

U.S. NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT

Region I

Report No. 50-322 / 81-02

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: February 1, - March 8, 1981

Inspectors: J. C. Higgins 3/23/81  
J. C. Higgins, Senior Resident Inspector date signed

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Approved by: H. B. Kister 3/25/81  
H. B. Kister, Chief, Reactor Projects Section 1C date signed  
Projects Branch #1, DRPI

Inspection Summary:

Inspections on: February 1 - March 8, 1981 (Inspection Report No. 50-322/81-02)  
Areas Inspected: Routine onsite regular and backshift inspections by the resident inspector (70 inspection hours) of work activities, preoperational testing, and plant staff activities including: tours of the facility; test witnessing; review of test procedures and preoperational program practices; comparison of as-built plant to FSAR description; review of IE Bulletins; source checks and followup on previous inspection findings.  
Results: Of the seven areas inspected, no violations were identified in six areas and one in the seventh area (failure to establish procedures, paragraph 7).

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## DETAILS

### 1. Persons Contacted

J. Carney, Site Engineering Representative (S&W)  
D. Durand, OQA Engineer (L)  
T. Gerecke, Quality Assurance Manager (L)  
J. Kelly, Field QA Manager (L)  
L. Lewin, Assistant Startup Manager (L)  
M. Miele, Health Physics Engineer (L)  
M. Milligan, Project Engineer (L)  
J. Morin, Senior Licensing Engineer (L)  
J. Novarro, Project Manager (L)  
A. Pederson, Operations Manager (GE)  
J. Rivello, Plant Manager (L)  
J. Riley, Lead Startup Engineer (GE)  
J. Taylor, 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

(Closed) Inspector Follow Item No. (322/80-04-01): Source Leak Test Procedure: The inspector reviewed Procedure SP64.001.01, Rev. 4, Source Leak Testing and noted that the procedure had been revised to specify the recording of: the date and person conducting the test, the background counts, radioactivity counts as measured, net counts, counter serial number and efficiency, and microcurie level. The counters are calibrated as specified in the plant calibration program and calibration records are maintained separately. This item is closed.

### 3. Plant Tour

The inspector conducted periodic tours of accessible areas in the plant during normal and backshift 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.
- 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.
- Component Tagging: Implementation and observance of equipment tagging for safety, equipment protection, and jurisdiction.
- Instrumentation: Adequate protection for installed instrumentation.
- Logs: Completeness of logs maintained.
- Security: Adequate site construction security.
- Prohibited Items: Observations to determine no smoking in restricted areas and no alcoholic beverages on site.
- Weld Rod Control: Observations to determine weld rod was being controlled in accordance with site procedures.

No violations were identified.

#### 4. Test Witnessing

The inspector witnessed portions of the below tests:

- PT.315.001C, "125V DC Power Distribution Preop Test";
- CG.000.012-4, "Insulation Resistance of Electrical Equipment";
- CG.000.015-4, "MCC and Distribution Panel Protection Devices"; and,
- CG.000.022-5, "480 VAC MCC Cubicle and Control Circuit Checkout".

During the tests the inspector noted that:

- the test procedure was approved and released for performance as required;
- test procedure was in use by personnel performing the test;
- test personnel were suitably qualified;
- test exceptions were appropriately documented;
- test instrumentation was properly calibrated;
- data was properly logged; and
- test acceptance criteria were met for portions observed.

No violations were identified.

5. IE Bulletins

Bulletin 80-06: Bulletin 80-06, Engineered Safety Feature (ESF) Reset Controls, described circuitry where the use of the ESF reset pushbuttons alone resulted in changes to the operating mode of dampers, valves and motors. This could compromise protective actions of affected systems. The licensee was also informed of this problem in a letter from the Office of Nuclear Reactor Regulation (FSAR Question #223.88). Initial drawing reviews have revealed that some minor control circuit changes are needed. The Bulletin also calls for testing to verify that all equipment remains in its emergency mode upon removal of the actuating signal and/or manual resetting of the various isolating or actuation signals. Currently, the preoperational test program does not specifically test for these attributes. The licensee's representative stated that such testing would be incorporated into individual system test procedures as they were revised prior to use. This bulletin remains open.

6. Source Leak Check

The NRC was informed by several licensees that the Nickel-63 sources in Ion Track Instruments, Inc. (ITI) explosive detection devices had been found to have removable contamination in excess of 0.005 microcuries. Licensees owning these detectors were requested to leak check the Nickel-63 sources. LILCO had two of the subject detectors which were still in warehouse storage. The detectors were unpacked and the sources leak checked for contamination. One source was initially found to have removable contamination near the 0.005 microcurie limit for the unlicensed Nickel-63 source. Subsequent checks revealed no additional contamination. The detectors have been placed in controlled storage. The generic question relating to the ITI detector sources is being reviewed separately by the NRC.

7. Containment Isolation Valves

During tours of the plant the inspector observed various containment penetrations, containment isolation valves (CIV's), and piping runs from the CIV's to the penetrations. The inspector noted what appeared to be excessive distance between the CIV's and the penetration outside of containment on four small bore (2½ inches or less) lines as follows:

Valves 1C11\*01V-1028 A and B in the Recirculation Pump mini-purge line were 10 to 15 feet from the penetration; and,

Valves 1P50\*MOV-103 A and B in the service air line were approximately 40 feet from the penetration.

No discrepancies were observed on the large bore piping or valves. General Design Criteria 55 through 57 of 10 CFR 50, Appendix A require that containment isolation valves outside containment be located as close to containment as practical. The Shoreham FSAR, section 6.2.4, discusses these criteria and commits to constructing the plant in accordance with them. Further investigation revealed that the small bore pipe design group was generally aware of the requirements of the pertinent General Design Criteria but had no written procedures or instructions to implement them as required by 10 CFR 50, Appendix B, Criterion V. The licensee's representative stated that designers generally observed the field arrangement prior to preparing the detailed pipe isometric drawings and that the designers attempted to place the CIV's as close to containment as practical, considering necessary pipe and valve supports, and valve maintainability, operability and accessibility. This item is considered a violation, as cited in Appendix A, and is designated item no. (322/81-02-02).

8. Excess Flow Check Valves

a. Documents Reviewed

10 CFR 50, Appendix A, General Design Criteria.

Shoreham FSAR, Section 6.2.4 and Appendix 3B.

Regulatory Guide 1.11, 1971.

Pertinent System Piping and Instrumentation Drawings (P & ID's).

General Electric Standard Technical Specification.

Shoreham Specification SH1-278, Excess Flow Check Valves for Instrument Lines.

Excess Flow Valve Vendor Overhaul Manual (Dragon Valves, Inc.).

AT.690.001, Excess Flow Check Valve Display System.

b. Scope

The inspector toured the plant and observed the installation and arrangement of the excess flow check valves, instrument tubing, valve position indication sensors, and control room readouts. Based on the document review and system tour, the inspector compared the as-built system to regulatory requirements and FSAR commitments. Included in the review was an evaluation of installation quality, orientation, location, separation, design, control room indication, testability, and inspectability. With the exception of the below items the inspector identified no discrepancies.

c. Primary Containment Cooling System

10 CFR 50, Appendix A, General Design Criterion 56 calls for automatic or locked closed containment isolation valves (CIV's) in lines penetrating containment and connected directly to the containment atmosphere. Regulatory Guide (R.G.) 1.11 allows excess flow check valves to serve as CIV's in instrument lines. The Shoreham FSAR Section 6.2.4.3.5 states that R.G. 1.11 is met except for lines sensing primary containment atmosphere since the instruments associated with these lines are for the Reactor Protection System (RPS) and the Emergency Core Cooling System (ECCS) and any valves must remain open after the design basis accident. During the tour the inspector noted that lines for the Primary Containment Cooling System differential pressure transmitters (Lines K17, 18, 19 and 89 to IT47-PDT-028 A and B) had no excess flow valves, are not used for the RPS or ECCS, and have only normally open manual isolation valves. This item is unresolved and is designated item no. (322/81-02-03).

d. Valve Position Indication (VPI)

The installation instructions of the excess flow check valve vendor overhaul manual state that, to insure satisfactory operation of the valve position indication switch, the excess flow check valve (EFV) must not be installed within three inches in any direction of any ferrous or magnetic material. During the system tour the inspector noted that five instrument lines (K 9, 78, 77, 73 and 82) had their EFV's within three inches of large iron supports. This item is unresolved pending a review by the licensee to determine if any other EFV's are so located and a determination as to whether the valve position indication is affected for these lines. This item is designated item no. (322/81-02-04).

9. FSAR Conformance

10 CFR 50.57 (a) (1) provides in part that an operating license may be issued only after a finding that the construction of the facility has been substantially completed in conformity with the construction permit and the application as amended. The Final Safety Analysis Report (FSAR) is part of the application and describes in detail the facility. In inspections performed over the last year, both by the resident inspector and region-based inspectors, there have been several findings pointing out deviations between the FSAR and the facility as finally constructed. Further investigation showed that construction had been completed in accordance with pertinent design documents, but that the design documents differed from the FSAR (a licensing document). Discrepancies have been identified in the following areas: Main Steam Isolation Valve Leakage Control System, Control Room Air Conditioning System, Reactor Building Standby Ventilation System, Diesel Exhaust, Radiation Monitoring Sample Lines, Containment Isolation Valves, High Pressure Coolant Injection Vacuum Pump, 125V DC bus indication, and a Low Pressure Coolant Injection Interlock. In most, but not all, cases the deviations have been relatively minor and did not appear to affect the system functionally. The inspector held several meetings with licensee personnel to discuss each item and the general concern of accuracy of the FSAR. LILCO Quality Assurance subsequently performed an audit of the Architect Engineer (Stone & Webster Engineering Corporation) and identified concerns in the same area. As a result, the Architect Engineer has established a 4 to 6 month program to examine the procedures and methods used to achieve conformance between licensing documents (e.g. the FSAR) and actual system design documents. The general question of FSAR conformance will be carried as unresolved item no. (322/81-02-05) and each individual discrepancy previously identified will be tracked using the numbers assigned in the particular inspection report.

10. Preoperation Program Implementation

The inspector reviewed various aspects of the preoperational testing program to determine if requirements specified in the Startup Manual and in approved procedures were being satisfactorily implemented. Specific areas reviewed included:

- System and subsystem release packages and Quality Assurance review of same;
- Jurisdictional tagging systems, both startup control tags (Blue) and permanent plant staff control tags (Green);

- Operational Quality Assurance surveillance and witnessing of testing and maintenance;
- Maintenance on various components as performed using the Repair/Rework request system;

Minor problem areas were discussed with licensee representatives throughout the inspection. No violations were identified.

11. Unresolved Items

Areas for which more information is required to determine acceptability are considered unresolved. Unresolved items were contained in paragraphs 8 and 9 of this report. Item no. (322/81-02-01) was not used in this report.

12. 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 meeting of a region-based inspector.