U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Report No. 50-322/83-01

Docket No. 50-322

License No. CPPR-95

Licensee: Long Island Lighting Company

175 East Old Country Road

Hicksville, New York 11801

Facility Name: Shoreham Nuclear Power Station

Inspection at: Shoreham, New York

Inspection Conducted: January 1 - 31, 1983

Inspectors: J. C. Higgins, Senior Resident Inspector — 2/4/83 Date Signed

C. D. Petrone, Resident Inspector — 2/4/83 Date Signed

E. C. McCabe, Chief Reactor Projects Section 2B — 2/4/83 Date Signed

Approved by: R. M. Gallo, Chief, Reactor Projects Section 1A, Projects Branch #1, DPRP — 2/7/83 Date Signed

Inspection Summary:

Inspections On: January 1 - 31, 1983 (Inspection Report No. 50-322/83-01)

Areas Inspected: Routine onsite regular, backshift, and weekend inspections by the Resident Inspectors (237 inspection hours) of work activities, preoperational testing and plant staff activities including: tours of the facility, review of NRC Circulars, review of vendor manuals, housekeeping review, and followup on previously identified items.

Results: No violations were identified.

DETAILS

1. Persons Contacted

M. Giannattasio, Asst. Construction Superintendent (L)
R. Gutman, Maintenance Engineer (L)
K. Howe, General Superintendent (S&W)
J. Kelly, Field QA Manager (L)
W. Klein, Lead Startup Engineer (L)
W. Matejek, Lead Advisory Engineer (S&W)
J. McCarthy, Section Supervisor - FQA (L)
A. Muller, QQA Engineer (L)
W. Museler, Manager, Construction and Engineering (L)
K. Nicholas, Lead Startup Engineer (GE)
T. Paulantonio, Lead Startup Engineer (S&W)
J. Ricardo, Lead Startup Engineer (S&W)
J. Rivello, Plant Manager (L)
C. Seaman, Senior Asst. Project Engineer (L)
J. Smith, Manager, Special Projects (L)
D. Terry, Asst. Startup Manager
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, health physics, security, quality assurance, and construction personnel.

2. Previous Inspection Item Update

2.1 (closed) Inspector Follow-up Item (322/80-04-06): Control Room Air Conditioning (CRAC) System Procedure: The inspector reviewed procedure SP 24.405.02, Revision 1, which supersedes SP 24.412.01 for surveillance testing of the CRAC System. The inspector verified this procedure now contains specific procedural steps to return the system to normal after the test, and specifies an acceptance criterion (positive pressure $\geq$ 1/8" water gage) that includes a margin for deterioration over the 18 month surveillance interval. The inspector also reviewed system operation procedure SP 23.412.01, Revision 2, and noted that step 8.1.6.2 had been clarified. This item is closed.

2.2 (closed) Unresolved Item No. (322/81-01-04): Airflow Through Turbine Building Contaminated Cubicle Entrances: The FSAR states that one of the design objectives of the Turbine Building Ventilation System is to move air from lesser to progressively greater potential contamination areas by establishing a slight negative pressure in the building cubicles and designing cubicle entrances to establish a minimum air velocity of 100 fpm. This item identified that the Preoperational Test Program did not verify the above for the various cubicles of the Turbine Building.

The licensee revised procedure CG.000.034 "Air Balancing" to incorporate proper tolerances and issued Engineering and Design Coordination Report (E&DCR) F35405 to measure the air velocity at the cubicle entrances. Many cubicles did not meet the 100 fpm minimum. As a result, the licensee issued design changes (E&DCRs F35405 and F35405A) to seal around various room penetrations, and to modify the entrances to the cubicles. These modifications involved covering wire mesh doors with sheet metal and partially blanking off areas around the doors and penetrations. This effectively reduced the size of the openings and, as verified by subsequent airflow tests, increased the velocity of the airflow above the 100fpm minimum.

The inspector toured selected cubicles with modified entrances and noted that these modifications had been performed in accordance with the design. The inspector also reviewed the Airflow Test Results. This item is closed.

2.3 (closed) Violation (322/82-04-08): HPCI Steam Line Drain uses simple check valves for containment isolation: The licensee amended the FSAR (Revision 27-August 1982, Section 6.2.4.3.3, Evaluation Against Criterion 56, page 6.2-43) to specify two normally closed check valves. NRC:NRR review (results documented in January 10, 1983 Novak to Starostecki memo) accepted this use for the following reasons: the RHR steam condensing mode flow path piping could accumulate water between normally closed process valves resulting in water hammer damage to RHR piping and heat exchangers when the valves are opened - the drain line check valves provide the greatest assurance that the draining function will not be impaired; the drain line is part of a system that is closed outside containment and provides a containment barrier.

2.4 (closed) Weakness (322/82-04-10): Carbon Steel Bolting: The concern identified under this item was corrosion of carbon steel bolts installed in the Copper-Nickel Service Water (SW) System and the adequacy of corrective action. The licensee had previously issued E&DCR F-35497A on August 4, 1981, which stated that all future carbon steel fasteners would use electrical insulation kits to prevent galvanic corrosion. However, all previously installed fasteners (clamps, bolts, etc.) would remain without the kits.

Regarding the carbon steel bolts the Region I corrosion specialist stated that to justify such action a lab analysis of the corroded bolts should be performed to show that only general corrosion and not galvanic was involved. The inspector selected bolts for analysis. Lab results (memo from DeLeon to Luther) showed some galvanic corrosion activity. The licensee therefore determined

that all carbon steel bolts without insulation kits would be replaced and would have the kits installed. Quality Control (QC) developed a list of bolted joints which remained to be modified. The inspector toured the plant to determine if all SW bolts either had insulation kits or were on the QC list for replacement. Several joints were identified that were neither. Subsequent licensee review showed that the bolts identified by the inspector were QA Category II,non-safety related. The licensee's representative stated that no further action was planned for these Category II bolts. The inspector identified no violations of regulatory requirements in this course of action.

Regarding the external carbon steel fasteners, such as clamps around the Copper-Nickel pipe, the possibility of galvanic corrosion was less due to the lack of an electrolyte, unless there was condensation on the lines. The licensee therefore issued E&DCR F-35497C in January, 1983 to encapsulate these supports and fasteners with antisweat type insulation. The general corrosion and dampness in the Reactor Building elevation 8 area was discussed in inspection report 83-02 paragraphs 5 and 6 and will be followed up in conjunction with that report. This item is closed.

2.5 (closed) Violation No. (322/82-26-01): Failure to Incorporate Drawing Changes: This violation identified wiring changes made in accordance with E&DCR No. F-6085B, which had not been incorporated into drawings 1.61-154 and 1.61-156. The licensee subsequently revised these drawings and performed a review of a sample of 175 manufacturers' drawings, spanning a period of 11 months bracketing the time period noted, to determine the extent of the drawing control problems. The licensee concluded that the discrepancies noted were isolated cases and not indicative of a trend.

The inspector reviewed revision D to drawings 1.61-154 and 1.61-156 and noted they had been updated to agree with E&DCR F-6085B. The inspector selected a sample of ten E&DCR packages and verified that the drawings affected by these E&DCR's had been updated correctly or had been annotated with the E&DCR number to indicate that a drawing change was pending. The inspector also chose a sample of ten electrical drawings and verified that the changes made to these drawings were identified during the review. This violation is closed.

2.6 (closed) Unresolved Item No. (322/82-26-02): Loop Level Pumps: The licensee issued retest packages for the HPCI and RCIC system loop level pumps to measure pump shutoff head. These were satisfactorily completed in C&IO packages E41-67A and E51-34A. The inspector had no further questions in this area.

2.7 (closed) Unresolved Item No. (322/82-26-05): Short-cycling of hydrogen analyzers: Only one of the four analyzers has suction and discharge lines near to each other. For this analyzer, calculations indicate that 6% of the discharge is recycled. However, the great majority of the recycled flow is of the same composition as the inlet flow. Hence there is little effect on the analyzer's accuracy. This item is closed.

3. Plant Tour

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;

- Housekeeping - Maintenance of required cleanliness levels of systems under or following testing (Refer to paragraph 6);

- Equipment Preservations - 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 security for site construction and new fuel storage activities;

- Component Tagging - Implementation of appropriate equipment tagging for safety, equipment protection, and jurisdiction.

Specific comments were discussed with licensee personnel. No violations were identified.

4. NRC Circulars

4.1 Circular 78-11: This Circular, "Recirculation M-G Set Overspeed Stops", discusses the need to confirm that the Motor Generator (M-G) overspeed stops are set properly and that these settings (in percent of recirculation system flow) are used to determine that the proper constant (K_f) is being used in the process computer for calculations to determine the Minimum Critical Power Ratio (MCPR) limits. The inspector reviewed selected procedures and discussed this item with representatives of the plant Reactor Engineering Staff. The inspector also reviewed the results of the Preoperational Tests PT.120.001 and noted that the stops had been set and recorded (electrical stop at 102.5 ± 1% and mechanical stop at 103 ± 1%). Startup test procedure STP-29

requires that the electrical and mechanical stops be reset again during startup, therefore these final settings should be used to determine that the proper K_f values are being used to calculate the MCPR limits. Based on this review and discussions with the licensee's representatives, it appeared that the existing procedures did not specifically require the actual overspeed stop settings be used to calculate the MCPR limits. The licensee's representative agreed to:

- Revise STP-29 to include a verification that the final electrical and mechanical stop settings satisfy technical specification (TS) section 4.4.1.1.2 requirements and that the process computer K_f value is conservative with respect to the actual stop settings; and

- Revise SP No. 54.604.07, "Thermal Limits Process Computer Evaluation (MAPLHGR, RGAF, MCPR, MLHGR)", to indicate that the actual K_f value used in the computer to calculate MCPR limits must be conservative with respect to the actual stop settings recorded in STP-29.

This Circular remains open pending completion of these procedure revisions.

4.2 Circular 80-09: The Circular "Problems with Plant Internal Communications Systems", describes losses of offsite power at two sites which resulted in the loss of various internal communications, paging, and evacuation alarm systems which were powered from a non-safeguards bus. The licensee reviewed its communications systems and reported that the source of power for the page party GAI-tronics, the NAWAS Red Telephone (Civil Defense), Police Radio Channel and leased line to the electric distribution system (Hicksville) are the emergency diesels via isolation circuit breakers to black busses, then to battery chargers, and batteries or rectifiers, inverters and non-interruptable (safeguards) busses. In addition there is a sound powered telephone system throughout the plant that requires no external power for operation. The licensee also performed E&DCR F-40921 to connect the 3-digit onsite extension telephone system to a safeguards bus.

The inspector reviewed selected documents and visually inspected the installation of the safeguards power receptacles which were installed in the telephone equipment room. The inspector noted that although the installation had been completed for several months, the telephone equipment power cables were still plugged into the normal 110V power supply and had not been transferred to the newly installed safeguards bus receptacles.

This Circular also addresses the use of portable radio transmitters (walkie-talkies) in areas of the plant which may affect electronic equipment such as electronic relays and Bailey controllers. The licensee's response stated that Plant Staff Personnel are aware of these potential problems and restrictions on transmission of hand held radio units from certain areas of the plant will be imposed.

Based on inspector interviews, not all licensee employees, who utilized radios for transmission, were aware of the restrictions. The inspector also noted that there appeared to be no plant-wide policy to designate areas sensitive to radio transmission, nor was there a program to establist and maintain the posting of these areas. As a result of the above, the licensee has agreed to:

- Have the telephone company connect the power cords on the telephone equipment to the non-interruptable power supply receptacles; and to have these connections added to a periodic breaker lineup sheet so they are checked for proper connections; and

- Establish a plant-wide policy to designate those areas sensitive to radio transmission, to post these areas with signs, and to periodically verify that these signs are maintained and replaced when necessary.

This Circular remains open.

5. Vendor Manual Control

During a review of the hydrogen analyzer system, the inspector noted that the file copies of the vendor manuals (Comsip-Delphi) had been revised with pen and ink changes. A letter dated August 3, 1982 from Stone and Webster transmitted a revised manual, but it was not clear whether additional unauthorized changes had been made. Additionally, the inspector noted that the manual held by the Test Engineer did not have the same revisions. The inspector questioned what measures the licensee had established to control vendor technical manuals, including changes thereto, both during the pre-operational period and the plant operations period. This item is unresolved and is designated item no. (322/83-01-01).

6. Housekeeping

As a result of findings during inspection 83-02 between January 10 and 15, 1983, Region I issued a Confirmatory Action Letter dated January 19, 1983 detailing additional measures agreed to by the licensee in order to improve plant housekeeping. The licensee has begun implementation of the program by hiring additional laborers, commencing a general cleanup, designating specific eating areas, providing added instruction in housekeeping to site personnel, and beginning inspection and review of these areas by construction, quality assurance, and management personnel. The inspector performed tours of the facility alone and in company with licensee management and noted that general cleanliness had improved. The inspector and licensee personnel also noted that considerable work remained before housekeeping would be fully acceptable.

7. Unresolved Items

Areas for which more information is required to determine acceptability are considered unresolved. An unresolved item is contained in paragraph 5 of this report.

8. Management Meetings

At periodic intervals during the course of the inspection, meetings were held with licensee management to discuss the scope and findings of the inspection. The resident inspector also attended the entrance and exit interview for one region-based inspection conducted during the period.