC inspection and to tighten fittings (turnback to construction) subsequent to the prerequisite signoff by the test engineer responsible for 1-PT-8 performance. At the time of tag out it was thought that it would not affect 1-PT-8 performance because the manual minimum flow valve control switch has a maintain closed position. However, when the valve fully closes it has a limit torque switch which deenergizes a relay in the close circuit and rearms (closes a contact) the open circuit. When no system flow was sensed (due to instrument isolation) with the charging pump sensed as running, the minimum flow valve stroked full open. The licensee initiated a field change to open the terminal board links in the auto open circuit to allow full manual control of the minimum flow valve for both centrifugal charging pumps. The inspector discussed this item in detail with the Phase 2-6 Test Group Manager, who was present during the test.

During the following attempt to take charging pump flow data some difficulty was experienced with the special instrumentation installed. At the end of this inspection on May 31, 1985 the licensee was in the process of recalibrating the special flow measuring instrumentation and repairing some minor fitting leaks.

During observation of both tests and through discussions with test personnel the inspector determined that testing was being conducted in accordance with approved procedures and in a conservative manner. Test personnel observed also appeared knowledgeable of their assigned systems and Startup QA was providing almost continuous coverage.

No unacceptable conditions were observed.

3.0 Preoperational and Acceptance Test Results Evaluation Review

3.1 Scope

The completed test procedures listed below were reviewed during this inspection to verify that adequate testing had been conducted to satisfy regulatory guidance, licensee commitments and FSAR requirements and to verify that uniform criteria are being applied for evaluation of completed test results in order to assure technical and administrative adequacy.

The inspector reviewed the test results and verified the licensee's evaluation of test results by review of test changes, test exceptions, test deficiencies, "As-Run" copy of test procedure, acceptance criteria, performance verification, recording conduct of test, QC inspection records, restoration of system to normal after test, independent verification of critical steps or parameters, identification of personnel conducting and evaluating test data, and verification that the test results have been approved.

- 1-PT-17.1, Spent Fuel Cooling, Revision 0, Results Approved May 15, 1985;
- 1-PT-17.2, Spent Fuel Cleanup System, Revision 0, Results Approved May 15, 1985;
- 1-PT-10, Safety Injection Accumulator Blowdown, Revision 1, Results Approved May 29, 1985;
- 1-AT-4.1, Condenser Air Evacuation - Condenser Vacuum Pumps, Revision 0, Results Approved April 24, 1985;
- 1-AT-4.2, Condenser Air Evacuation - Water Box Priming Pumps, Revision 1, Results Approved April 18, 1985;
- 1-AT-13.1, Fire Pump Flow Capacity Testing, Revision 2, Results Approved September 20, 1984; and,
- 1-AT-46.1, Demineralized Water System, Revision 1, Results Approved October 23, 1984.

3.2 Findings

No discrepancies or violations were identified during the above review; however, there were several test exceptions that require license corrective action. These test exceptions were assigned to the incomplete items list (IIL) by the licensee for tracking purposes (normal method at this facility). Once transferred to the IIL the test exception is closed by the licensee with corrective action implemented via the IIL.

The following IIL numbers correspond to incomplete test exceptions and collectively constitute unresolved Item 443/85-16-01.

<u>Procedure No.</u>	<u>Short Title</u>	<u>IIL No.</u>
1-PT-17.1	Spent Fuel Cooling	SF-0163
1-PT-17.2	Spent Fuel C/U	SF-0161 and SF-0162
1-PT-10	SI Accum. Blowdown	SI-0426 and active Work Request ST-0425
1-AT-13.1	Fire Pump Flow Cap	FP-0420 and FP-0419

In addition to the above the inspector discussed several installed plant instrument calibrations and wiring problems noted during the review as being identified during licensee preoperational testing that he (the inspector) felt should have been resolved during Phase I (construction) testing. Early identification and resolution would minimize delays during the conduct of preoperational and acceptance testing. The licensee agreed with the inspector on certain items, but pointed out that during Phase I testing individual components are tested and system interrelations may be unknown by the personnel conducting the test. The inspector agreed that not all problems could be identified due to the Phase I method of testing; however, further steps should be taken to ensure those that can be identified and corrected would be. The licensee stated that further evaluation would be conducted in this area.

No unacceptable conditions were identified.

4.0 QA Interface with the Preoperational Test Program

The inspector reviewed several recent STD QA Surveillance Reports (QASR) specifically related to the Preoperational Tests witnessed or reviewed by the inspector. The following QASR's were reviewed:

- QASR Q2.6.21.8630, Surveillance of 1-PT-7(RHR), Revision 2, performance, completed on May 28, 1985. The QA inspector witnessed sections 6.1.4 through 6.1.21 and section 6.2 with no deficiencies noted. The QA inspector was also present during 6.4 with the NRC inspector (QASR not issued).
- QASR Q2.6.21.8495 and Q2.6.21.8488, Surveillance of 1-PT-10, SI accumulator Blowdown, Revision 1, both completed on May 3, 1985. The QA inspectors provided almost continuous surveillance of this test during two shift coverage with no discrepancies observed.

No unacceptable items were identified.

5.0 Plant Tours

The inspector made several tours of various areas of the facility during normal and backshift hours to observe work in progress, housekeeping, cleanliness controls, status of construction and preoperational testing activities.

No unacceptable conditions were noted.

6.0 Unresolved Item

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable, an item of noncompliance or a deviation. The unresolved item identified during this inspection is discussed in Paragraph 3.2 of this report.

7.0 Exit Interview

A management meeting was held at the conclusion of the inspection on May 31, 1985, to discuss the inspection scope, findings and observations as detailed in this report (see Paragraph 1 for attendees). No written information was provided to the licensee at any time during this inspection.