

U.S. NUCLEAR REGULATORY COMMISSION  
REGION I

Report No. 50-322/85-09

Docket No. 50-322

License No. NPF-19 Priority -- Category C

Licensee: Long Island Lighting Company

P. O. Box 618

Wading River, New York 11792

Facility Name: Shoreham Nuclear Power Station

Inspection At: Shoreham, New York

Inspection Conducted: January 28 through February 15, 1985

Inspectors: *N. Blumberg* 3/27/85  
N. Blumberg, Lead Reactor Engineer date  
*W. Baunack* 3/27/85  
W. Baunack, Project Engineer date  
*S. Kucharski for* 3/27/85  
S. Kucharski, Reactor Engineer date

Approved by: *L. Bettenhausen* 4/8/85  
L. Bettenhausen, Chief, Operations date  
Branch, DRS

Inspection Summary:

Inspection on January 28 through February 15, 1985 (Report No. 50-322/85-09)

Areas Inspected: Routine inspection with portions announced and portions unannounced of initial criticality, startup test results, surveillance test program, surveillance procedure adequacy, surveillance test implementation, completed surveillance tests, maintenance activities, overall plant conditions and cleanliness, and QA/QC interfaces. The inspection involved 262 hours onsite by three region based inspectors.

Results: One violation was identified (Violation - failure to use an approved procedure change - Paragraph 6.3).

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## DETAILS

### 1. Persons Contacted

#### Licensee, Consultants, and Contractors

J. Alexander	Reactor Engineer
D. Bouchie	Lead Startup Test Director and Analysis (STD & A) Engineer, General Electric (GE)
J. Brand	Licensing Engineer, Stone and Webster (S & W)
W. Burnett	Compliance Engineer, Impell Consultant
*H. Carter	Operating Engineer
*J. Scalice	Operations Manager
*W. Steiger, Jr.	Plant Manager
D. Terry	Maintenance Manager
M. Toner	Staff Engineer
*J. Wynne	Operational Compliance Engineer

#### U.S. Nuclear Regulatory Commission

P. Eselgroth            Senior Resident Inspector

The inspector also interviewed other licensee personnel including watch engineers, watch supervisors, reactor operators, GE test personnel, instrument and control (I&C) technicians, staff engineers, and maintenance mechanics.

\*Denotes those present at exit interview.

### 2. Initial Criticality Witnessing

#### 2.1 Reactor Startup

NRC license NPF-19 authorized startup of the Shoreham reactor to a power level not to exceed .001 percent of authorized maximum power (24.36 kilowatts (KW) thermal). Reactor startup commenced at approximately 1430 hours on February 15, 1985, using STP-4, "Full Core Shutdown Margin" and station startup procedures. The reactor was declared critical at approximately 1830 hours. The following is a summary of the sequence of events for reactor startup:

- Commence pulling rods
- Withdraw source range monitors (SRM's) two decades when 10,000 counts per second (CPS) rod block is reached
- Continue rod withdrawal until the reactor is critical
- Insert SRM's into core one at a time to demonstrate SRMs will not saturate at 300,000 CPS

- Reduce power and raise reactor scram and rod block set points
- Demonstrate SRM/IRM overlap
- Install shorting links
- Demonstrate shutdown margin
- Shutdown reactor

NRC inspectors monitored the reactor from the initial withdrawal of rods to the raising of reactor scram and rod block setpoints. The following areas were observed by the inspectors:

- Pulling of control rods to initial criticality
- SRM, IRM, and period meter readings on front and back panels
- Recording of SRM and period data during startup
- 1/M plots for predicting criticality
- Adherence to plant operations and startup test procedures.
- Control room manning, shift operations and shift turnover processes

No problems were encountered during the reactor startup and criticality was achieved within two rod notches of the predicted critical rod position. During the startup, the IRM's did respond indicating that 1/2 decade SRM/IRM overlap would probably be achieved during a later stage of the sequence. The inspector witnessed the nonsaturation test of the SRM's and independently verified that each SRM was able to achieve 300,000 CPS without saturation. Actual SRM/IRM overlap and shutdown margin was demonstrated by the licensee on February 16, 1985. Data for these tests will be reviewed during a future NRC:RI inspection.

## 2.2 Findings

No discrepancies or violations were identified. The NRC senior resident inspector participated in this phase of the inspection and his observations are detailed in inspection report 50-322/85-11.

## 3. Startup Program Test Results Evaluation

### 3.1 Test Review

The following startup tests were reviewed:

- STP-03, "Fuel Loading", Implemented December 19, 1984
- STP-05, "Control Rod Drive", Implemented December 19, 1984

The above tests were reviewed to verify that test data was reduced to meaningful and understandable form, test results conformed to acceptance criteria, deficiencies were identified and appropriate corrective action obtained, tests were rerun as necessary after corrective action, and that test results were reviewed by appropriate personnel.

None of the test packages reviewed have received final licensee review and approval. Final NRC review will be accomplished during subsequent NRC:RI inspections.

### 3.2 Findings

- STP-03 - All data was completed. An independent review assessment has been completed and acceptance criteria were satisfied. However, final Review of Operations Committee (ROC) approval of results has not been completed at this time.
- STP-05 - This procedure has not gone through the licensee's review cycle. Data reviewed by the inspector consisted of rod scram time tests, rod friction tests and rod operability checks on a sampling basis.

No incorrect test results were observed.

## 4. Surveillance Test Program Review

### 4.1 Program Review

The inspector verified that the licensee has established a program for the conduct of required surveillance testing and that the program contained the following aspects:

- The licensee has approved procedures which establish a system for scheduling, conducting, and reviewing of Technical Specification (T.S.) required surveillances. The principle procedures governing the conduct of the surveillance program are SP. 12.016.01, "Surveillance Program", and SP. 12.016.03, "Surveillance Program Checklists". These procedures meet the requirements for control of surveillance testing as specified by ANSI N18.7-1976, Regulatory Guide 1.33, and the T.S.
- The licensee has established a system of surveillance test schedules. These schedules are published periodically as computer printouts which identify the test to be performed, the section responsible for performing the test, the performance date, the extension date, the frequency, and the T.S. being complied with. Also, a master surveillance schedule, which integrates surveillance tests for all sections, is maintained by

the Operational Compliance Engineer Section. Scheduled Activity Work Sheets (SAWS) are issued with each surveillance activity and serve as an administrative work control document to plan, track, report, and document performance of surveillance testing procedures. The following test performance information is documented on the SAWS's:

- (1) Watch engineer authorization to perform the test
- (2) Person who completed the test
- (3) Date and time the test was completed
- (4) Watch Engineer review
- (5) Test results
- (6) Section head review
- (7) Compliance engineer review
- (8) Corrective actions - if required

-- The licensee has established an administrative program governing inservice inspection and testing of pumps and valves as required by 10 CFR 50.55a(g). Procedure SP. 12.027.01, "ASME Section XI Pump and Valve Inservice Testing Program", is the governing administrative procedure for safety related pump and valve testing. This procedure requires that the inservice testing program include the following:

- (1) A listing of pumps and valves requiring inservice testing
- (2) Testing requirements for each pump and valve
- (3) Testing frequency for each pump and valve
- (4) Relief from the NRC for deviations from ASME Code requirements.

Although this program is not currently required to be implemented, the procedures reviewed appear to have incorporated pump and valve testing requirements. However, sufficient data has not yet been accumulated to implement these testing requirements.

-- The licensee has an approved procedure which establishes a program for calibration of safety-related instrumentation not specifically controlled by T.S. but required by ANSI 18.7 - 1976 and Regulatory Guide 1.33. This procedure SP. 41.006.01, "Technical

Specification Related Instrumentation P.M.", identifies calibration requirements for instrumentation which is utilized to verify T.S. requirements for system operability. The procedure is implemented through the station preventive maintenance program.

- The licensee has established procedural controls to ensure that T.S. changes are incorporated into surveillance procedures. Procedure SP 81.002.01, "SNPS License Document Change Review (LDCR)" adequately assures that reviews and amendments to SNPS license documents are incorporated into applicable station procedures.

#### 4.2 Findings

No violations or other deficiencies were identified. The inspector determined that the surveillance test program met applicable requirements. However, the inspector was informed that procedure SP 81.002.01 is to be deleted and its requirements incorporated into a new program. The inspector noted that if similar controls are maintained in the new program, the assurance that license document changes are incorporated into procedures should remain. Licensee representatives stated that current controls would remain in effect when incorporated into the new program. The inspector had no further questions.

### 5. Surveillance Test Procedures and Technical Specification Compliance Review

#### 5.1 Test Procedure Review

In preparation for reactor startup, the licensee was required to ensure that all surveillance tests applicable to Operating Condition (OC)-2, as defined in the Technical Specifications (T.S.), had been completed within their respective frequencies. The inspectors performed a 100 percent review of the T.S. required for OC-2 and independently verified that each T.S. surveillance test requirement had been incorporated into a licensee test procedure which was also incorporated into the master surveillance schedule.

In addition to the above review for OC-2, the inspectors performed a sampling review of the remainder of the T.S. to ensure that T.S. requirements were incorporated into licensee procedures. The inspector reviewed the following sample of surveillance test procedures to ensure that the following criteria were met:

- Procedures were properly approved
- Proper formats were in use
- Prerequisites and precautions were included
- Procedures were technically adequate and met T.S. requirements

- Test performance could be properly documented
- Systems were restored to normal following the test
- Personnel performing the tests were identified
- Test objectives were met

Attachment A lists a selected sample of T.S. requirements and their implementing test procedures which were reviewed for adherence to the above criteria. In addition to the above selected sample, Attachment B lists specific surveillance tests required to be complete for OC-2 performance which were also reviewed for conformance to the above criteria. Tests listed in Attachment B were also witnessed during this performance (see Paragraph 6 for further details).

## 5.2 Status of Surveillance Testing

The inspectors also reviewed the master surveillance schedule to verify that all surveillances, required to be performed prior to criticality, had been performed or were scheduled to be completed and reviewed prior to criticality.

## 5.3 Findings

No violations or deficiencies were identified. Inspection 50-322/85-01 identified that procedures SP 24.601.01 and SP 24.602.01 needed to be revised to ensure that SRM and IRM front panel strip chart recorders and gauges are monitored during functional tests. The inspector verified during this inspection that these procedures had been revised to monitor the front panel recorders and meters and had no further questions at this time.

## 6. Surveillance Test Implementation

### 6.1 Surveillance Test Witnessing

The inspectors witnessed performance of all or selected portions of the surveillance tests listed in Attachment C to verify proper implementation of the surveillance test program and procedures. These tests were observed in progress for the following:

- Adherence to procedural requirements
- Adequacy of the test to achieve the desired result

- Conformance to Technical Specifications
- Assurance that acceptance criteria were met and tests were satisfactorily completed.
- Tests were properly performed
- Procedure changes were obtained where required
- Personnel performing the tests were knowledgeable of the test

## 6.2 Test Observations

- The licensee identified the need to perform a Type "B" leak test on 1E11MOV-47, "RPV-RHR Inboard Shutdown Cooling Containment Isolation Valve" prior attaining operating condition (OC)-2. This test was initially performed on February 6, 1985 per SP 84.002.03, "Primary Containment Water (<1GPM) Leak Rate Tests". Valve MOV-47 leaked so excessively that the test pump could not achieve any test pressure. The valve was tightened and retested on several occasions with no improvement in results. MOV-47 is a 20" electrically operated gate valve. From February 8-13, 1985, repairs to this valve were accomplished which included removing the old disc and installing a new disc which had to be machined for fit (see paragraph 8 for further details). The valve was reassembled and retested on February 13, 1985. Again, the valve did not pass the test but a test pressure of over 500 psig was achieved. After adjusting the Limitorque switch to near maximum setting and operating the valve several more times, the valve successfully passed the leak test by holding 1000 psig pressure with no measurable leakage. The inspector witnessed the final leak test of the valve and independently verified the test pressure, the leakage rate, the test duration, that the valve was electrically shut from the control room, and that the final test results were acceptable.
- During performance of SP 22.009.01, "Inservice Reactor Pressure Boundary Leak Test", the inspector accompanied personnel in the performance of the test during observations of where system leakage occurred. The inspector observed that data beyond that required by the procedure was being obtained by shift personnel. Attachment D for this report is the required inspection check list; Attachment E lists areas of leakage which were within the scope of the required inspection check list; and Attachment F is the leakage detected in areas which were in excess of that required by the procedure. The licensee stated that they planned to repair all identified leakage during a planned outage between initial criticality and the plant heat up phase of startup testing.

## 6.3 Findings

- Technical Specification 4.6.1.4.C requires that functional testing of MSIV Leakage Control System be performed every 18 months and that the system's air dilution blowers obtain required vacuum at a specified flow rate. The licensee determined that this test needed to be performed prior to entering OC-2. Several attempts were made to test the system using SP 24.406.03, "MSIV - Leakage Control System 18 Month Functional Test and Air Dilution Valve Position Verification", Revision 0, dated September 29, 1983. A temporary procedure (TPC-85-140) change was issued to provide more detail on system operation and to check dilution air flow with installed air flow instrumentation rather than special test equipment. During performance of the test several problems were identified which required repairs of the system and took several days to complete.

On February 13, 1985, the inspector witnessed the test of the system outboard air dilution blower in the reactor building, observing that the blower was able to achieve 48" of vacuum at 200 SCFM flow. Flow was measured using a temporarily installed test equipment flow meter. While the test was in progress, the inspector went from the Reactor Building to the Control Room to observe personnel who were remotely operating the system. The inspector observed that personnel performing the test to SP 24.406.03, Revision 0, rather than to TPC 85-140 which had effectively deleted and rewritten much of the original procedure.

Licensee personnel performing the test stated to the inspector that they were performing a "preliminary" test to determine if the MSIV Leakage Control System air dilution blowers would perform as required and if installed test equipment flow meters would work properly. In addition, they were attempting to develop a workable test procedure to properly perform the test. The inspector informed the licensee personnel that they were in violation of NRC regulatory requirements by testing equipment by using a procedure which had, in part, been superseded by a later change and that a new change should have been issued and approved prior to performing the test.

Failure to obtain a properly approved procedure change prior to performing a test and performing a test with a procedure which had a later change in effect is contrary to T.S. 6.8.1, 6.8.2, and 6.8.3 and licensee administrative procedure 12.006.01, "Station Procedures - Preparation...Change, [and] Revision..." and constitutes a violation. After the apparent violation was brought to the attention of licensee personnel, the test on this system was stopped. A new TPC (85-192) was written to properly perform the test and the test was satisfactorily performed. Based on inspector observations during this inspection and NRC inspections 322/84-48, 84-49, and 85-01 this appears to be an isolated case. Licensee personnel have shown extensive

knowledge in the area of procedure changes, and obtaining such changes are part of the plant routine. The inspector considered issuance of TPC 85-192 and reinstruction of personnel involved as adequate corrective action as the plant system for using procedure changes appears to be effective.

On February 14, 1985, Test SP 24.406.03 had been completed and the system declared operational. However, during NRC Inspection 50-322/85-11 which was in progress concurrently with this inspection (85-09), it was identified that a modification which installed four new 13 minute timers in the MSIV Leakage Control System had not been closed out nor had the new times been fully tested. The fact that this modification was outstanding had been identified by licensee precritical reviews but its closeout was not recognized as being required for initial criticality. The licensee completed the test of the timers and closed out the modification.

Further details of this finding are included in Inspection Report 50-322/85-11.

- As noted above, the modification to the MSIV Leakage Control System installed four 13 minute timers into the system. The 13 minute timers provide for a 13 minute interval after which the Reactor Building Standby Ventilation System (RBSVS) will isolate if MSIV leakage flow is greater than 100 SCFH. There are also 4 one minute timers which isolate the RBSVS if the pressure between any two MSIV's are greater than 5 psi for more than one minute. Surveillance test SP 24.406.03 could verify RBSVS isolation after the 13 minute timers completed their timing sequence based on system flow; however, there is no method apparent to verify potential RBSVS isolation after completion of the one minute timing sequence. The licensee agreed to investigate whether such a functional test of the one minute timer could or should be done. This item will be addressed during a subsequent NRC:RI inspection (50-322/85-09-01).

## 7. Reviews of Completed Surveillance Test Procedures

### 7.1 Completed Procedure Review

The inspector reviewed selected completed surveillance tests to verify that test procedures were properly completed, test results were reviewed as required, data and test results were acceptable, and that corrective action was taken where necessary.

With the facility in the shut-down condition, many surveillances were not required to be performed. The licensee, however, performs testing where possible and maintains ongoing computer surveillance

scheduling and records of completed surveillances in accordance with administrative procedure requirements. Completed surveillance tests reviewed during this inspection are listed in Attachment D.

## 7.2 Findings

No violations or other deficiencies were identified. The results of the above review indicate that surveillance testing had been performed, that test data was acceptable, and that test results were reviewed in accordance with procedural requirements.

## 8. Maintenance Activities

### 8.1 Maintenance Review

The inspectors observed the following maintenance activities which were related to preparations for initial criticality:

- The repair (disassembly, machining of valve internals, and reassembly) of valve E11-MOV-47, RPV-RHR, Shutdown Cooling Inboard Containment Isolation Valve.
- The final tensioning of the reactor vessel hold down studs.
- Movement and installation of refuel floor shield blocks.

Maintenance activities were reviewed for the following:

- Maintenance crew performance.
- Use of maintenance work requests (MWR's).
- Use of maintenance procedures, where required.
- Quality control overview.
- Proper return to service including post maintenance testing, where required.

Additional inspections of maintenance activities and the licensee maintenance program are further detailed in NRC inspections 50-322/85-11, 12 and 14.

### 8.2 Observations

- Repair of IE11-MOV-47

MOV-47 initially failed a leak test on February 5, 1985. Several attempts were made to seat the valve better and retest it. On February 8, 1985, the licensee decided to disassemble and repair

MOV-47. Work was completed on February 13, 1985. On a sampling basis NRC inspectors witnessed the overall repair process and observed the following:

- An MWR was submitted for repair of the valve. An approved procedure was available which referenced the valve maintenance manual.
- An engineering representative from the valve company was brought in to provide technical consultation concerning repair of the valve.
- Repair work was performed in a controlled and cautious manner.
- Several "blue" checks were performed to ensure proper seating of the new disc.
- QC inspectors verified measurements during machining and final installation of the valve.
- Following reassembly of the valve, a satisfactory functional test was performed.

-- Tensioning of the Reactor Vessel Head

The inspector observed that maintenance personnel were knowledgeable of the work to be performed and witnessed various phases of stud tensioning process such as elongation, torquing of the head bolts and recording of appropriate data.

8.2 Findings

No violations or deficiencies were observed.

9. Independent Measurements, Calculations, and Verifications

During this inspection, the NRC inspectors performed the following independent measurements, calculations, and verifications. Except when single items or 100 percent verifications are specified, all items identified below were accomplished on a sampling basis:

- The inspector, using the licensee's information, performed several independent calculations to confirm the licensee's predictions of when initial criticality would occur and the percent shutdown margin. Several calculations were performed to take into account the uncertainties of what the actual moderator temperature would be at the time of criticality. Based on the actual temperature, the initial criticality occurred within 2 notches of the predicted control rod positions and the shutdown margin was within 0.1%  $\Delta K/K$  of the licensee's predictions.

- Subsequent to initial criticality, the inspector witnessed the non-saturation of each source range monitor (SRM) by independently verifying that each SRM achieved a count rate of  $3 \times 10^5$  counts per second (CPS).
- Following repair of 1E11MOV-47, "RPV to RHR Inboard Shutdown Cooling Isolation Valve", the inspector witnessed the retest of this valve per SP 84.002.03, "Primary Containment Water (<1GPM) Leak Rate Tests" and verified that test pressure (1000 + 20/-100 psig) was maintained for the appropriate period of time and that leakage was virtually "0" gpm.
- Subsequent to the reassembly of valve 1E11MOV-47, I&C technicians performed a functional test by cycling the valve. The inspector independently timed the opening and closing of the valve and verified that the maximum isolation time observed by the inspector was within Technical Specification limits.
- Following repairs of the MSIV - Leakage Control System, the inspector observed performance of positions of SP 24.406.03, "MSIV - Leakage Control System 18 Month Functional Test..." and verified that the outboard system air dilution blower developed 48" of water vacuum at 200 SCFM as required by T.S. 4.6.1.4c.2.
- During performance of SP 84.654.04, which measures bypass leakage from the drywell floor to the suppression pool, the inspector independently took data from installed drywell manometer (T49PIT30) during the entire 30 minute test duration and verified that the pressure drop did not exceed 3 psid and that drywell absolute pressure remained above the curve established in Technical Specification Figure 3.6.2.1-1. During performance of prerequisites for this test, the inspector independently verified that the upper and lower drywell floor seals were pressurized to 53 psi as required by the procedure.
- The inspector witnessed performance of SP 84.654.02 which, in part, accomplishes a Type B local leak rate test of the drywell head and verified that the test pressure was maintained at 46 psig as required by the procedure and that the measured leakage was 0.066 CFM.
- The inspector witnessed the performance of SP 24.601-01, "SRM Functional Test" and SP 24.602.01, "IRM Functional Test" for one complete SRM and IRM channel and verified that front panel records, alarm annunciators, and computer readouts were as specified in the procedure.
- During performance of SP 22.009.01, "Inservice Reactor Pressure Boundary Leak Test", the inspector accompanied one of three test personnel inspecting for leakage in the drywell. Based on independent observations, the inspector confirmed the licensee's findings of the leakage at each location.

- The inspector independently verified licensee calculations concerning the amount of final stud elongation for the reactor vessel head to assure that elongation measurements were within required specifications.

No violations were observed.

#### 10. QA/QC Interfaces

The licensee has a minimum of two quality control (QC) inspectors on each shift to cover operations and maintenance activities. One QC inspector is dedicated to covering startup testing when in progress. The inspectors observed that maintenance and I&C personnel were conscientious in notifying QC personnel; that QC personnel performed independent verifications that data and measurements were correct, and that QC personnel were present during the following operations:

- Initial criticality
- Machining of 1E11MOV-47
- Primary containment to suppression pool leakage bypass test.
- Containment head seal local leak rate test.

#### 11. Plant Tours

The inspector made several tours of the facility during the course of the inspection including the reactor building, drywell, suppression pool, turbine building and control room and observed work in progress, housekeeping and cleanliness controls.

No violations were identified and no unacceptable conditions were noted.

#### 12. Management Meetings

Licensee management was informed of the scope and purpose of the inspection at an entrance interview conducted on January 28, 1985. The findings of the inspection were periodically discussed with licensee representatives during the course of the inspection. An exit interview was conducted on February 15, 1985, (see paragraph 1 for attendees) at which time the findings of the inspection were presented.

At no time during this inspection was written material provided to the licensee by the inspectors.

ATTACHMENT A

Technical Specification Sample and Implementing  
Surveillance Test Procedures

<u>T.S. Requirement</u>	<u>Surveillance Test Procedure</u>
4.1.3.1.4.a	SP 24.106.05, Reactor Manual Scram and Scram Discharge Volume Drain and Vent Valve Timing Test, Revision 3, March 19, 1984
4.1.5.C	SP 24.123.01, Standby Liquid Control (SLC) Pump Operability and Flow Rate Test, Revision 7, November 8, 1984
4.3.3.1-1 1a	SP 44.621.02, ECCS - Water Level CAL and Function Test, Revision 7, July 13, 1984
4.2.1	CP 54.604.01, P1 Manual Backup (Only verified procedure has been prepared, Revision 3, June 12, 1984)
4.2.2	
4.2.3	
4.4.1.2	SP 24.120.01, Reactor Recirculation and Jet Pump Operability Test, Revision 1, July 13, 1982
4.1.3.6	SP 24.309.01, AC Electrical Distribution Surveillance Test, Revision 4, December 22, 1982
4.1.3.6	SP 24.106.02, Control Rod Drive (CRD) Coupling Integrity Verification, Revision 2, July 25, 1983
4.5.1.b.1	SP 24.203.01, Core Spray Pump Operability and Flow Rate Test, Revision 6, September 27, 1984

- 4.5.1.b.2 SP 24.121.01, LPCI/Suppression Pool Cooling Pump Operability and Flow Rate Test, Revision 5, April 16, 1984
- 4.8.1.1.1.a SP 24.309.01, AC Electrical Distribution Surveillance Test, Revision 4, December 22, 1984
- 4.7.7.3.2.b SP 24.501.01, CO<sub>2</sub> Fire Protection System Operability and Actuation Test, Revision 6, November 12, 1984
- 4.7.7.1.1.b SP 24.503.01, Fire Pumps Operability Test, Revision 8, October 14, 1984
- 4.7.7.1.2.a.2
- 4.8.4.2.1.a SP 44.311.06, MOV Thermal Overload Bypass Function Test, Revision 2, September 27, 1984
- 4.6.1.1.b SP 24.650.05, Primary Containment Integrity Test, Revision 2, May 21, 1984
- 4.6.1.8.1
- 4.6.5.1.C.1 and 2 SP 24.405.02, RBSVS, CRAC, Primary and Secondary Containment Isolation Valves 18 Month Test, Revision 7, July 6, 1984

ATTACHMENT B

Sample of Surveillance Tests

Required for OC-2

- SP 44.403.03, "Instrumentation Line Excess Flow Check Valve, Revision 2, January 24, 1984
- SP 84.002.03, "Primary Containment Water Leak Rate (<1) Test, Revision 3, December 7, 1984
- SP 22.009.01, "Inservice Reactor Pressure Boundary Leak Test", Revision 1, February 1, 1985
- SP 24.601.01, "SRM Functional Test", Revision 5, January 21, 1985
- SP 24.602.01, "IRM Functional Test", Revision 6, February 14, 1985

ATTACHMENT C

Surveillance Tests Performance Witnessed

by NRC Inspectors

- SP 22.009.01, Inservice Reactor Pressure Boundary Leak Test (Hydrostatic test of primary boundary)
- SP 84.002.03, Primary Containment Water (<1 GPM) Leak Rate Tests (Portion of test which tests (1E11 MOV-47).
- SP 84.654.04, Drywell Floor Bypass Leak Test - 3 PSID (Tests leakage from the drywell to the suppression pool).
- SP 84.654.02, Primary Containment Leak Rate Test Type B (Portion of test for local leak rate test of drywell head seal).
- SP 24.602.01, IRM Functional Test
- SP 24.601.01, SRM Functional Test
- SP 44.403.03, Instrumentation Line Excess Flow Check Valve Leak Test
- SP 24.406.03, MSIV - Leak Control System 18 Month Functional Test and Air Dilution Valve Position Verification

ATTACHMENT D

Completed Surveillance Tests Reviewed

- SP 24.123.01, Standby Liquid Control System Flow Rate Test, Performed March 16-28, 1984.
- SP 44.611.10, RPS Monthly Trip Unit Cal and Function Test, Performed January 3, 1984.
- SP 74.631.42, Radiation Monitoring System Source Checks, Performed February 9, 1985.
- SP 34.500.02, Fire Pump Diesel Engine Inspection, performed July 25, 1984.
- SP 44.650.16, Reactor Building Differential Pressure - Low Channel Functional Test, Performed September 21, 1984.
- SP 44.311.06, MOV Thermal Overload Bypass Functional Test, Performed October 12, 1984.

ATTACHMENT E

Areas Required to be Checked for Leakage

<u>Elevation or Area</u>	<u>General Tour and/or Specific Checks</u>
Drywell, E1 78	RPV undervessel area including CRD housing and incore instrument tubes
Drywell	General Area Inspection
Rx Bld.	General Area Including Instrument Racks
Drywell/RB E1 63/E1 40	B31-P001A (RR Pump "A" Seals) B31-PI-1A/ B31-PI-2A
Drywell/RB E1 63/E1 40	B31-P001B (RR Pump "B" Seals) B31-PI-1B/B31-PI-2B
Drywell E1 63	B31-MOV031A (RR suction valve packing)
Drywell E1 63	B31-MOV031B (RR suction valve packing)
Drywell E1 63	B31-MOV032A (RR discharge valve packing)
Drywell E1 63	B31-MOV032B (RR discharge valve packing)
Drywell E1 78	B21-AOV-081A (MSL "A" INBD MSIV packing)
Drywell E1 78	B21-AOV-081B (MSL "B" INBD MSIV packing)
Drywell E1 78	B21-AOV-081C (MSL "C" INBD MSIV packing)
Drywell E1 78	B21-AOV-081D (MSL "D" INBD MSIV packing)
Rx Bld. E1 78	B21-AOV-082A (MSL "A" OUTBD MSIV packing)
Rx Bld. E1 78	B21-AOV-082B (MSL "B" OUTBD MSIV packing)
Rx Bld. E1 78	B21-AOV-082C (MSL "C" OUTBD MSIV packing)
Rx Bld. E1 78	B21-AOV-082D (MSL "D" OUTBD MSIV packing)
Drywell E1 91	B21-18V-1104A (Feedwater Manual Isolation packing)
Drywell E1 91	B21-18V-1104B (Feedwater Manual Isolation packing)
Rx Bld. E1 78	B21-AOV-36A (Feedwater Testable Check Actuator packing)
Rx Bld. E1 78	B21-AOV-36B (Feedwater Testable Check Actuator packing)
Drywell E1 125	E21-HV-071A (CS Manual Isolation packing)
Drywell E1 125	E21-HV-071B (CS Manual Isolation packing)
Drywell E1 120	E21-AOV-81A (CS testable check actuator packing)
Drywell E1 120	E21-AOV-81B (CS testable check actuator packing)
Drywell E1 120	E21-MOV-81A (CS testable check bypass packing)
Drywell E1 120	E21-MOV-81B (CS testable check bypass packing)

Rx Bld. E1 63	E41-MOV-035 (HPCI INBD injection stop packing)
Drywell E1 63	E41-MOV-041 (HPCI INBD STM supply packing)
Drywell E1 63	E41-MOV-047 (HPCI INBD STM supply bypass packing)
Drywell E1 63 packing)	E51-MOV-041 (RCIC INBD STM supply
Drywell E1 63	E51-MOV-047 (RCIC INBD STM supply bypass packing)
Rx Bld. E1 78 in Stm tunnel	E51-MOV-035 (ECIC injection stop packing)
Drywell E1 95 above RHR S/D cooling	C41-HV-023 (SBLC Manual Isolation packing)
Drywell E1 78	E41-HV-071A (LPCI Manual isolation packing)
Drywell E1 78	E11-HV-071B (LPCI Manual isolation packing)
Drywell E1 78	E11-AOV-081A (LPCI testable check actuator packing)
Drywell E1 78	E11-AOV-081B (LPCI testable check actuator packing)
Drywell E1 78	E11-MOV-081A (LPCI testable check bypass packing)
Drywell E1 78	E11-MOV-081B (LPCI testable check bypass packing)
Drywell E1 85	E11-HV-170 (RHR SID cooling manual isolation packing)
Drywell E1 85	E11-MOV-047 (RHR S/D cooling INBD isolation packing)
Rx Bld. E1 175	E11-4"-WR-285-901A-1 Flange "C" (Head Spray Line)
Rx Bld. E1 175	E11-4"-WR-285-901A-1 Flange "D" (Head Spray Line)
Rx Bld. E1 175	E11-4"-WR-285-901A-1 Flange "E" (Head Spray Line)
Rx Bld. E1 175	B21-2"-SHP-5-901A-1 Flange "B" (Head vent line)
Rx Bld. E1 175	B21-2"-SHP-5-901A-1 Flange "F" (Head vent line)
Rx Bld, E1 175	B21-1"-K-21-1502-1 Flange "G" (instrument line)
Rx Bld. 78	B21-PAHL-001 (Rx head flange leak detection press)
Rack 1H21PNL-04 Control Room PNL 602	1G11-LR-505Y (Drywell equipment floor drain tank level)

ATTACHMENT F

Leakage Detected In Areas In Excess  
of that Required By the Procedure

- CRD flange 18-07, 18-11, 18-51, 38-47, 42-23
- CRD insert vent valve on 18-47 (seat leakage)
- B21-MOV-85 packing
- B31-MOV-31A packing
- B31-MOV-32B packing
- INBD MSIV "A" packing (80 DPM)
- INBD MSIV "D" packing (48 DPM)
- C61-PT-006 union
- B21-PDI-006 Block valve
- B21\*LT-1546 vent/fitting
- E32-PT-042 vent plug
- B21\*LT-157D vent plug/fitting
- B21\*LT-154D vent plug/fitting
- E21-HV-071A packing (15 DPM)
- E21-HV-071B packing (15 DPM)
- E21-AOV-81A packing (30 DPM)
- E21-AOV-81B packing (30 DPM)
- E51-MOV-035 packing
- C41-HV-023 packing (5 DPM)
- E11-MOV-047 packing (10 DPM)

ATTACHMENT G

Leakage Detected In Areas In Excess  
of that Required By the Procedure

- B21\*LT-155D - Vent plug and inlet fitting
- C32-PT-004B - Fitting
- 1G33-01V-3088 - RWCU vent in STM tunnel (packing)
- B21-LT-007A - Instrument root valve
- B21-01V-7034 - packing
- B21-01V-7035 - packing
- B21-01V-7036 - packing
- B21-01V-7037 - packing
- B21-01V-7023 - packing
- B21-01V-7019 - packing
- B21-01V-7025 - packing
- B21-01V-7021 - packing
- B21-PT-158C - leaking
- G33-FS049 - leaking vent plug
- E11-MOV-048 - packing
- E32-PT-31C - leaking
- C11-DPT-003 - leaking
- C11-PVT-002 - leaking
- B31-01V-7002B - packing
- B21-PDS-0264 - MSL D/P
- B21-PDS-02BY - MSL D/P
- B31-FT-014A - Recirculation A inlet flow
- B21-PDS-02D1 - MSL D/P
- B21-PDS-02C1 - MSL D/P
- B31-PDI-005A
- B31-PT-001A
- B31-PT-002A
- B31-F7-011A
- B31-F7-011B
- H21-PNL-006 - Drain Header Fitting
- E51\*PS-023C
- E51\*PS-022A
- B31\*FT-012A
- C32\*FT-002A
- C32\*FT-002B
- C32\*FT-002C
- C32\*FT-002D
- E41\*PDS-022B
- E41\*PS-023B
- C11\*01V-102 50-14 - No vent plug
- C11-01V-101 50-19 - No vent plug