

U. S. Nuclear Regulatory Commission
Region I

REPORT NO. 50-322/85-18

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LICENSE NO. NPF-19

LICENSEE: Long Island Lighting Company
P. O. Box 618
Shoreham Nuclear Power Station
Wading River, New York 11792

INSPECTION AT: Shoreham, New York

INSPECTION CONDUCTED: March 1 - March 31, 1985

INSPECTOR: P. W. Eselgroth
P. W. Eselgroth, Senior Resident Inspector

4/3/85
Date Signed

APPROVED: Gene Kelly
for J. R. Strosnider, Chief, Reactor Projects
Section 1B, Division of Reactor Projects

4/4/85
Date Signed

SUMMARY: The resident inspector reviewed procedures for racking out one of the 4KV bus 11 circuit breakers, CRD orifice cleaning efforts, inspection of TDI diesel starting air check valves, Colt diesel generator end coil guard welds, Colt testing status and a site evacuation. This report also includes follow-up reviews of previous unresolved inspection items covering the areas of plant management/shift communications, fire brigade records, Quality Assurance deficiency follow-up and radwaste building flexible joint failures. This report also reviews the licensee's response to a bulletin on reactor cavity seals.

The inspector closed four previous inspection items and one bulletin and opened one new item. No violations were identified.

This report involved 78 hours of inspection by the resident inspector.

DETAILS

1.0 Persons Contacted

R. Kubinak, Director, QA, Safety & Compliance (L)
A. Muller, QC Division Manager (L)
J. Scalice, Operations Division Manager (L)
W. Steiger, Plant Manager (L)
D. Terry, Maintenance Division Manager (L)

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The inspector also held discussions with other licensee and contractor personnel during the course of the inspection.

2.0 Status of Previous Inspection Items

2.1 (closed) Violation 84-50-02: Plant Management/Shift Personnel Communications.

This item pertained to written directives from a member of plant management to shift operations personnel that met the station definition of standing orders, but were not approved in accordance with the requirements for standing orders.

Specifically, Station Procedure NO. 21.008.01, Operations Standing Orders, requires that written directives to operations personnel of continuing applicability be approved by the Chief Operating Engineer, or in his absence the Chief Technical Engineer. On January 10, 1985 the resident inspector found typewritten directives, approved only by the Operating Engineer, in a binder in the control room entitled "Operations Administrative Directives" covering the following types of activities:

- . Maintaining Systems Operability Status
- . Annunciator Status and Response
- . Operation of Radwaste Systems
- . Surveillance Test Program

Failure of the licensee to comply with the approval requirements of SP21.008.01 constituted a violation of 10 CFR 50 Appendix B, Criterion V and Shoreham FSAR Section 17.2.5. requirements.

In a formal reply to this violation, the licensee stated that the following corrective action steps were taken: When the discrepancy was brought to the attention of LILCO management on January 11, the OADS were immediately withdrawn from the Control Room. To prevent recurrence, the licensee stated that the Operations Administrative Directives will no longer be used to transmit any material to the Operations Staff. The licensee further stated that the mechanism for relaying the types of information that was in the OADS will be either the Night Orders or the Administrative Procedures both of which receive appropriate levels of review and approval.

The resident inspector had no further questions. This item is considered closed.

2.2 (closed) Bulletin No. 84-03: Refueling Cavity Water Seal.

This bulletin described an event at another Nuclear Power Plant in which the pneumatic reactor cavity water seal failed, during preparations for refueling, causing the water level in the flooded refueling cavity to drop to the level of the reactor vessel flange in approximately twenty minutes. The subject bulletin requested each licensee to review the adequacy of plant reactor cavity water seals and the consequences of seal failure.

The licensee reviewed the type of cavity seal and physical arrangements in the reactor cavity/spent fuel storage pool area and provided the following assessments: Shoreham utilizes a metal bellows-type seal on both its inner and outer seal assemblies. The bellows, unlike pneumatic seals, do not require air pressure; rather they are constructed of 304SS and are welded in place. The refueling seal assembly consists of a bellows element, backing plate, secondary seal, and an outer circumference of the bellows element for mechanical protection. The secondary seal is a self-energizing spring seal located in the area between the bellows and the backing plate. This spring seal is designed to make a tight fit to the backing plate to limit water loss through the refueling seal assembly when subjected to the design hydrostatic pressure in the event of a bellows rupture. A guard ring is attached to the seal assembly within the inner circumference of the bellows element and serves as a protective barrier against small dropped objects, such as hand tools. The guard ring is removable from above to permit access to and visual inspection of, the bellows element. The licensee has assessed that in the event of a seal failure during a refueling operation, there would be sufficient time to complete a fuel bundle transfer without uncovering the fuel. In addition, since the bottom of the fuel transfer gate is above the top of the spent fuel storage racks, spent fuel would not become uncovered. The licensee estimates that approximately fifteen minutes is necessary to reclose the fuel pool transfer channel.

The licensee concluded that no further action, beyond this review for Shoreham, is necessary relative to a catastrophic reactor cavity seal failure based on the fact that Shoreham's refueling cavity water seal design consists of a welded (in place) metal bellows-type seal which is not susceptible to this type of failure. Also, it is provided with a backup spring seal to limit leakage in the unlikely event of a rupture of the main seal, and since spent fuel would not become uncovered, Shoreham would not be subject to the type of failure nor the potential consequences described in the bulletin.

The inspector had no further questions. This item is considered closed.

2.3 (closed) Unresolved Item (84-38-01): Fire Brigade Member Annual Physical Examinations.

During a previous inspection of the fire protection program, a region-based inspector reviewed licensee compliance with Station Procedure Number 39.500.03 which requires that members of the Fire Brigade receive a physical examination annually, to determine their fitness and ability to perform the physically strenuous work associated with fire fighting activities. The inspector found that the members of the fire brigade had not as yet received this physical examination. The licensee explained that this was because this fire brigade was established in November 1983, in order to succeed the construction fire brigade, who until that time had the responsibility for fire fighting. The licensee committed, during the previous inspection, to medically certify all members of the fire brigade within 45 days.

During this inspection period, the resident inspector reviewed this area and found that currently qualified Fire Brigade members have received their annual physicals and that the licensee has a tracking system to aid in keeping the physical exams current with the annual requirement.

2.4 (closed) Unresolved Item (84-38-02): Fire Brigade Member Training Records.

During a previous inspection of the fire protection program, a region-based inspector reviewed the training records of fire brigade members for calendar years 1983 and 1984 to ascertain that they had successfully completed the required quarterly training/meeting, quarterly drill, and yearly hands-on fire extinguisher practice. The inspector found the records to be acceptable. However, the inspector noted that the licensee did not have a monitoring program that would assure that all members of the fire brigade receive the required training or participate in drills at the required frequencies.

The licensee was cognizant of this deficiency and stated that they were establishing a procedure (a computer run) that would monitor these training activities. The licensee committed to have this procedure established within 30 days. During this inspection period the resident inspector reviewed this training status report printout and verified it to be a functional means of monitoring the fire brigade training program.

The resident inspector had no further questions; this item is considered closed.

2.5 (open) Violation 84-50-03: Quality Assurance Deficiency System Management Overview.

During a previous inspection period the resident inspector reviewed the Quality Assurance deficiency reporting/tracking system and found that the licensee's program for ensuring that LILCO Deficiency Report (LDR) findings have corrective actions identified in a timely manner was lacking. Specifically, the inspector found twenty-three LDR's greater than ninety days old for which no

licensee corrective action had been established. This situation resulted in issuance of a Severity Level V violation (Supplement I) to the licensee against 10CFR50, Appendix B requirements.

During this inspection period the resident inspector reviewed corrective actions submitted by the licensee to the NRC for this violation. The inspector also reviewed the licensee approved dispositions which had been established subsequent to the violation for some of the LDR's and found the dispositions acceptable without further questioning on LDR's 1538, 1736, 1759, 1840, 1844, 1982, 2092, 2155, 2215, 2324, 2368, 2379, 2403, 2457, 2466 and 2488. The inspector will review the remaining LDR dispositions, when they are ready, during a subsequent inspection.

The violation corrective actions, submitted in a timely manner by the licensee, stated that if an LDR has "remained unanswered" after ninety days, the QA Manager will transmit a request to the responsible action party requesting evaluation of LDR significance and information concerning an estimated completion date. The licensee response further states, with regard to the NRC request for a date when full compliance will be achieved, that the above described ninety (90) day notification to responsible parties by the QA Manager will be in effect April 1, 1985. This response appears to incorporate some follow-up shortcomings similar to those which may have contributed to the condition of non-compliance found by the resident inspector. Specifically, the licensee response shortcomings are as follows:

1. The corrective action statement focuses on "unanswered" LDR's whereas many of the delinquent LDR's had been answered, but lacked QA Department approval of the proposed corrective action. At some point, if acceptable corrective actions have not been provided by the responsible organization to the QA Department, some means should exist for imposing a corrective action that is acceptable to the QA Department.
2. The licensee response to the citation stated that "The LILCO Deficiency Report (LDR) was the method adopted by Quality Assurance in 1976 to implement the requirements of 10CFR50 Appendix B, Criteria 15. The program that LILCO uses to document and track significant deficiencies or trends adverse to quality will continue to be the Corrective Action Request." Considering the lesser significance of the deficiencies tracked by the LDR versus the CAR system, the deficiencies should be more readily solvable and the corrective actions should therefore be identified and approved for implementation by the QA Department with less time and effort. However, the licensee response indicates that at the ninety day point, absent a QA Department approved corrective action for the steps to be taken to clear the deficiency, the QA Manager will then request more information of the responsible party. This course of action, at this point in time, is a weak approach to resolving the matter of unapproved corrective actions for minor items which have existed for an already prolonged period of time.

3. The licensee gave April 1, 1985 as the date when full compliance will be achieved. This date corresponds to when the plan to have the QA Manager transmit requests to responsible action parties (of LDR's older than ninety days) requesting evaluations of LDR significance and information concerning an estimated completion date will become effective. The discrepant condition cited in the violation was programmatic as well as specific to certain LDR's greater than ninety days old, as of January 3, 1985, having no QA Department approved corrective action. The licensee reply was not responsive to the NRC request for a date when these LDR's would all have QA approved corrective actions identified.

Prompt attention by management to the resolution of these QA program discrepancies is necessary in order to restore full program effectiveness and credibility. This item remains open pending resolution of these NRC concerns.

2.6 (open) Unresolved Item (84-18-01): Radwaste Building Flooding.

A previous inspection report documents the status of resolution on this item as pending completion of a sample survey of piping system flexible joints for proper installation.

On May 9, 1984 7,000 gallons of uncontaminated water were spilled from the regenerative evaporator portion of the liquid radwaste system when a flexible rubber piping joint ruptured in the 12 inch discharge side of the regenerative evaporator pump. The rupture hole size was estimated to be 3/4 inch in diameter. An inspection by the licensee of the ruptured flexible rubber joint, in the regenerative evaporator portion of the liquid radwaste system, revealed that the joint had been improperly installed. Specifically, the joint (1G11-EXJ-046), as documented in Engineering and Design Coordination Report L-586 (dated June 5, 1984) was over-stretched by approximately 0.70 inches, and the control rods for this joint were installed improperly with nuts on the inside face of the joint flange faces. This installation was contrary to the requirements of E&DCR F25796A issued September 24, 1980.

During this inspection period, the resident inspector conducted a follow-up inspection on this item and was informed by the licensee that the sample survey of other piping system flexible joints had identified additional installation problems as follows:

- . Turbine Building Closed Water Exp. Joint (1R41-EXJ-012A) (LDR#85-049)

During the expansion joint reviews for correct installation, it was determined that the flange to flange dimension was 11 1/2 inches while the spec. requirement is 11 inches plus 7/16 inches allowable elongation. Also, the rubber exp. joint control rods are improperly adjusted.

- Turbine Building Closed Cooling Water Exp. Joint (1P41-EXJ-011A&B) (LDR#85-050)

During the expansion joint review for correct installation, it was determined that the flange to flange dimension for "B" joint during operation of the equipment was too large, i.e. 12 3/16 inches vs a nominal of 11 inches. In both cases the joints were elongated beyond the vendors allowable of 7/16 of an inch. The control rods were in both cases incorrectly adjusted.

- Turbine Building Service Water Exp. Joint (1P41-EXJ-049A) (LDR#85-051)

During the expansion joint review for correct installation, it was determined that the flange bolts were 1 inch rather than 1 1/8 inch which is required for an 18 inch 125 pound flange.

- Circulating Water Exp. Joint (1N74-EXJ-001C) (LDR#85-052)

During the expansion joint review for proper installation, it was determined that the joint had missing control rods, which are required per Spec. SH1-29.

The licensee has indicated that these findings will result in an increased number of piping system flexible joint installations being inspected. The resident inspector will make a follow-up review of this area during a subsequent inspection period.

This item remains unresolved.

3.0 Lead Acid Battery Installation Review

The resident inspector reviewed the installation of safety related batteries and their battery racks at the plant, along with the licensee's maintenance engineer. This inspection was prompted by an NRC, Office of Inspection and Enforcement, memorandum which informed the regional office that analysis by GNB Batteries, Inc. (formerly Gould, Inc.) indicates that battery racks and batteries at some nuclear power plants may be installed with an improper end gap between the stringers and cells. This memorandum stated that this end gap should be between 1/8 and 1/4 inch and that improper end gap installations are not consistent with seismic qualification testing.

The resident inspector and maintenance engineer inspected the A, B and C battery rooms and found that at several locations on the bank C1 battery installation the stringer to cell end gap measurement exceeded 1/4 inch. The licensee initiated Maintenance Work Request (MWR) No. 85-1833 to correct this condition.

This is unresolved item 85-18-01 until the above identified discrepant condition at the bank C1 battery installation is corrected.

4.0 4160 Volt Normal Bus Breaker 460 Rackdown

Board Notification 85-009 submitted the NRC staff conclusion that if 4160 volt normal bus breaker 460 is placed in a racked down position that the SSER No. 6 conclusions relative to meeting the single failure criteria during low power testing (phases III and IV) remain valid.

The resident inspector reviewed the station procedures for establishing this condition for breaker 460. The licensee has prepared a temporary procedure change notice for Station Procedure No. 23.308.01 (4160 volt Normal Bus Distribution) that would be implemented by the licensee upon receipt of a low power testing license for phases III and IV. This temporary procedure change notice calls for the racking down of 4160 volt normal bus breaker 11-1 (FSAR breaker 460) and verification of same. This procedure change would also modify the SP No. 23.308.01 steps pertaining to the alignment and status of alternate power supply feeder breakers to reflect the racked down position of breaker 460.

The inspector had no further questions.

5.0 Control Rod Drive Cooling Orifice Clogging

During this inspection period the licensee commenced a control rod drive (CRD) cleaning program as a result of indications of clogging in the CRD cooling water flow path of 60 CRD's. When a control rod is fully inserted, attempts to insert the rod further typically results in a CRD "stall" flow in the control room of 1.3-1.5 gpm associated with flow through unobstructed CRD cooling water passages. Although CRD operability has not been affected, the "stall" flow on 60 of the CRD's has dropped to the 0-0.8 gpm range. Attempts to free up the cooling water flow path by flushing were not successful and the licensee concluded, following consultation with General Electric, that inspection of the CRD cooling water orifice in each of the CRD's was necessary.

Inspection of the orifice in CRD (22-31) found a sliver of plastic like material measuring about 1/4 inch long by 1/16 inch at maximum diameter. This splinter was later determined, by laboratory analysis, to be teflon. Eight of the next nine CRD orifices were found, by the licensee, to have similar appearing slivers of material lodged in the orifice which has a 1/32 inch hole. The licensee suspected the slivers probably came from scram inlet valve teflon seats which the licensee assumed had previously been changed out and replaced by a stronger seating material called tefzell. However, inspection of one of the scram inlet valves by the licensee, determined that the seat material is teflon. The resident inspector observed the teflon seat to be shredded at the inside diameter, which appears to be the source of the orifice clogging splinters. Flow tests conducted following removal of the splinters from the orifices has shown a return to normal "stall" flows.

Completion of the CRD inspection program and resolution of the proper seating material for the scram inlet valves is unresolved item 85-18-02.

6.0 Emergency Diesel Generator (EDG) Air Start Check Valves

By copy of a letter to the NRC from Trans America DeLaval, Inc. (TDI), the licensee was formally notified of an air start check valve problem that occurred at Grand Gulf.

At Grand Gulf on March 11, during operational testing on Engine 74033, flames were noticed coming out of a flexible coupling on the Air Start Header Assembly. The Engine was shutdown and number 6 right bank Air Start Valve was removed. A 3/8 diameter, 7/8 long non-magnetic piece was observed lying on top of the Piston. This resulted in further examination, and it is felt that this piece broke off of a Starting Air Check Valve Disk. This Disk has a top and a bottom guide. It was found upon examination of the valves that this piece broke off of the bottom guide of one of these valves. The TDI EDG's at Shoreham utilize the same type of air start check valves which are manufactured by Williams Gauge Co., of Pittsburgh, Pennsylvania.

During this report period the licensee commenced an inspection of the air start check valves on all three TDI engines. Each engine utilizes two of these valves and the inspection of the EDG-102 check valves revealed apparently rejectable NDE-PT indications on one of the two valve disks. These findings were documented on LDR 85-056.

The resident inspector will continue to follow this licensee inspection effort and provide a follow-up status report in next month's inspection report.

7.0 Emergency Diesel Generator (EDG) Coil Guard Welds

During preparations for run-in testing of the Colt EDG's the licensee observed that four of the generator end coil guard stitch welds are broken on the EDG-902 generator. Inspection of the coil guard stitch welds on EDG's-901 and 903 revealed similar broken welds. These discrepancies have all been documented on LDR 85-036. The licensee has received approval from the generator manufacturer (Louis Allis Division of Magnetek, Inc.) of a repair weld procedure for these coil guard stitch welds and is proceeding to make the necessary repairs on site.

The resident inspector had no further questions.

8.0 Colt Diesel Generator Testing

During this inspection period the licensee commenced prerequisite checks for the EDG-903 engine run-in test on March 4, 1985, started the test on March 7 and successfully completed it on March 9, 1985. The run-in test performed was the same as that described in last month's report for EDG-901. The licensee estimates that EDG-902 run-in test prerequisite checks will commence on April 2 and that the testing will be completed by April 11, 1985.

9.0 Site Evacuation Exercise

At 11:45 a.m., March 20, 1985, the licensee initiated a practice evacuation of the Restricted Area by sounding the "warble" tone on the public address system. Personnel were informed via the public address system that this was a drill and that all personnel, except fire brigade, fire watch and emergency response personnel were to evacuate the protected area. The resident inspector observed the evacuation and found it to be conducted smoothly. The evacuation of personnel was complete by 12:05 p.m.

10.0 Site Tours

The resident inspector conducted periodic tours of accessible areas in the plant, in the new Colt Diesel Generator Building and around the site in general. During these tours the following specific items were evaluated:

- Fire Equipment - Operability and evidence of periodic inspection of fire suppression equipment;
- Housekeeping - Maintenance of required cleanliness levels;
- Equipment Preservation - Maintenance of special precautionary measures for installed equipment, as applicable;
- QA/QC Surveillance - Pertinent activities were being surveilled on a sampling basis by qualified QA/QC personnel;
- Security - Adequate security coverage for areas toured;
- Component Tagging - Implementation of appropriate equipment tagging for safety, equipment protection, and jurisdiction.

All items observed during general site/plant tours were found to be satisfactory.

11.0 Unresolved Items

Areas for which more information is required to determine acceptability are considered unresolved. Unresolved items are contained in paragraphs 2.5, 2.6, 3.0 and 5.0.

12.0 Management Meetings

At periodic intervals during the course of this inspection, meetings were held with licensee management to discuss the scope and findings of this inspection. Based on the NRC Region I review of this report and discussions held with licensee representatives on April 3, 1985, it was determined that this report does not contain information subject to 10 CFR 2.790 restrictions.

The resident inspector also attended the entrance and exit meetings for inspections conducted by region-based inspectors during the period.