

VIRGINIA ELECTRIC AND POWER COMPANY

1 -PO- 71Revision No.: 0Date: 07-28-76PREOPERATIONAL TEST PROCEDURE FOR North Anna POWER STATION UNIT # 1TITLE: CHEMICAL ADDITION TANK AND REFUELING WATER STORAGE TANK DRAINDOWN TESTPrepared by: F. T. TerminallaDate: 05-14-76Engineering Recommended Approval: K. E. BakerDate: 6-1-76

JOINT TEST GROUP REVIEW OF PROCEDURE:

Chairman's Signature: John AhlakerDate: 6-7-76

STATION NUCLEAR SAFETY AND OPERATING COMMITTEE APPROVAL OF PROCEDURE:

Chairman's Signature: John AhlakerDate: 7-28-76

All personnel conducting actual testing in accordance with this procedure will verify by their signature that they have read it in its entirety prior to commencing any testing:

FOR INFORMATION ONLY

THIS COPY IS NOT A CONTROLLED
DOCUMENT NOR NECESSARILY THE
LATEST REVISION.

AUG 19 1976

TEST RESULTS REVIEWED BY ENGINEERING: _____

Date: _____

TEST RESULTS REVIEWED BY JTG: _____

Date: _____

TEST RESULTS APPROVED BY STATION NUCLEAR SAFETY AND OPERATING COMMITTEE:

Chairman's Signature: _____

Date: _____

Comments: _____

SAFETY RELATED

DISCREPANCIES (List by number):

10

RESOLUTION OF DISCREPANCIES (List by number corresponding to above):

11

CRITIQUE:

12

VIRGINIA ELECTRIC AND POWER COMPANY
NORTH ANNA POWER STATION
UNIT 1

CHEMICAL ADDITION TANK AND REFUELING WATER
STORAGE TANK DRAINDOWN TEST

REFERENCES:

1. Chemistry Criteria and Specifications for Westinghouse Pressurized Water Reactors, WCAP-7542, Specification 1.5.
2. Stone and Webster Drawings 11715-FM-91A, 95B, 95C, 96A, 96B.
3. FSAR Sections 6.2, 6.3, P6.5 and Figure 7.3-33.
4. Westinghouse System Description SD-VRA-200/D
5. Stone and Webster System Description 26-2

1.0 Purpose

- 1.1 To demonstrate that the chemical addition system as built will allow the refueling water storage tank and the chemical addition tank to drawdown together as designed.

Date Started: _____

Initials

2.0 Initial Conditions

- _____
- 2.1 Immediately prior to the performance of this test, the Test Engineer has reviewed the latest revisions of the applicable references in order to improve his familiarity of this procedure and insure that it is still valid for performance of this test. (i.e. changes to the system, equipment or component since the procedure was approved will not affect its testing).
- _____
- 2.2 The Low Head Safety Injection Pumps have been conditionally turned over to Vepco (YELLOW tagged) as verified by inspection of the CONDITIONAL RELEASE forms (refer to section 26-2 of the Station Index).
- _____
- 2.3 The Vepco Test Engineer has noted the deficiencies/nonconformances listed on the CONDITIONAL RELEASE forms and has determined that they will not affect the performance of the test.
- 2.4 The following instrument loops have been calibrated by referring to Vepco instrument department files:

Low Head SI Pump Discharge

F-1945

F-1946

F-1948

RWST

L-QS-100A

Chemical Addition Tank

L-QS-101

Initials

2.0 Initial Conditions (cont.)

- 2.5 The Refueling Water Storage Tank (1-QS-TK-1) and Chemical Addition Tank (1-QS-TK-2) are filled to normal level with water which meets the requirements of Reference #1.
- 2.6 The low head and high head safety injection system valves are in the normal alignment as per OP-7.0 except that MOV-1862A and B between the RWST and the low head safety injection pumps are closed to prevent gravity draining of the RWST.
- 2.7 Hot functional testing is completed, the vessel head is removed, and the following conditions exist.
- 2.7.1 The reactor vessel to refueling cavity seal ring is installed.
- 2.7.2 The excore detector well covers are fitted with gaskets and secured.
- 2.7.3 The refueling penetration is closed.
- 2.7.4 Valve 1-RP-2 is closed (drain to sump).
- 2.7.5 The refueling cavity is dry.
- 2.8 A brush 220 recorder or equivalent is available and calibrated to record tank levels. Record on Test Equipment Data Sheet.
- 2.9 Temporary lines have been installed so that water can be drained from the RWST (1-QS-TK-1) to the Condensate Storage Tank (1-CN-TK-2).
- 2.10 Temporary suction strainers have been removed from the pump suctions.
- 2.11 Notify the Shift Supervisor of the impending test and coordinate its performance through him.

Initials

3.0 Precautions and Limitations

- _____
- 3.1 All test equipment and instrumentation (control room indicators, field mounted gauges, etc.) used for obtaining data shall be operable and in calibration as verified by referring to Vepco instrument department files.
- _____
- 3.2 Before starting each pump, verify that the pump and pump seals have been vented.
- _____
- 3.3 Ensure that the water used in this test meets the requirements of Reference #1 for both 1-QS-TK-1 and 1-QS-TK-2.
- _____
- 3.4 Do not operate the low head SI pumps under mini-flow conditions longer than 15 minutes due to vibration induced under low flow, high head operating conditions.
- _____
- 3.5 Do not overflow the refueling cavity.
- _____
- 3.6 Be sure to label recorder traces with enough information to allow later evaluation and analysis, if necessary. This should include the following as a minimum (Use rubber stamp):
1. Test No.
 2. Recorder QA No.
 3. Time and Date
 4. Chart Speed
 5. Scale used
 6. Test Point
 7. Parameters

Initials

4.0 Instructions

- 4.1 Drain the Refueling Water Storage Tank (1-QS-TK-1) to the condensate storage tank (1-CN-TK-2) to achieve a level of 421,000 gal. (421,000 gal. is the level 5 min. after CDA initiation when the Chemical Addition valves are opened).

NOTE: DO NOT DRAIN INTO THE REACTOR CAVITY.

- 4.2 Raise the level in the Chemical Addition tank to 100% of span.

- 4.3 Disconnect power from the following valves at the Motor Control Center:

MOV-1863A Valves from LHSI pumps to High Head

MOV-1863B SI pumps.

MOV-1885A

MOV-1885B Valves in the recirc. line from the LHSI
MOV-1885C pumps to the RWST.

MOV-1885D

MOV-1860A Valves from the containment sump to

MOV-1860B suction of LHSI pumps.

- 4.4 Test the drawdown rate of the Chemical Addition Tank (1-QS-TK-2).

4.4.1 Ensure that LI-QS-100A (RWST level) and LI-QS-101
(Chemical Addition Tank level) are on a recorder.

4.4.2 Open MOV-1862A and MOV-1862B to supply water to the
LHSI pumps.

4.4.3 Start the LHSI pumps 1-SI-P-1A and 1-SI-P-1B.

4.4.4 Immediately after starting the LHSI pumps, open MOV-QS-102A, the Chemical Addition supply valve.

Initials

4.0 Instructions (cont.)

4.4.5 Secure 1-SI-P-1A and 1-SI-P-1B when either:

- a. The reactor cavity is full or
- b. When the low low level switchover point is reached.

4.4.6 Close MOV-1862A, MOV-1862B and MOV-QS-102A.

NOTE: With the Reactor Cavity full, 1-PO-28.2, Spent Fuel Pit Cooling and Refueling Purification System - Refueling Cavity, may now be performed.

4.5 Test the drawdown rate of the Chemical Addition Tank with the RWST level below the low low level setpoint.

4.5.1 Drain the RWST to 60,000 gal. (13% of span).

4.5.2 Fill the Chemical Addition tank to 100% of span.

4.5.3 With the Chemical Addition level (LI-QS-101) and the RWST level (LI-QS-100A) on recorders, open MOV-QS-102A to test the drawdown rate of the Chemical Addition Tank.

4.5.4 Close MOV-QS-102A when the Chemical Addition tank stops draining.

4.5.5 Fill the Chemical Addition tank to the normal operating level.

4.6 Restore the level in the RWST above the low-low level setpoint.

4.7 Connect power at the Motor Control Center to the valves which were disconnected in step 4.3.

MOV-1863A

MOV-1885A

MOV-1863B

MOV-1885B

MOV-1860A

MOV-1885C

MOV-1860B

MOV-1885D

Initials

4.0 Instructions (cont.)

_____ 4.8 Disconnect the recorder and evaluate the data (levels vs.
time).

_____ 4.9 Inform the Shift Supervisor on duty that this test has been
completed.

Completed By: _____

Date: _____

5.0 Acceptance Criteria

The results of this test shall be considered acceptable if:

- 5.1 The refueling water storage tank (1-QS-TK-1) and the Chemical Addition tank (1-QS-TK-2) drawdown together as designed. (Step 4.4)
- 5.2 The Chemical Addition Tank drains at a rate of greater than or equal to 1.77 ft. of height/min (200 gpm) which corresponds to the maximum drawdown rate of the RWST. (Step 4.5)

6.0 Attachments

- 6.1 Test Equipment Data Sheet

TEST EQUIPMENT
DATA
SHEET

TEST EQUIPMENT DESCRIPTION *	MODEL NUMBER	VEPCO QA NUMBER

* NOTE: This applies only to temporarily installed test equipment or instrumentation. Permanent instrumentation which is part of the system and shown on drawings should not be included.

COMPLETED BY: _____

DATE: _____