

U.S. NUCLEAR REGULATORY COMMISSION

Region I

Report No. 50-322/82-02

Docket No. 50-322

License No. CPPR-95 Priority -- Category B

Licensee: Long Island Lighting Company

175 East Old Country Road

Hicksville, New York 11801

Facility Name: Shoreham Nuclear Power Station, Unit 1

Inspection at: Shoreham, New York

Inspection conducted: January 1 - 31, 1982

Inspectors: J. C. Higgins 2/1/82
J. C. Higgins, Senior Resident Inspector date signed

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Approved by: R. M. Gallo 2/2/82
R. M. Gallo, Chief, Reactor Projects Section 1A date signed
Projects Branch #1, DRPI

Inspection Summary:

Inspections on: January 1 - 31, 1982 (Inspection Report No. 50-322/82-02)

Areas Inspected: Routine onsite regular, backshift, and weekend inspections by the resident inspector (123 inspection hours) of work activities, preoperational testing and plant staff activities including: tours of the facility, test witnessing, review of NRC Bulletins, review of licensee submittals, review of the Loose Parts Detection Program, review of Spent Fuel Pool flooding incident, and followup on previous inspection findings.

Results: Of the seven areas inspected no violations or deviations were identified in five areas; one deviation was identified in the sixth area (failure to comply with a commitment to Regulatory Guide 1.133, paragraph 6.c); and, one violation was identified in the seventh area (failure to maintain records for activities affecting quality, paragraph 4.b).

DETAILS

1. Persons Contacted

T. Gerecke, Quality Assurance Manager (L)
J. Kelly, Field QA Manager (L)
W. Matejek, Lead Advisory Engineer (S&W)
M. Milligan, Project Engineer (L)
A. Mueller, Acting OQA Engineer (L)
K. Nicholas, Lead Startup Engineer (GE)
R. Perra, Asst. Supt. FQC (S&W)
R. Purcell, Lead Startup Engineer (L)
J. Riley, Operations Manager (GE)
J. Rivello, Plant Manager (L)
J. Smith, Manager, Special Projects (L)
W. Taylor, Asst. Supt. FQC (S&W)
D. Terry, Assistant Startup Manager (L)
E. Youngling, Startup Manager (L)

GE - General Electric
L - Long Island Lighting Company
S&W - Stone and Webster

The inspector also held discussions with other licensee and contractor personnel during the course of the inspection including management, clerical, maintenance, operations, engineering, testing, quality assurance and construction personnel.

2. Previous Inspection Item Update

- a. (open) Violation (322/81-13-01): Startup Manual Control: This violation cited discrepancies with the updating of the control room copy of the Startup Manual. Deficiencies were identified in 42 of 59 manuals and LILCO Deficiency Report (LDR) #0536 was issued. These manuals were subsequently all updated. The licensee stated that future revisions to the controlled copies of the Startup Manual would be made by Startup personnel vice transmittal and that Operational Quality Assurance (OQA) would perform a quarterly surveillance of Startup Manual control. The most recent surveillance was performed December 12, 1981. On December 14, 1981 the Joint Test Group approved Rev. 15 to the Startup Manual and made the revision effective December 21, 1981. On January 18, 1982 the inspector noted that the control room and OQA copies of the Startup Manual had not been updated to include Rev. 15 and that records showed that only seven of 44 controlled copies had been updated. The licensee's representative stated that additional measures would be taken to ensure prompt updating. This item remains open.
- b. (closed) Inspector Follow Item No. (322/80-14-11): HPCI Instrument Line Vent: Engineering & Design Coordination Report (E&DCR) No. F-31156 was issued to add a second valve in the instrument line vent for the HPCI steam line. The inspector reviewed the E&DCR and the revised flow diagram (FM-25A), and observed the installed valves in the drywell. This item is closed.

- c. (closed) Unresolved Item No. (322/81-12-12): Corrective Action Requests (CARs): Quality Assurance procedures QAP-S-16.1 and QAI-16.1-01 have been revised to reflect organizational changes and to include the Vice President - Nuclear on the CAR distribution. Additionally, the inspector reviewed all ten CARs issued since the last review in July, 1981 and noted that reply timing had improved noticeably and appeared adequate.

3. Plant Tour

a. Discussion

The inspector conducted periodic tours of accessible areas in the plant during normal, backshift, and weekend hours. During these tours, the following specific items were evaluated:

- Hot Work - Adequacy of fire prevention/protection measures used;
- Fire Equipment - Operability and evidence of periodic inspection of fire suppression equipment and review of fire insurance inspection reports;
- Housekeeping - Minimal accumulations of debris and maintenance of required cleanness levels of systems under or following testing;
- Equipment Preservation - Maintenance of special precautionary measures for installed equipment, as applicable;
- QA/QC surveillance - Pertinent construction and startup activities were being surveilled on a sampling basis by qualified QA/QC personnel;
- Security - Adequate site construction security; and
- Component Tagging - Implementation of appropriate equipment tagging for safety, equipment protection, and jurisdiction.

4. NRC Bulletins

a. Bulletin 80-03

This Bulletin, "Loss of Charcoal from Standard Type II, 2 inch Tray Adsorber Cells", described a problem where the charcoal could fall out of the cell filter housing due to excessive spacing (about 6 inches) between the rivets which secured the screen to the cell casing. The Bulletin was also reviewed in report 81-20. The licensee stated in his 3/21/80 response that the two types of charcoal cells used at Shoreham were of all welded construction, which should preclude the described loss of charcoal. The licensee's Quality Control organization performed visual inspections of two filters of each type used; noting that the screens were spot welded about every inch and that there were no gaps where charcoal could fall out. The inspector reviewed the documentation discussed above and performed independent visual inspections of several filters cells, including some of each type used. The inspector concurred that the charcoal loss mechanism described in the Bulletin should not be present at Shoreham. This Bulletin is closed.

During review of this Bulletin the inspector noted that Startup and Construction personnel were unsure as to who currently had jurisdiction over the charcoal cells and the associated HEPA filters. The charcoal cells, HEPA filters, and the overall filter housing all have the same component number. These components (X61 * FLT-02A and B) had been released to Startup per FQC Procedure QC15.1 "System Release" although the charcoal cells and HEPA filters were not installed. Step 4.9 of the procedure allows release of incomplete or deficient items provided that the item is identified on the Master Punch List and a Repair/Rework Request written. The inspector noted that neither had been done for these components. This item is unresolved pending a determination of how release is to be handled for this type of component and is designated item no. (322/82-02-01).

b. Bulletin 80-07

This Bulletin, "BWR Jet Pump Assembly Failure", describes a failure of a BWR jet pump due to cracking of the hold-down beam at the beam bolt location. This issue was also discussed in SER Open Item #14 and FSAR question 112.22. The licensee stated in a letter to the NRC, dated 5/15/81, that the beam bolt preload force would be reduced from 30,000 pounds to 25,000 pounds. This reduction would decrease the stress in the beam. As discussed in inspection report 81-20, dated 12/9/81, FDI 104/88524 and E&DCR #34619 implemented this reduction in preload force by disassembly and reassembly of the jet pumps during the summer of 1981. These documents specified the jet pump hold-down beam tensioner hydraulic pressure to be 2542 ± 50 psig and the beam bolt rotation as 580 ± 200 . Quality Control verified and documented only the bolt rotations. During initial review the inspector had requested the correlation between bolt rotation and preload force. The licensee subsequently determined from General Electric that bolt rotation could not be correlated to preload, but that the tensioner hydraulic pressure was the critical parameter necessary to establish the preload force. No additional records were available to document either the hydraulic pressure used or the preload force applied to each jet pump. This item is a violation which is contrary to 10 CFR 50, Appendix B, Criterion XVII, the Shoreham FSAR, Section 17.1.17A, and the EQA Manual, Sections 17.0, 17.3.3, and 17.3.8, which require that sufficient records be maintained to furnish evidence of activities affecting quality, such as fabrication (Item No. 322/82-02-07). Information necessary to close this item will include: justification as to why the assembly is acceptable as is or development of a plan to assure or demonstrate that the preload force had been properly applied to the jet pump beams.

5. Inservice Testing

In accordance with 10 CFR 50.55a and the ASME Boiler and Pressure Vessel Code, Section XI, the licensee submitted to the NRC their program for Pump and Valve Inservice Testing in a letter dated January 6, 1982. The inspector reviewed the pump list against the pumps and systems at Shoreham and noted that the following pumps, which appeared to fit the description of Section XI for inclusion in the Test Program, were not included in the submittal:

HPCI and RCIC line fill pumps;
HPCI and RCIC vacuum pumps;
HPCI and RCIC condensate pumps;
HPCI auxiliary oil pump;
Core Spray and Residual Heat Removal (RHR) loop level pumps; and,
Leakage Return Pump.

The licensee's representative stated that the first five types of pumps were small pumps used to assist other major systems and that they would be included in the testing their respective parent systems (i.e. HPCI, RCIC, Core Spray, and RHR). The leakage return pump would receive further review to determine whether it should be included in the program. This item is unresolved and is designated Item No. (322/82-02-02).

6. Loose Parts Detection Program

a. Documents Reviewed

The inspector reviewed the following documents pertaining to the Loose Parts Detection Program at Shoreham:

- FSAR Section 4.4.6 and 14;
- Regulatory Guide 1.133, original and Rev. 1;
- Specification No. SHI-461, Loose Parts Monitoring System;
- Draft Technical Specifications for Shoreham NPS;
- Pertinent piping and instrumentation diagrams and electrical diagrams;
- Operations and Maintenance Manual for the Loose Parts Detection Program for Shoreham by the Technology for Energy Corp., dated January, 1981;
- Preoperational Test, PT.622.001, for the Loose Parts Monitoring System (B21Z); and,
- Checkout & Initial Operations Tests for the B21Z subsystem.

b. Discussion

The inspector reviewed the above documentation and observed the as-built system in the plant. The inspector also observed portions of initial equipment checkout and of preoperational test performance. Discussions were also held with design and test engineers and with the vendor representative. Based on the above the inspector compared the as-built system and the approved test procedures to licensee commitments. During the preoperational test, the inspector noted that:

- the test procedure was approved and released for performance by the JTG;
- test procedure was in use by personnel performing the test;
- test equipment was calibrated within required time periods;
- test personnel were suitably qualified;
- quality assurance participation was as required;
- data was logged per the procedure; and
- test acceptance criteria were met for portions observed.

With the exception of the below items no discrepancies were identified.

c. Regulatory Guide 1.133

Paragraph 4.4.6 of the FSAR commits to meeting Regulatory Guide 1.133 (R.G.1.133), "Loose-Part Detection Program for the Primary System of Light-Water-Cooled Reactors".

(1) Hardware

The inspector noted that the system was essentially complete in that it had been released by construction to startup; C&IO testing had been completed; and the system had been released by the Joint Test Group for performance of the preoperational test. During tours, the inspector observed that contrary to paragraph C.1.c of R.G.1.133 instrument cables for different channels of the Loose Parts Monitoring System were not physically separated in the drywell (which is inaccessible during full power operation) in that they were run in the same conduits and they utilized the same electrical penetration. This is also documented in Cable Schedule EC-1, page 52, dated 12/16/81. Additionally, the inspector questioned as to whether there was an audible or visual alarm to alert control room personnel when the alert level is reached as specified in paragraph C.1.d of R.G.1.133. The licensee's representative stated that the only alarm was a local one on the normally closed Loose Parts Monitoring Panel. This alarm would not alert the control room personnel. These two items are considered to be a deviation from a commitment to the NRC and are designated Item No. (322/82-02-03).

(2) Documentation

R.G.1.133, paragraph C.4 specifies items that should be included in the FSAR description of the Loose Part Detection Program. Numerous specified items were not included, such as: sensor types, calibration equipment, criteria for choice of sensor and mounting location, description of how the alert level will be determined, procedures for testing and ALARA, and the training program. R.G.1.133 paragraph C.5 specifies items to be included in the Technical Specifications for the Loose Part Detection System. The current draft of the Shoreham Technical Specifications do not contain any entry for this system. These items are unresolved and are designated as Item No. (322/82-02-09).

(3) Spurious Alarms

Paragraph 2.a of R.G.1.133 discusses automatic inhibits of alarms from deliberate plant maneuvers. Since two detectors for the Loose Parts System are attached to the control rod drive housings, spurious alarms will result each time any control rod is moved. This could degrade the usefulness of the system and distract operators. The Loose Parts Monitoring System has an inhibit feature for deliberate plant maneuvers such as this, but it is currently not utilized. This item is unresolved pending resolution of the above concerns and is designated Item No. (322/82-02-05).

d. Procedures

The inspector noted that there are currently no permanent plant procedures for operating, maintaining, or calibrating the Loose Parts Monitoring System either written or listed on the Plant Procedures Status Listing. Also the plant procedures discussing reportable items to the NRC do not include as reportable the presence of a loose part in the primary system as discussed in paragraph 6 of R.G.1.133. These items are unresolved and are designated Item No. (322/82-02-04).

e. Preoperational Test

PT.622.001, step 8.3.3 for calibrating the system sensors is performed with sufficient background noise to activate minimum threshold circuitry. However, the procedure does not require flow in the feedwater line while calibrating the two sensors on the feedwater nozzles. The vendor representative stated that the preferred method to do the calibration would be with flow in the line. The test was performed with no feedwater flow.

Step 7.3 of PT.622.001 calls for a calibrated impact device as part of the special test equipment. This device is the only method of demonstrating that the system meets the sensitivity requirement, of 0.5 ft-lb within three feet of a sensor, specified in paragraph 1.b of R.G.1.133. The licensee had no documentation of the calibration of the impact device at the time of the inspection, although the vendor representative stated that the device had been calibrated at the factory.

These two items associated with the preoperational test are unresolved and are designated as Item No. (322/82-02-06).

7. Spent Fuel Pool Flooding

On August 77, 1981 about 2,000 gallons of salt water from Long Island Sound leaked into the Spent Fuel Pool via the Service Water to Fuel Pool Cooling cross connect line. This line is normally used only in an emergency as ultimate cooling for the spent fuel. Two normally-closed series valves leaked and a normally-open drain line between those valves did not function properly to prevent the leakage.

The licensee wrote a LILCO Deficiency Report, LDR #0533, cleaned and flushed the spent fuel pool, and performed an analysis of the event to determine corrective and preventive actions. A number of recommendations were made, including both administrative changes and system design changes, as discussed in the disposition of LDR #0533 dated 11/24/81. The LDR was then closed on 12/3/81 even though most of the recommended preventive actions had not been completed. The licensee's representative stated that the LDR had been incorrectly closed and would be reopened. The inspector reviewed all other closed LDRs from mid-1980 to the present and noted no other improperly closed ones. The inspector did note two LDRs which had been voided with no explanation. The licensee provided other documents, which explained satisfactorily why the LDRs had been voided and updated the LDRs themselves to indicate the reasons for voiding. The inspector had no further questions regarding the closure of LDR #0533 at this time.

Regarding the recommended preventive actions associated with the flooding of the Spent Fuel Pool, the inspector stated that the following two aspects of the incident did not appear to have been adequately addressed:

- a. whether periodic leak checks are necessary for the block valves that separate the Service Water (P41) System from the Fuel Pool Cooling System (G41) and from the Residual Heat Removal System (E11) and,
- b. whether all vent and drain lines should be flushed as part of their respective system flushes, since the telltale drain line containing valve 1P41*MOV-043, which did not function in this incident, had not been flushed as part of the P41 or G41 system flushes.

These items are unresolved and are designated Item No. (322/82-02-08).

8. Test Witnessing

The inspector reviewed the test procedure and witnessed portions of the following preoperational tests:

- PT.203.001-1 Core Spray, and
- PT.117.002 Loss of Instrument Air

Portions of the tests observed included: prerequisite completion, control room operations, logic and relay checks, and proper fail-safe valve operation given various types of loss of air. During the tests the inspector noted that:

- the test procedures were approved and released for performance by the JTG;
- test procedures were in use by personnel performing the tests;
- test equipment was calibrated within required time periods;
- test personnel were suitably qualified;
- quality assurance participation was as required;

- data was logged per the procedures; and
- test acceptance criteria were met for portions observed.

During the performance of PT.117.002, the inspector noted that step 8.2.1 was not completely clear on how to perform the loss of air test, due to the fact that not all valves are in the same position during normal operation. The licensee's representative agreed and Test Change Notice #1 was issued to clarify the step based on whether a valve was normally open, normally closed or in a throttled position. The inspector had no further questions at this time.

9. Unresolved Items

Areas for which more information is required to determine acceptability are considered unresolved. Unresolved items are contained in Paragraphs 4.a, 5, 6.c.(2), 6.c.(3), 6.d, 6.e, and 7 of this report.

10. Management Meetings

At periodic intervals during the course of this inspection, meetings were held with plant management to discuss the scope and findings of this inspection.

The resident inspector also attended the entrance and exit interviews for two inspections conducted by region-based inspectors during the month.