

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-352/85-44

Docket No. 50-352

License No. NPF-39

Priority -

Category C

Licensee: Philadelphia Electric Company

2301 Market Street

Philadelphia, Pennsylvania 19101

Facility Name: Limerick Nuclear Generating Station

Inspection At: Limerick, Pennsylvania

Inspection Conducted: November 20, 1985 - December 6, 1985

Inspector:

D. Florek
D. Florek, Lead Reactor Engineer

1/6/86
date

Approved by:

J. E. Eselgroth
for J. Eselgroth, Chief, Test Program Section,
OB, DRS

1/13/86
date

Inspection Summary: Inspection on November 20, 1985 - December 6, 1985
(Inspection Report No. 50-352/85-44)

Areas Inspected: Routine unannounced inspection of the startup test program during test conditions 4, 5 and 6 including startup test witnessing, startup test results evaluation, plateau review, startup test coordination, QA/QC interfaces, independent measurements and tours of the facility. The inspection involved 90 hours by one region-based inspector.

Results: No violations were identified.

Note: For acronyms not defined, refer to NUREG-0544, "Handbook of Acronyms and Initialisms."

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1.0 Persons Contacted

Philadelphia Electric Company (PECO) and Contractors

D. Atkinson, Lead Startup Test Coordinator
*J. Corcoran, QA Field Section Head
*C. Endriss, Regulatory Engineer
P. Fleckser, Startup Test Scheduler
J. Franz, Superintendent of Operations
*C. Harmon, Engineer, Quality Assurance
M. Held, Engineer, Quality Control
*F. Hunt, Engineer, Quality Assurance
*J. Isaacs, NSSS Test Supervisor
A. Jenkins, Startup Test Program Supervisor
*K. Kamps, Engineer - Modifications
G. Leitch, Plant Manager
*J. McElwain, QA Auditor
*J. Rupert, QA Site Supervisor
R. Smith, QA Auditor
*J. Spencer, Superintendent, Plant Services
*V. Warren, Test Engineer

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*M. Dev, Reactor Engineer
*P. Eapen, Chief, QA Section
*E. Kelly, Senior Resident Inspector

*Denotes those present at the exit interview on December 6, 1985.

The inspector also contacted other licensee and contractor personnel in the course of the inspection including reactor operators, startup test engineers and technical staff.

2.0 Startup Program

References

- Regulatory Guide 1.68, Revision 2, "Initial Test Program for Water-Cooled Nuclear Power Reactors"
- ANSI 18.7 - 1976, "Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants"
- Limerick Generating Station (LGS) Technical Specification
- LGS Final Safety Analysis Report

- LGS Safety Evaluation Report
- Specification NEBO 23A1918, Revision 0, "Limerick 1 and 2 Startup Test Specification"
- LGS Startup Program Schedule
- Administrative Procedure A-200, "Startup Test Procedure Format and Content"
- Administrative Procedure A-201, "Startup Test Procedure Control"
- Administrative Procedure A-202, "Startup Test Implementation"
- Administrative Procedure A-203, "Startup Test Program Personnel Training and Qualification"

2.1 Test Witnessing

Scope

The inspector witnessed portions of the preparations, conduct and recovery of the following startup and hot functional tests.

STP-15.6, "HPCI Surveillance at 200 psig CST to CST"

STP-16.3, "Recirculation Pump Trip Recovery Data at TC-4"

STP-19.2, "Core Performance at TC-4"

STP-21.1, "Core Void Response - Control Rod Movement at TC-4"

STP-21.2, "Core Void Response - Pressure Regulator at TC-4"

STP-22.1, "Pressure Regulator - Control Valve Response at TC-4"

STP-21.1, "Core Void Response - Control Rod Movement at TC-5"

STP-25.2, "Fastest MSIV Closure at TC-5"

HF-34, "Recirculation Flow Control Tuneup at TC-6"

STP-35.1, "Recirculation System Flow Calibration at TC-6"

The tests were witnessed for the attributes identified in Inspection Report No. 50-352/84-74 in Section 2.2.

Discussion

For the activities witnessed, the applicable attributes were found to be satisfied. A summary of each activity witnessed is discussed below.

TC-5 Testing and Approach to TC-5 Testing

On November 25, 1985 at 0517 hours, the inspector witnessed a cold quick start of HPCI (STP-15.6) with the reactor at 200 psig. The inspector independently determined the time from the operator depressing the HPCI initiation button until HPCI achieved greater than 5600 gpm as read on the control room instrumentation. The inspector determined the time as 20.4 seconds. HPCI pump discharge pressure was 350 psi with the pump speed at 2500 rpm. HPCI was shut-down at 0535 hours. No unacceptable conditions were noted.

The inspector witnessed portions of the activities in TC-5 on November 26-27, 1985. The inspector witnessed activities conducted to establish plant operation at minimum recirculation speeds. The inspector witnessed portions of STP-21.1. The inspector observed the licensee insert the selected control rod one, then two notches. No instabilities were observed. The inspector witnessed portions of recovery activities associated with STP-25.2. The inspector witnessed opening of MSIV F022B. No scram occurred from the closure and no unacceptable conditions were observed when the valve was opened.

TC-4 Testing

On November 30, 1985, the licensee completed TC-4 testing. TC-4 is natural circulation testing that occurs after TC-5 testing. The inspector witnessed the activities described below.

Just prior to entering TC-4, the licensee senior management conducted a review of the testing completed in TC-5 and determined that no problems were identified that would preclude satisfactory completion of TC-4. This activity exceeded commitments in the startup program. At 1100 hours with the recirculation pumps at minimum speed, reactor power was 1571 MWT and total core flow (WT) was 45%. Just prior to TC-4, the test personnel conducted a briefing to all station operating personnel on the testing, precautions and recovery actions of TC-4. At 1153 hours, the A recirc pump was tripped and power was reduced to 1483 MWT and at 1158 hours, the B recirculation pump was tripped and power reduced to 1400 MW and total core flow was 40%. The plant was officially in natural circulation conditions. The licensee then performed TIP traces to clear the BASE CRIT codes of the process computer and obtained a P-1 for STP-19.2. At 1543 hours the licensee performed STP-21.1 by inserting control rod 30-39 from notch 26 to notch 16. No instabilities were observed. Because rod

withdrawal blocks existed, the control rod could not be withdrawn. Additional rods were inserted to maintain core symmetry. Core power was further reduced to 1331 MWT with a total core flow of 39.9%. Throughout these activities, the licensee was monitoring process temperatures in STP-16.3 to assure technical specification limits were not approached. At 1800 hours the licensee began STP-21.2 and 22.1 by inserting ± 3 psi pressure steps on the A regulator. The licensee used these results to predict a higher step to be performed without causing a reactor trip. The licensee then inserted a ± 5.5 pressure step and no trip occurred and no instabilities were observed. The licensee repeated the process on the B regulator with the same result. Throughout the TC-4 tests witnessed, licensee senior management was present for critical test activities. QC personnel were also observed to be performing surveillance activities. No unacceptable conditions were noted.

TC-6 Testing

The inspector witnessed portions of the activities associated with calibration of the recirculation flow calibration (STP-35.1). Data on jet pump and recirculation flows are utilized for this calibration. During the analyses process, the licensee discovered an error in the computer code assignments of jet pumps to recirculation pumps which required them to perform the calculations manually. The licensee also performed a second data collection when the error was discovered. The licensee also utilized independent personnel to also perform the manual calculations.

Following the completion of STP-35.1, the licensee began tune up activities associated with setting the recirculation pump high speed stops.

The inspector witnessed a portion of the activities associated with establishing the high speed stops on the recirculation pumps (HF-34). The licensee was obtaining data at 2% speed increments from 95% core flow to 100% core flow. The licensee extrapolated the data to set the high speed electrical and mechanical stops. The licensee then planned to verify the setting by increasing one recirc pump speed and decreasing the other to maintain the same total core flow until the limiters are reached. The licensee had set the mechanical high speed stops and was going to verify the setting on December 5, 1985, when high bus duct temperatures in the main generator required a reduction in power. The testing will be continued when the power levels are sufficient. No unacceptable conditions were observed.

Findings

No violations were identified.

2.2 Test Results Evaluation

Scope

The startup tests from Test Conditions 3, 4 and 5 listed in the discussion section below were reviewed for the attributes identified in Inspection Report 50-352/84-70, Section 3.3. In addition, the inspector reviewed 67 test exception reports that have been closed out by the licensee and 6 test exception reports that have not completed all the steps for final closeout, for technical adequacy and processing in accordance with the administrative procedures.

Discussion

Except as noted below, all startup test results were found to meet the attributes referenced above. A summary of each startup test follows. The test exceptions reviewed were all found to be acceptable.

The following tests from TC-3 were reviewed.

STP-1.2 "Chemistry Data," Revision 0, test implemented October 31, 1985.

Test was performed with the reactor at 68% power.

Reactor water parameters were as follows:

	<u>Value</u>	<u>Limit</u>
Conductivity micromho/cm	.441	≤ 1.0
Chloride ppb	<20	≤ 200
pH	8.1	$5.6 \leq \text{pH} \leq 8.6$

STP-5.8 "Scram Timing of Selected Rods During Planned Scrams of the Startup Test Program," Revision 1, test implemented November 14, 1985.

Rod Scram Times to Notch 05 were acceptable and summarized below.

<u>Rod</u>	<u>Time (Sec)</u>	<u>Limit (Sec)</u>
10-39	2.57	<7
26-39	2.37	<7
30-35	2.55	<7
38-27	2.49	<7

- STP-11.3 "LPRM Calibration with Process Computer," Revision 1, test implemented September 28, 1985.

A test exception was identified during the management review process due to 13 LPRM's being bypassed during the conduct of this test. These will be verified at a later date during subsequent testing.

- STP-13.6 "Program Testing At TC-3," Revision 0, test implemented November 2, 1985.

Testing at 71% power demonstrated the asymmetric and symmetric PI edit yielded the same core conditions within 15%.

- STP-13.8 "Acceptance Criteria Verification," Revision 2, test implemented November 2, 1985.

This test was performed at 71% power. The process computer and backup method computer (BUCLE) agreed on locations and values for MFLPD, MAPRAT, and MFLCPR. Test exceptions were processed in accordance with the administrative procedures.

- STP-15.5-2 "HPCI Cold Quick Start at Rated Pressure CST to RPV," Revision 1, test implemented November 5, 1985.

Test was aborted due to Level 1 criterion failure due to time to rated flow exceeding 30 seconds. Test was repeated after adjustments were made.

- STP-15.5-3 "HPCI Cold Quick Start at Rated Pressure CST to RPV," Revision 1, test implemented November 9, 1985.

HPCI achieved rated flow into the vessel in 21.3 seconds and did not trip and thus satisfied the level 1 test criterion.

- STP-15.4-2 "Controller Optimization During RPV Injection," Revision 1, test implemented November 9, 1985.

HPCI responded acceptability to step changes in both manual and automatic. A test exception was prepared due to the actual pressure drop exceeding the value previously utilized in surveillance testing to simulate reactor vessel injection. The HPCI surveillance procedure requires modification per the test exception report. The inspector reviewed a revision in process of the HPCI surveillance procedure and verified that feedback from this startup test is being utilized in the surveillance procedure revision.

STP-15.6 "HPCI Surveillance Tests CST to CST," Revision 1, test implemented November 13, 1985.

This test was a cold quick start of HPCI with a CST-CST flow path at rated reactor pressures. HPCI did not trip. Margins to overspeed limits were acceptable.

STP-16.2 "Bottom Head Drain Temperature," Revision 0, test implemented September 29, 1985.

With core flow at 98%, a temperature difference between the average recirculation loop temperature and the bottom head drain temperature was 6.2 degrees and satisfied the test criterion of less than 30°F.

STP-16.3 "Recirculation Pump Trip Recovery Data - One Pump Trip," Revision 0, test implemented November 7, 1985.

The difference between steam dome and bottom drain temperatures was 28.1°F, the difference between idle and active loop recirc pump inlet temperatures was 2.5°F and the active loop drive flow was 49% when the idle recirculation pump was started, thus satisfying the test criteria.

STP-16.3 "Recirculation Pump Trip Recovery Data - Two Pump Trip," Revision 0, test implemented November 7, 1985.

During restart, parameters satisfied criteria.

	Stm. Dome Bottom Head ΔT	Stm. Dome Aver. Recir. A ΔT	Stm. Dome Aver. Recir. B ΔT	Loop ΔT	Loop Flow
Restart of First Pump	29.9	22.3	39.25		
Restart of Second Pump	28.1	--	--	2.2	23.8%

STP-22.1 "Pressure Regulator Response - Control Valve Operation," Revision 1, test implemented October 24, 1985.

This test was conducted at 48.5% power. Step changes in pressure and failed regulator tests were performed. Margins to scram were as follows:

Pressure Margin	87 psi
Power Margin	51.2%

Extrapolating these test results and previous results indicated a reactor scram would occur at 100% power. This will, therefore, establish the maximum power level that this test can be performed and not cause a reactor scram.

STP-22.1 "Pressure Regulator Response - Control and Bypass Valve Operation," Revision 1, test implemented October 24, 1985.

This test was conducted at 40.7% power. Step changes were performed. Margins to scram were

Pressure	93 psi
Power	60%

STP-23.3 "Feedwater System Level Setpoint Changes," Revision 0, test implemented November 3, 1985.

This test was performed at 71.2% power with ± 5 inch level steps introduced in single and three element control. No divergent oscillations were noted. All acceptance criteria were satisfied.

STP-25.2 "Full Closure of Fastest MSIV," Revision 0, test implemented October 25, 1985.

MSIV 1F022B was tested at 49.2% power. The MSIV stroke time was 3.41 seconds. The margin to:APRM scram was 62%, pressure scram was 85 psi and high flow isolation was 73%.

STP-27.2 "Bypass Valve Capacity Check," Revision 0, test implemented November 13, 1985.

Total bypass capacity was determined to be less than 25%. The licensee planned to reperform the test during the next startup. Test exceptions were prepared in accordance with the administrative procedure.

STP-27.3 "Turbine Trip at TC-3," Revision 0, test implemented November 14, 1985.

The turbine trip was initiated at a reactor power of 74.6% and total core flow of 96%. All level 1 acceptance criteria were satisfied. A test exception was identified and processed in accordance with the administrative procedure for not meeting the level 2 criteria for no feedwater trip on high water level. No safety relief valves were required to operate. Reactor pressure peaked at 1031 psig. Minimum reactor water level was 4.6 inches and maximum was 60 inches as read on the wide range level indicator. Recirculation pump coastdown satisfied the coastdown requirements.

STP-29.1 "Local Manual Recirc Flow Control - Loop A," Revision 0, test implemented October 16, 1985.

This test was performed with the reactor at 32% power and the recirculation pump at 37% speed. Approximately 5% negative and positive steps were introduced. No divergent oscillations were noted. Test exceptions identified were processed in accordance with the administrative procedure.

STP-29.1 "Local Manual Recirc Flow Control - Loop B," Revision 0, test implemented October 16, 1985.

This test was performed with the reactor at 32% power and the recirculation pump at 34% speed. Approximately 5% negative and positive steps were introduced. No divergent oscillations were noted, however, the decay ratio was greater than .25. Test exceptions were identified and processed in accordance with the administrative procedure.

STP-29.1 "Master Manual Recirc Flow Control," Revision 0, test implemented October 16, 1985.

This test was performed at the reactor at 54% power with both recirc pump speeds at 70%. Approximately 5% negative and positive steps were introduced. No divergent oscillations were noted.

STP-30.1 "Recirculation System One Pump Trip," Revision 1, test implemented November 7, 1985.

This test was a trip of recirc pump A from 95% core flow. During the trip portion, reactor water level increased by 13 inches. During the recirc pump restart, the reactor did not scram with adequate margin to scram.

STP-30.2 "Recirculation Pump Trip (RPT) of Two Pumps," Revision 1, test implemented November 7, 1985.

This test was initiated from 70% power and 96% total core flow. Coastdown times for the recirc pumps were acceptable. Reactor power stabilized at 36% power with recirc pumps off. Core flow was approximately 39%.

- STP-30.3 "Recirculation System Performance," Revision 1, test implemented September 29, 1985.
- The test was performed with the reactor at 70% power and 88% total core flow. Recirculation pump efficiency was verified as well as jet pump riser and nozzle plugging criteria.
- STP-30.5 "Recirculation System Cavitation," Revision 0, test implemented November 5, 1985.
- Test verified that the runback logic of the recirc pumps were adequate to prevent operation in the areas of potential cavitation.
- STP-32.1 "Primary Containment Temperature," Revision 1, test implemented October 4, 1985.
- Drywell average temperature satisfied the test criteria, however, localized temperatures did exceed the test criteria. Test exceptions were prepared in accordance with the administrative procedure.
- STP-32.2 "Hot Penetration Concrete Temperatures," Revision 0, test implemented October 4, 1985.
- Test criteria were satisfied. Concrete surrounding primary containment penetrations for main steam and feedwater were maintained less than 200°F.
- STP-33.2 "Recirculation Piping Steady State Vibration," Revision 1, test implemented September 24 and September 25, 1985.
- Test was performed at 61 and 83% core flow. Vibration levels were acceptable.
- STP-33.3 "Main Steam (Outside Drywell), Main Steam Bypass and Feedwater Piping Steady State Vibration," Revision 0, test implemented October 6 and November 1, 1985.
- This test was performed at 48 and 72% power. Acceptance criteria were satisfied.
- STP-33.1 "Main Steam Piping (Inside Drywell) Steady State Vibration," Revision 0, test implemented September 29 and October 3, 1985.
- Tests were performed at 48 and 67% power. Vibration levels were acceptable.

- STP-34.1 "Offgas Performance Verification," Revision 2, test implemented October 4, 1985.
- This test was conducted at 48% power. All level 1 test criteria were satisfied.
- STP-35.1 "Recirculation System Flow Calibration," Revision 0, test implemented October 24, 1985.
- This test was performed at 50% power and 98% core flow. Test exceptions identified were processed in accordance with the administrative procedure. Adjustments were made to provide correct core flow at rated conditions.
- STP-36.3 "Recirculation Piping Vibration During Selected Transients," Revision 0, tests implemented November 7, 1985.
- This test was performed during the two recirc pump trip and pump recovery. Vibration levels were acceptable.
- The independent reviews of the following test results for TC-5 have been completed but the results have not completed the management and QC review cycle. This will be looked at during a subsequent inspection.
- STP-12.3 "High Power APRM Calibration," Revision 1, test implemented November 27, 1985.
- This test was performed at 63.5% power. APRMs were adjusted to read equal to or greater than core thermal power.
- STP-15.6 "HPCI Surveillance Test CST to CST at 200 psig," Revision 1, test implement November 25, 1985.
- HPCI did not trip or isolate. HPCI achieved rated flow in approximately 21 seconds. This was extrapolated from the test data via the control valve movement because the HPCI initiation signal did not print out the initiation on the computer traces. This was not an acceptance criterion for this particular test, however.
- STP-19.2 "Process Computer Calculation," Revision 1, test implemented November 27, 1985.
- The reactor was at 62.9% power with total core flow of 54.5%. Thermal limits satisfied the acceptance criteria.

CMFI,PD	.536
CMFCP	.695
CMAPR	.531

- STP-21.1 "Core Power Void Mode Response to Control Rod Movement," Revision 1, test implemented November 26, 1985.
- Control Rod 30-23 was moved 1, 2 and 3 notches. No unacceptable oscillations were noted. Acceptance criteria were satisfied.
- STP-21.2 "Core Power - Void Mode Response to Reactor Pressure Changes," Revision 1, test implemented November 30, 1985.
- ± 5 psi step changes in pressure produced no unacceptable oscillations. Acceptance criteria were satisfied.
- STP-23.3 "Feedwater System Level Setpoint Changes," Revision 0, test implemented November 27, 1985.
- With the reactor at 64% and total core flow of 54%, ± 5 inch level steps in both single and three element control were introduced. No unacceptable oscillations were noted.
- STP-25.2 "Full Closure of Fastest MSIV," Revision 0, test implemented November 27, 1985.
- MSIV F022B stroke time was 3.39 seconds when performed at 61% power. Margins to scram were acceptable.
- STP-27.2 "Bypass Valve Capacity Check," Revision 1, test implemented November 26, 1985.
- This test demonstrated bypass capacity of 27.3% with acceptance criteria of greater than or equal to 25%. This test was reperformed as a result of the test exception identified from the prior run in TC-3.
- STP-33.2 "Recirculation Piping Steady State Vibration," Revision 1, test implemented November 26, 1985.
- Acceptance criteria were satisfied.
- The following TC-4 test results were reviewed. Independent review was completed. Management and QC review are in progress.
- STP-9.1 "Reference Leg Temperature Comparison," Revision 1, test implemented November 30, 1985.
- Acceptance criteria were satisfied.

- STP-16.3 "Recirculation Pump Trip Recovery Data," Revision 0, test implemented November 30, 1985.
- During TC-4, the difference between steam dome and bottom drain temperatures was stable at approximately 35°F, the difference between the steam dome and average recirc pump inlet temperature was stable at approximately 28°F and 29°F for the A and B loop, respectively. During the re-start of the recirculation pumps, acceptance criteria were satisfied.
- STP-19.2 "Process Computer Calculation" Revision 1, test implemented November 30, 1985
- Based on the P-1 computer output the following satisfied the test criteria
- Reactor Power = 41.7%
- CMFCP = .580
- CMLPD = .362
- CMAPR = .363
- PR = 965
- WT = 40
- STP-21.1 Core Power - Void Mode Response to Control Rod Movement", Revision 1, test implemented November 30, 1985.
- Control rod 30-39 was moved from notch 28 to 16. No unacceptable oscillations were observed. Acceptance criteria were satisfied.
- STP-21.2 Core Power - Void Mode Response to Reactor Pressure Changes", Revision 1, Test implemented November 30, 1985
- For ±3 and ±5 psi step changes no unacceptable oscillations were observed. Acceptance criteria were satisfied.
- STP-23.3 "Feedwater System Level Setpoint Oranges", Revision 0, test implemented November 30, 1985.
- Approximately 5 inch level steps were introduced in single and three element control. No unacceptable oscillations were observed.
- STP-23.3 "Feedwater System Level Setpoint Changes", Revision 0, test implemented November 30, 1985
- Approximately 5 inch level steps were introduced in single and three element control. No unacceptable oscillations were observed.

Findings

No violations were identified.

2.3 Plateau Review

Scope

The inspector reviewed STP-99.5, "Test Condition 3", Revision 0 dated November 15, 1985, which is the licensee's administrative control to assure proper progression from TC-3 to the 100% rod line testing to ascertain whether the licensee is performing an adequate evaluation of test results and to ascertain whether the licensee is following their procedures to review, evaluate and accept of test results.

Discussion

The inspector verified that the open test exception carried over from TC-3 into TC-5 via the licensee records agreed with the inspectors determined open test exceptions.

The inspector noted the licensee processing of the change to STP-99.5, STCN-205 which deleted STP's 1.4, 30.4, 15.5 and 15.6 from TC-3. The attached safety evaluations were found to be acceptable. The inspector however questioned the deletion of STP-15.6, the HPCI surveillance test comparison at 200 psir with the final controller settings. FDDR-HH 9014 dated November 15, 1985 indicated that this test was not required. Based on the inspector inquiries on the merits of this deletion, the licensee decided to perform the test. The test was witnessed by the inspector as described in section 2.1. The test results substantiated the conclusions in FDDR-HH-9014. PORC meeting 85-114 dated November 15, 1985 satisfied the plateau review.

In the process of reviewing the deletion of HPCI testing, the inspector observed that the surveillance test to satisfy technical specification 4.5.1.c.2.a had been deleted and was included in surveillance ST-1-055-800-1. Upon review of ST-1-055-800-1, the inspector noted that the reference to 4.5.1.c.2.a was not identified. The inspector reviewed a marked up revision to ST-1-055-800-1 that referenced the specification and specified the prerequisites necessary to satisfy the surveillance requirements plus other changes resulting from data obtained from the startup program. The surveillance does not require performance for 18 months. The inspector had no further questions at this time.

Findings

No violations were identified.

2.4 Startup Coordination

The inspector witnessed several interdepartment planning meetings and observed licensee interactions to plan activities and resolve technical problems. The licensee conducts daily planning meetings and provides comprehensive startup test schedules that reflect the startup tests to be conducted. The licensee continually updates these schedules and different approaches to achieve the desired goals depending on plant condition. Feedback from different departments is utilized and senior plant management ultimately makes the final decisions on startup test activities.

3.0 QA/QC Interfaces

The licensee continues to maintain a high degree of QA/QC involvement in the startup program. The inspector routinely observed QC conducting surveillances of startup tests. The inspector reviewed 8 QC surveillance reports and no unacceptable conditions were noted. QC review of completed startup tests results is also being performed in a timely manner per the administrative procedures. QA personnel are also conducting continuing audits of overall startup program implementation. The audits intervals are keyed to the test conditions. The inspector reviewed the audit report for TC-3 which identified the scope and findings of the audit. The inspector routinely observed QA audit personnel witnessing conduct of startup tests, reviewing licensee actions in the review process and providing prompt feedback to startup personnel if any inconsistencies are observed. No unacceptable conditions were identified with the QA/QC personnel involvement in the startup activities.

5.0 Independent Measurements, Calculations and Verifications

During the course of this inspection the inspector independently verified on a sampling basis, the prerequisites contained in the startup tests witnessed and monitored test specific parameters for adequate response. Section section 2.1.

The inspector also independently verified several of the analysis steps in completed test procedures using the data collected during the test as part of the test results evaluation.

6.0 Plant Tours

The inspector made several tours of the facility during the course of the inspection including the reactor building, turbine building, control structure and control room. No unacceptable conditions were noted.

7.0 Exit Interview

An exit meeting was held on December 6, 1985 to discuss the inspection findings as detailed in this report (see paragraph one for attendees). At no time during the inspection did the inspector provide written inspection findings to the licensee. At the exit, the licensee did not identify any proprietary material that was contained in the scope of the inspection.