

LONG ISLAND LIGHTING COMPANY
Shoreham Nuclear Power Station

Supplement No. 5 to the
STARTUP REPORT

for the period November 15, 1986
to February 1, 1987

Approved: _____

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2/6/87
Date

TABLE OF CONTENTS

- 1.0 Overview
- 2.0 Chronology of Events
- 3.0 Startup Activities Performed/Test Results
- 4.0 License Conditions

1.0 OVERVIEW

This Startup Report Supplement has been written by the Long Island Lighting Company (LILCO) for submittal to the Nuclear Regulatory Commission in compliance with Shoreham Nuclear Power Station Technical Specifications, paragraphs 6.9.1.1 through 6.9.1.3, and Regulatory Guide 1.16, Revision 4, section C.1.a.

Technical Specifications and Regulatory Guide 1.16 require that a summary report of plant startup and power escalation testing be submitted within 9 months following initial criticality. Shoreham Nuclear Power Station (SNPS) achieved initial criticality on February 15, 1985, LILCO submitted a Startup Report on November 15, 1985. The scope of that Startup Report included fuel load and initial criticality under the .001% power license, NPF-19, and low power testing conducted under the 5% power license, NPF-36.

Since SNPS has not completed its startup test program or commenced commercial power operation, additional Supplements are required on a periodic basis. This Supplement covers the period from November 15, 1986 to February 1, 1987.

Shoreham has been in an outage since September of 1986. A major milestone which was completed during the period covered by this Supplement was bifurcation of the 4.16 KV Emergency Switchgear Circuit Breakers to allow category 1 AC power to be supplied to the Colt Diesel Building. This modification is necessary to accommodate the six (6) emergency diesel generator tie-in effort scheduled for completion during the first refueling outage. Other work completed successfully during this period included Local Leak Rate Testing (LLRT) of containment penetrations and the Integrated Leak Rate type A test (ILRT).

2.0 CHRONOLOGY OF EVENTS

December 7, 1984	Received low power license .001%
December 17, 1984	Sources loaded in core.
December 21, 1984	Fuel loading commenced.
January 4, 1985	Partial core shutdown margin test.
January 19, 1985	Fuel loading completed.
January 25, 1985	CRD open vessel testing completed.
February 17, 1985	Initial critical and shutdown margin test. Completed open vessel testing.
June 4, 1985	CRD open vessel retest completed.
July 3, 1985	5% low power license received.
July 7, 1985	Reactor critical sequence B. Test condition Heatup.
July 7, 1985	Heatup to 250 ^o F System expansion performed. IRM performance completed
July 8, 1985	Heatup to 325 ^o F performed. APRM calibration.
July 9, 1985	SRV functional test performed (STP-26).
July 11, 1985	150 psig plateau reached. System expansion DW entry. RCIC testing. HPCI system testing.
July 14, 1985	Reactor scram #1 on Rx level.
July 17, 1985	APRM calibration at 150 psig. HPCI testing. System expansion testing. RBCLCW performance testing.
July 18, 1985	Reactor Shutdown for RPV level instrumentation work.
July 23, 1985	Reactor critical.
July 26, 1985	Reactor shutdown for RPV level instrumentation work.
July 29, 1985	Reactor critical.

2.0 CHRONOLOGY OF EVENTS - (continued)

July 31, 1985	Reactor pressure to 150 psig. HPCI system testing.
August 1, 1985	350 psig plateau. Drywell radiation survey. System expansion drywell inspection, system expansion data.
August 3, 1985	600 psig plateau. System expansion. RBCLCW performance. CRD testing.
August 5, 1985	800 psig plateau. System expansion. CRD testing.
August 7, 1985	Rated pressure plateau. System expansion testing. HPCI testing. RCIC testing. CRD testing. RBCLCW testing. Water level testing. Process computer STP-13 testing. Chemical and radiochemical testing. Radiation measurements. LPRM testing.
August 23, 1985	Reactor pressure reduced to 150 psig. HPCI testing. RCIC testing.
August 24, 1985	Reactor shutdown after initial heatup.
August 30, 1985	Reactor critical sequence A.
August 31, 1985	Scram #2 on loss of instrument air.
September 3, 1985	Reactor critical sequence A. Second heatup to 150°F.
September 4, 1985	Heatup to 250°F - 150 psig. System expansion testing.
September 6, 1985	Reactor pressure 350 psig. System expansion testing.
September 6, 1985	Reactor scram #3 due to surveillance on level instrument.
September 7, 1985	Reactor pressure 600 psig. System expansion testing. CRD testing.

2.0 CHRONOLOGY OF EVENTS - (continued)

September 8, 1985	Unusual event due to reactor level indication problem.
September 10, 1985	Reactor shutdown for repair of reactor problem.
September 11, 1985	Reactor critical and heatup to investigate level problem.
September 12, 1985	Reactor scram #4 on low water level indication. Actual level did not change. Level instrument problem investigated.
September 18, 1985	Reactor critical sequence A.
September 21, 1985	Reactor pressure 800 psig. System expansion testing. CRD testing. RPV level problem fixed.
September 21, 1985	Rated pressure reached. System expansion testing. Second heatup. RCIC testing. HPCI testing. MSIV testing. Water level testing. CRD testing. RWCU testing. Radiation testing. Chemistry testing.
September 27, 1985	Reactor shutdown. Hanger placed on B reference leg. Miscellaneous maintenance.
October 3, 1985	Reactor critical sequence A. Third heatup to rated pressure. System expansion testing.
August 13, 1986	Reactor water level measurements, rated plateau. System expansion data, reactor building secondary walkdowns, rated plateau. Radiochemistry water chemistry sampling data, rated plateau.

2.0 CHRONOLOGY OF EVENTS - (continued)

August 14, 1986	Scram timing of sequence A rods. System expansion balance of plant walkdown: steam tunnel and turbine building. Reactor cooldown for maintenance work in the drywell and sequence exchange.
August 15, 1986	Commenced reactor heatup in the B-2 sequence, reactor critical. Drywell entry at rated conditions for system expansion data. Feedwater low flow controller testing. Scram timing of sequence B rods.
August 16, 1986	Commenced main turbine startup prerequisites. HPCI tuning at rated conditions (CST to CST). RBCLCW performance test at rated pressure plateau.
August 17, 1986	Main turbine roll. Reactor building service water performance test.
August 18, 1986	RWCU blowdown and normal mode tests. Reactor shutdown due to hurricane warnings.
August 20, 1986	Reactor startup - heatup to rated pressure plateau. System expansion balance of plant walkdown at rated pressure plateau.
August 21, 1986	RCIC tuning to the reactor vessel at rated pressure plateau. RWCU bottom head drain flow calibration.

2.0 CHRONOLOGY OF EVENTS - (continued)

August 22, 1986	CRD flow controller tune-up. RCIC instrumentation piping vibration test.
August 23, 1986	HPCI tuning at rated (CST to CST). Reactor cooldown to 150 psig plateau. Feedwater low flow controller tuning in auto during cooldown.
August 24, 1986	RCIC Vessel Injection and Stability Demonstration at 150 psig. Heatup to rated pressure. Feedwater low flow controller in manual during heatup. HPCI tuning at rated conditions (CST to CST).
August 25, 1986	Main turbine roll and excitation checks.
August 26, 1986	Main turbine generator synchronization to the grid and 24 hr. run.
August 27, 1986	Turbine generator off grid. RCIC cold quickstart #1 (vessel injection). RCIC transient vibration test. Process computer TIP hot alignment.
August 28, 1986	HPCI tuning at rated pressure plateau. Reactor cooldown to 150 psig plateau. HPCI quickstart (CST to CST) and stability demonstration at 150 psig. Reactor heatup to rated pressure plateau. HPCI hot alignment verification.
August 29, 1986	CRD flow controller tuning.

2.0 CHRONOLOGY OF EVENTS - (continued)

August 30, 1986 RCIC cold quickstart #2 (vessel injection).

RCIC transient vibration test.

Loose parts monitoring data collection during RCIC vessel injection.

Reactor cooldown and shutdown.

3.0 STARTUP ACTIVITIES PERFORMED/TEST RESULTS

The plant has been shutdown during the entire period covered by this Supplement. There are no new test results to report.

4.0 LICENSE CONDITIONS

Technical Specifications require that the Startup Report discuss the license conditions which affect plant startup and power escalation testing. The specific license conditions are delineated in paragraph 2.C of the Shoreham Operating License (NPF-36 of July 3, 1985). Each condition is summarized and its status, as it applies to the completed portion of the test program, is provided below.

4.1 Condition: The maximum core thermal power shall not exceed 5% rated core thermal power.

Status: During the period covered by this Supplement, core thermal power was less than 5% rated core thermal power.

4.2 Condition: The plant shall be operated in accordance with the Technical Specifications and the Environmental Protection Plan.

Status: The Low Power Test Program has been conducted in accordance with Technical Specifications and the Environmental Protection Plan. Any deviation from these documents is required to be reported to the NRC and be the subject of a License Event Report (LER).

- 4.3 Condition: The plant shall maintain the fire protection program as described in the Fire Hazards Analysis Report and in the FSAR.
- Status: The provisions of the Fire Protection Program have been adhered to. Any missed fire watches shall be the subject of a Licensee Event Report.
- 4.4 Condition: Changes to the initial test program shall be reported in one month.
- Status: All changes to the test program as described in Chapter 14 of the USAR will be reported per the license condition.
- 4.5 Condition: The initial inservice inspection shall be developed and implemented before the first refueling outage.
- Status: This condition is not affected by the Low Power Test Program. Development of the inservice inspection program is in progress.
- 4.6 Condition: Within thirty (30) days after plant startup following the first refueling outage, the licensee shall comply with items 1, 2, and 3 of I.E. Bulletin No. 79-26, Revision 1, "Boron Loss From BWR Control Blades", and submit a written response on item 3.
- Status: This condition is not yet applicable.
- 4.7 Condition: The provisions of the NUREG-0737 action plan described in the SER, Supplement 1 and 4, shall be followed.
- 4.7.1 Status: The qualifications of the required seven backup STA's have been submitted to the Commission, all have been approved.
- 4.7.2 Status: The requirement to mark control room indicators with operating limits and with trip and alarm setpoint values is not yet implemented. The requirements of the provision remain under review and shall be implemented prior to the completion of the startup test program.

- 4.7.3 Status: Modifications to the post accident sample facility, which will enable sampling using the modified core damage procedure, are in progress as noted in Section 3.21 of IE Inspection Report 85-038. This requirement is being tracked by Region I as 50-322/85-04-19.
- 4.7.4 Status: The modifications required to implement the emergency response capabilities, as require by Attachment 1 to the license, are in progress.
- 4.8 Condition: Prior to November 30, 1985, all electrical equipment shall be qualified.
- Status: Station modifications to environmentally qualify the required electrical equipment are complete.
- 4.9 Condition: The remote shutdown system shall be improved prior to the first startup following the first refueling outage.
- Status: The modifications will be implemented as required.
- 4.10 Condition: The RHR system may not be operated in the steam condensing mode except under emergency conditions.
- Status: The station procedures have been modified to preclude the steam condensing mode of operation except as a last resort when all other methods of core and containment cooling have failed.
- 4.11 Condition: Two containment isolation barriers in series will be installed by the end of the first refueling outage.
- Status: Modifications to satisfy this condition will be completed by the end of the first refueling outage.
- 4.12 Condition: The provisions of Attachment 3 to the license shall be satisfied as they apply to the TDI diesel generators.
- Status: Station procedures and maintenance schedules have been modified to include the required TDI diesel generator tests and inspections.

- 4.13 Condition: The results of the independent design review shall be incorporated prior to exceeding 5 percent power.
- Status: The requirements of this condition have been met.
- 4.14 Condition: a.) Prior to exceeding five percent power, radiation monitoring panels 1D11*PNL-117A, B and radiation monitoring pumps 1D11*P126, 134 shall be qualified.
- b.) The invessel storage racks shall be qualified prior to use.
- Status: a.) The required qualification for the radiation monitoring equipment has been completed.
- b.) The invessel storage racks have been administratively prohibited from use.
- 4.15 Condition: The plant shall have on-shift advisors as required by Attachment 2 of the license.
- Status: The plant currently has sufficient numbers of qualified on-shift advisors to satisfy this condition.
- 4.16 Condition: The Emergency Core Cooling Systems performance shall be reanalyzed for the second cycle and beyond, utilizing models that account for burnup gas pressure and local oxidation and which are approved by the NRC.
- Status: This condition will be completed by the required date.
- 4.17 Condition: The licensee shall implement the response to Generic Letter 83-28 on schedule.
- Status: All provisions stipulated in SNRC-1013, 1116, 1184, and 1217 are complete except for the provision that requires the Safety Parameter Display System (SPDS) to be operable prior to the first restart after the first refueling and the review of Technical Specification testing intervals. This review will be done as committed to in SNRC-1184.