U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-322/84-20

Docket No. 50-322

License No. CPPR-95 Priority - Category C

Licensee: Long Island Lighting Company

Facility Name: Shoreham Nuclear Power Station

Inspection At: Shoreham, New York

Inspection Conducted: April 30 - May 4, 1984

Inspectors: J. W. Chung, Lead Reactor Engineer — 6-14-84 date

Approved by: L. H. Bettenhausen, Chief
Test Program Section, EPB — 6/14/84 date

Inspection Summary:

Areas Inspected: Routine, unannounced inspection of licensee action on NRC:IE Bulletin 80-17; administrative control of startup test program; startup test procedure review; system modifications; personnel training and qualification; OQA program during startup testing; and plant tour. The inspection involved 39 inspector hours on site by one region-based NRC inspector.

Results: Noncompliance - None; Deviation - None

DETAILS

1. Persons Contacted

Long Island Lighting Company

*J. Alexander, Reactor Engineer
*L. Calone, Chief Technical Engineer
G. Gisonda, Senior Licensing Engineer
*G. Gogntes, Compliance Engineer
W. Gunther, Operations Engineer
*J. Morin, Regulatory Compliance
*A. R. Muller, Operating Q. A. Engineer
C. Nowiszewski, Q.A. Engineer
*T. Rose, QA Engineer
C. D. Rowe, Q.C. Supervisor
*J. Scalice, Operations Manager
*W. Steiger, Plant Manager
J. Wynne, Compliance Engineer

Stone & Webster

A. Dobrzeniecki, Startup Engineer
K. Moore, Startup Engineer
A. Lepore, Q.C. Engineer

MAC

*A. Robeson, Startup Test Coordinator

General Electric Corporation

D. Copinger, Lead Startup Engineer
K. Moor, Operations Engineer
*J. Riley, Operations Manager

The inspector also talked with several other licensee employees including members of the technical and engineering staffs, and operations personnel.

*Denotes those persons presented at the exit meeting.

2. Licensee Action on Bulletin 80-BU-17

Following the letter dated July 3, 1980 and I.E. Bulletin 80-17 concerning the failures of 76 of 185 control rods to fully insert during scram, the licensee actions and subsequent response letter of November 14, 1983 were reviewed.

The inspection included item-by-item review of the licensee actions and support documents, and field inspection of the modifications associated with the Bulletin to ascertain that the licensee actions were in full compliance with the subject Bulletin and supplements and that the station procedures and drawings in active files reflected the changes and "As Built" conditions.

The inspector reviewed the following documents on sampling basis:

-- The licensee response letter on I.E. Bulletin 30-17 and Supplements 1-5, dated November 14, 1983.

-- Alarm Response Procedure, (ARP) 1223, Scram Discharge Volume (SDV) not Drained, Revision 2, February 23, 1984.

-- ARP 1001, CRD Hydraulics Temperature Hi, Revision 2, April 29, 1983.

-- Emergency Procedure, SP 29.024.01, Transient with Failure to Scram, Revision 3, November 1, 1983.

-- SP 23.121.01, Residual Heat Removal System, Revision 8, April 3, 1984.

-- SP 23.106.01, Control Rod Drive, Revision 6, February 21, 1984.

-- Engineering & Design Coordination Report (E&DCR), No. F45659.

-- G.E. Field Deviation Dispostion Request (FDDR) No. KS-01-2206.

-- Repair/Rework Request (RRR) - 1C11-93, SDV Drains, Level Switches, and Valve Modifications.

-- RRR-1C11-106, SDV Piping Modifications

-- E&DCR P-3650

-- S&W Drawing FE-46P-6, Power Supply

-- GE Drawing 729E611BD, Sheet 1, Revision 8.

2.1 Modifications of Systems and Components

The inspector verified by review of modification documents, SER, and walkdown field inspection of the changes that the licensee had undertaken and completed a series of modifications to the scram discharge volume in compliance with the Bulletin, in that:

-- Redundant scram and level alarm switches were installed in the control room.

-- Instrument taps were relocated from the 2" drain line to the 10" instrument volume.

-- Were vacuum breakers added to the SDV.

-- Redundant vent and drain valves were provided with separate actuation.

-- Cables were related to ensure electrical separation and protection. The power was supplied from the RPS, which met the cable separation criteria.

Findings

When an initial report was issued on the engineering evaluation of the cable separation for the "black" cable (E&DCR No. F45659), GE FDDR No. KS-01-2206 presented two alternative methods for disposition of the deviation. Finally, a second alternate solution was adapted to power the solenoid valves from the four RPS channels.

When the inspector reviewed S&W (FE-46P-6) and GE (729E611BD, sheet 1, Revision 8) drawings to ascertain that the controlled copies of the drawings in the active files reflected the "As Built" modifications of the cable rerouting, E&DCR changes were not incorporated into the controlled drawings for "As Built" conditions. The drawings in the active files contained a hand-written or a stamped footnote to reference the E&DCR and associated isometric drawings which were not in the files. In fact, it took two days by the licensee engineers and vendors to produce the "As Built" drawings of the modifications.

The licensee stated that the problem was not updating the files with the "As Built" drawings but removing outdated drawings from the files when the E&DCR's were implemented. The inspector was informed that the active control files would be reviewed to ascertain that the above problem was an isolated case on the site, and that the outdated drawings were removed. This is an unresolved item pending the licensee review and update of the drawings and subsequent inspection by NRC:R1 inspector (50-322/84-20-01).

2.2 Procedure Revisions and Surveillance

The interim surveillance requirements in the Bulletin were not applicable to the construction or non-operating plants, and those requirements under these categories were not required to be implemented by the Shoreham. Also, Anticipated Transient Without Scram (ATWS) requirements were not implemented because the Shoreham would utilize ATWS. The functional verification tests of the SDV modifications and scram reset delay time test had been completed during preoperational tests, per PT-106.1, PT-611.001, C&IO-C11-37, and C&IO-C11-38, and verified the scram reset time delay of 10 seconds.

The system configuration and operating procedures were reviewed and found satisfactory, and the reliability requirements set forth in the Bulletin and supplements were satisfied since the Shoreham had two Standby Liquid Control System (SLSC) pumps.

Alarm Response Procedures, 1223 and 1001, met the rquirements, and venting and operational requirements were implemented.

Findings

I. E. Bulletin 80-17, Supplement 1, paragraph B.1 specified that continuous recording of water levels in all scram discharge volumes should be included in design. The inspector verified by walkdown inspection of the level instruments and visual inspection of the control room front and back panels that the above requirements were not met and no recording features were incorporated with the level switches. Upon discussions with the licensee representatives, the operational surveillance procedure, 23.008.01, revision 2, for the SDV functional checks was revised to include SDV level channels (1c11*LIS-049A, -049B, -049C and -049D) in the check-off sheet (addition of step 7 in the procedure). The inspector verified the changes by review of Temporary Procedure Change Notice 84-391.

Emergency procedure SP-29.024.01, "Transient with Failure to Scram", paragrah 3.6, did not provide the emergency provision if the reactor power remained less than 6%. The procedure was revised by issuing TPC No. 840-390 to change paragraph and to include the requirements at all power levels. The revision now requires the subsequent actions if the APRM indication registers power levels.

The inspector was subsequently informed by the licensee that the TPC 84-390 and -391 were approved by station ROC on May 10, 1984 and were implemented.

2.3 Conclusion

Based on the document review and onsite inspection of the licensee actions, the inspector concluded that the licensee is in full compliance with NRC:IE Bulletin 80-17.

3. Startup Test Program

3.1 Administrative Controls of Startup Program

The inspector reviewed the administrative and support documents to verify that test organization and individual responsibilities were clearly defined in accordance with the startup test administrative procedures, and the responsibilities were properly assigned. Also, the inspector verified that tests to be performed were identified and sequenced in compliance with station procedures, proposed Technical Specifications (TS), and Regulatory Guide 1.68.

The documents reviewed included:

-- SP 12.075.01, Administration of Startup Testing, Revision 7, April 5, 1984; Draft Copy of Revision 8.

-- Shoreham Nuclear Power Station (SNPS) FSAR, Chapter 14, Startup Test Program.

-- Draft Copy of Startup Test Training Program.

-- Draft Copy of Functional Organization of Startup Program.

-- Startup Testing Status Listing, March 28, 1984.

-- 5% Near Term Operating License Startup Test Schedule, April 19, 1984.

-- Startup and Test Group Shift Assignments.

Findings

The licensee reorganized startup testing and support groups to implement the startup testing activities efficiently, and a startup testing coordinator was appointed to coordinate and to schedule the startup activities. However, the inspector was concerned with the startup test document controls and adequacy of the training for the startup testing. Subsequently, the licensee took the following preventive measures to implement the startup program effectively:

-- Startup Testing Administrative Control Procedure, SP 12.075.01 was revised and approved by ROC on May 10, 1984 to define the document holdpoint to identify test exceptions and their timely resolutions.

-- Startup test training program was implemented. The inspector verified by review of a draft copy of one-day training program for the startup personnel that startup test scope and requirements as well as documentation requirements were included.

-- Administrative controls and test management chains were clearly defined.

The inspector also reviewed qualification of the startup test engineers and training implementation, and interviewed two engineers, on selective basis, to verify that the qualification of the startup test personnel was in accordance with the requirements specified in ANSI N18.1 and station qualification requirements.

Based on the interview and procedure reviews, the inspector determined that the station administrative control procedures and training/qualification program were in accordance with the requirements and commitments specified in FSAR, Regulatory Guide 1.68 and station procedures.

3.2 Test Procedures and Schedule

The startup test procedures were reviewed selectively for technical and administrative adequacy and for verification that:

-- Testing is scheduled to satisfy licensee commitments and regulatory guides;

-- Procedures were reviewed and approved;

-- Procedures were in accordance with the requirements in format, and contained acceptance criteria, initial conditions, prerequisites, and detail instructions for documentation and verification, and restoration to normal after test;

-- Procedural changes were in accordance with the station administrative procedures; and

-- Procedures were technically adequate to perform and to achieve intended objectives.

Findings

The licensee developed a comprehensive schedule of startup test program for 5% NTOL, which included open-vessel and heat-up phase tests.

The inspector discussed with GE startup engineers and licensee representatives a method to verify the core power during the limited 5% operating license, and to ensure the core power within such license limit. The licensee was considering three methods to measure the core power during the NTOL, which included heat-up method, calorimetric technique using special flow instrumentation in the flow systems, and heat input measurement technique.

A licensee representatives stated that a detailed low power test schedule would be developed to meet the proposed 5% NTOL requirements, and that a power verification method would be selected for the low power license testing. The following is a summary of the inspection findings:

-- TMI Action Plan Item I.G.1., Special Low Power Testing and Training "Simulated Loss of All A-C Power" (Station Blackout-SBO): Based on the letter dated June 29, 1983 by Darrell G. Eisenhut, Director, Division of Licensing, NRR, and preoperational training implementation of operator training per "Operator Training and Documentation During Cold Functional and Low Power Testing:, Revision 0, October 26, 1983, and TP 23.119.02, "Special IG1 RCIC System Test, Revision 1, March 14, 1984, the inspector concluded that the licensee is not required to conduct the SBO test under the BWR I.G.1 requirements.

-- Based on the inspection findings (Susquehanna Inspection Reports 50-388/84-18, Section 6.3; 50-387/83-05, Section 2.7) of the flow circuit design problems for the RPS Flow-biased inputs and GE Transient Monitoring System at Susquehanna Unit 1 and 2, the inspector requested a review of the recirculation flow unit and GETARS circuit impedance to ascertain that low resistance on the GETARS branch of the recirculation flow unit would not lower the load from the RPS inputs. A subsequent investigation found that the impedance off the recirculation flow unit was not large enought to prevent a load reduction of the flow-biased RPS inputs.

   After consultations with GE San Jose office, the GE startup engineers received a copy of GE Field Deviation Disposition Request (FDDR) No. KR1-119 to install an isolation circuit, which would replace the low valued resistor to prevent the load reduction due to the low impedance. This is an inspector followup item, pending the circuit modification per the FDDR and subsequent NRC:RI inspection (50-322/84-20-02).

-- The inspector reviewed AC and DC circuit breaker load lists, and expressed a concern regarding to use of circuit breakers, instead of fuses, when a system or component had to be isolated for surveillance or special testing. The licensee acknowledged the inspector's remark, and stated that station procedures would be revised, if necessary, to minimize the use of circuit breakers. No unacceptable conditions were identified.

-- The inspector reviewed technical adequacy of calibration procedure of SP 56.120.01, Recirculation System Flow Calibration, Revision 1, March 14, 1984, to ascertain that calibration and calculational instructions were detailed to perform accurate calculation of recirculation and core flows, and that method employed were technically adequate.

-- The inspector reviewed RCIC system startup test procedure, STP-12, for its adequacy, and discussed with a licensee representatives regarding to RCIC "cold" quick start testing. The licensee stated that during the RCIC "cold" quick start, any valve stroke or associated component exercises would be prohibited for 72 hours prior to the quick start and a precautionary statement would be included in the test procedure.

4. Operational Quality Assurance

The operational QA program during the startup testing was inspected to ascertain that QA/QC surveillance program and field coverage during the testing would be adequately implemented. The inspector also reviewed qualification records of OQA inspectors and interviewed two OQA engineers.

Findings

-- The inspector was informed that two field engineers, out of 24 available engineers, were assigned to conduct surveillance inspections during the tests, and QA/QC surveillance inspection scoping schedule was not available, nor surveillance program implementation plan was estalished to observe the startup testings. Furthermore, QA/QC hold point to interface with the startup tests was not established.

A QA representative stated that QA implementation would be same as those coverages during the construction/preoperational phases, and that surveillance inspections would be performed accordingly.

The inspector determined that OQA/QC programs for the startup testing were inadequate. Subsequently, the licensee agreed to implement the following items:

(1) Develop a comprehensive QA schedule of QA/QC field inspection program, and increase frequency of field inspections with particular emphasis on field inspecton coverage, rather than paper audits.

(2) All startup test procedures would have a QA holdpoint specified on their cover pages.

(3) A QA/QC representative would attend startup test review subcommittee and plateau review meetings.

The QQA surveillance scoping schedule was developed on May 11, 1984, and its implementation would be reinspected during startup testing.

-- The inspector determined that qualification and training program for QA/QC engineers were adequate, and met the requirements specified in ANS N18.1. However, the inspector noted that one QC inspector during an interview initially failed to identify QA criteria in 10 CFR 50, Appendix B. The inspector determined that this was an isolated case.

No unacceptable conditions were identified.

5. Facility Tours

The inspector made several tours of the facility during the course of the inspection, including the reactor building, turbine building, CRD accumulator and instrument volume area, and control room.

The inspector observed work in progress, housekeeping, cleanliness, storage and protection of components, piping and system, and drainage connections.

No unacceptable conditions were identified.

6. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or deviations. An unresolved item disclosed during the inspection is discussed in paragraph 2.1.

7. Exit Interview

At the conclusion of the site inspection on May 4, 1984, an exit meeting was conducted with the licensee's senior site representatives (denoted in paragraph 1). The findings were identified and inspection items were discussed. At no time during this inspection was written material provided to the licensee by the inspector.