

U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No.: 50-322/88-02

Docket No.: 50-322


Licensee: Long Island Lighting Company
Post Office Box 618
Shoreham Nuclear Power Station
Wading River, New York 11792

Inspection At: Wading River, New York

Inspection Conducted: February 21, 1988 - April 29, 1988

Inspector: F. J. Crescenzo, Senior Resident Inspector

Approved By:


A. Randy Blough, Chief
Reactor Projects Section No. 3B
Division of Reactor Projects

6-2-88
Date

Inspection Summary

Areas Inspected: Routine Resident Inspection of plant operations, radiation protection, security, plant events, maintenance, surveillance, outage activities, and reports to the NRC. One hundred eighty five hours of direct inspection effort were expended for this inspection.

Results: No violations were identified. The licensee responded promptly, thoroughly, and professionally to issues and events during this period. The inspector noted a declining trend in the performance of maintenance activities which the licensee is addressing.

DETAILS

1. Followup on Previous Inspection Items (MC 93702)

1.1 (Closed) Violation 87-10-01

Failure to adequately perform sample of the Standby Liquid Control Tank (SBLC)

This violation occurred as a result of the licensee's failure to obtain an adequate sample of the SBLC tank prior to entering operational condition 2. The sample was required to verify the isotopic concentration of boron-10 within the tank and was to be performed after the sodium-pentaborate powder was mixed with water. The licensee had misinterpreted this requirement and performed an isotopic analysis of the sodium-pentaborate powder prior to mixing it into the SBLC tank. The inspector reviewed the licensee's corrective actions as documented in SNRC letter 1376 to W. T. Russell, (NRC) from J. D. Leonard (LILCo) dated October 2, 1987. The inspector had no further questions.

This item is closed.

1.2 (Closed) Inspector Follow Item 86-12-03

Response to IE Notice 86-53, Improper Installation of Heat Shrinkable Tubing

The inspector reviewed the licensee's actions to identify and disposition Raychem Heat Shrinkable tubing installations which could be non-environmentally qualified. The licensee has instituted an extensive program to identify and inspect all installations of this type within systems or components required to be operable during accident conditions. As a result of discrepancies found, the licensee has broadened the scope of the inspections to include other manufacturers of heat shrinkable tubing and electrical components. The results of these inspections have been discussed in previous NRC inspection reports 50-322/87-10 and 50-322/87-15. These inspection reports carry inspector tracking items which will include the scope of this follow item.

This item is closed.

1.3 (Closed) Inspector Follow Item 87-16-01

Defective fittings installed in Safety Related Systems

This item concerned defective fittings which were supplied to the licensee from Guyon Industries, now Radnor Industries, of Harrison, New Jersey. The fittings were purchased to ASME section 3 specifications which allow no linear indications greater than one sixteenth inch in length. Fifteen percent of the approximately 7000 fittings of various size and dimension were found to have rejectable indications. The majority of these were never installed in plant systems but were held in the warehouse. The licensee has completed an extensive effort to identify, inspect, and disposition all such fittings installed in class 1 systems and an appropriately sized sample from class 2 and 3 systems. Of the installed fittings which were inspected, approximately 10% had indications which required blending, however, none required replacement. The inspector reviewed the documentation regarding this issue and periodically observed activities associated with the dispositioning of individual fittings. The inspector found the licensee's actions to resolve this issue to be exceptionally thorough. The inspector had no further questions relating to this issue.

This item is closed.

1.4 (Closed) Inspector Follow Item 87-15-01

Emergency Diesel Generator Turbocharger Diffuser Cracking

This item addressed cracking which the licensee had identified on the Emergency Diesel Generator (EDG) Turbocharger Diffuser. The cracking was visually identified on the 101 EDG during the performance of a routine 18 month maintenance/inspection surveillance and was subsequently identified on the remaining two diesel units. The licensee consulted with the vendor of the diffuser (Elliot) and with another utility which had experienced similar diffuser cracking. The licensee has determined that the flaws were hot tears or shrinkage cracks resulting from tri-directional solidification of molten metal during the casting process. Additionally, the licensee has determined, based on this analysis and industry experience, that the flaws were not of a critical nature and that gross failure of the turbocharger would not have occurred. It should be noted that the licensee completed weld repairs of the identified cracks and has purchased a spare diffuser in order to minimize scheduling impact should cracking be found in the future. The licensee has also added a specific

section to the 18 month inspection procedure (SP 34.307.01 Rev. 12) to include a liquid penetrant examination of the turbocharger. The inspector reviewed the licensee's actions and conclusions with respect to this issue and consulted with regional specialist inspectors. The inspector found the licensee's actions and conclusions relating to this issue to be complete and adequate. The inspector had no further questions.

This item is closed.

1.5 (Closed) Inspector Follow Item 85-09-01

Surveillance of Main Steam Isolation Valve Leakage Control System (MSIVLCS) one minute timers.

This item addressed a concern that certain one minute timers within the MSIVLCS were not adequately tested during performance of the 18 month functional surveillance test SP 24.406.03. The timers are part of a logic circuit designed to detect gross leakage past the inboard MSIV's following system initiation and to initiate an MSIVLCS isolation. The licensee has revised the procedure to include a functional test of the subject timers. The inspector reviewed the revision and found it to be adequate. The inspector had no further questions relating to this issue.

This item is closed.

1.6 (Closed) Notice of Violation dated March 28, 1988

This Notice of Violation documented five non-compliant conditions identified during an NRC inspection conducted on January 27 through February 14, 1986 and two subsequent investigations conducted by the NRC Office of Investigation (OI) in response to an allegation received by the NRC concerning deficiencies in the radiochemistry department. The licensee replied to the Notice of Violation in letter SNRC-1454 dated April 27, 1988. The inspector reviewed the licensee's discussion of the corrective actions taken to achieve compliance. Specifically, the inspector focused attention to those aspects of the licensee's corrective actions which dealt with increased management attention to implementation of the radiochemistry program and to the responsiveness of management to Quality Assurance findings. The inspector concurred with the licensee's assessment that program changes within the radiochemistry department have resulted in substantial improvements in the management effectiveness of the program. Recent regional specialist inspections of the radiochemistry department and the most recent SALP category 1 rating support this conclusion. The Quality Assurance department has conducted

in-depth audits of the radiochemistry department on a bi-annual basis since identification of the subject program deficiencies. These audits produced significant findings and observations which were promptly acted upon by plant management. The most recent audit found only minor observations and concluded that the program was being effectively implemented. This has resulted in a management decision to return the frequency of the radiochemistry audits to the normal annual basis. NRC inspections and reviews have found senior management attention to Quality Assurance identified problems to be excellent in all areas of facility operation. The most recent SALP assigned a Category 1 rating for Assurance of Quality.

Two of the non-compliant conditions identified in the NOV dealt with falsification of records. These concerns, in their specific context, had not previously been addressed by the licensee in discussions or meetings with NRC personnel. The inspector found the licensee's issuance of a memorandum reiterating the policy and seriousness surrounding falsification of records to be adequate. It should also be noted that the persons involved in the subject falsifications are no longer employed by the licensee.

Several NRC inspection reports have been issued since February, 1986, which document the adequacy of the licensee's corrective actions. These include the following: 50-322/86-07, 86-08, 86-10, 86-14, and 86-11.

This item is closed.

1.7 (Closed) Actions in Response to NRC Compliance Bulletin 87-02
(TI 2500/26, MC 92703)

NRC Inspection Report 50-322/87-22 discussed the licensee's actions relating to NRC Compliance Bulletin 87-02. This issue was held open pending review of the licensee's final response to the bulletin. The inspector reviewed the final responses submitted by the licensee and had no further questions.

This item is closed.

2. Operational Safety Verification (MC 71707, 71709, 71881, 93702)

2.1 Inspection Activities

On a daily basis throughout the report period, inspections were conducted to verify that the facility was operated safely and in conformance with regulatory requirements. The licensee's management control system was evaluated by direct observation of activities, tours of the facility, interviews and discussions with licensee personnel, independent verification of safety system status and limiting

conditions for operation, and review of facility records. The licensee's compliance with the radiological protection and security programs was also audited. Significant events which occurred during the inspection period were followed or investigated by the inspector. These inspections were conducted in accordance with NRC inspection procedures 71707, 71709, 71881 and 3702.

2.2 Inspection Findings

The unit remained in cold shutdown throughout the period of this report. Significant work activities continued on the Colt diesel modifications. The licensee also continued activities associated with inspections of electrical equipment to environmental qualification standards. Routine maintenance and surveillance activities were also conducted.

No violations were identified by the inspector.

3. Surveillance Testing (MC 61726)

3.1 Inspection Activity

During this inspection period the inspector performed detailed technical procedure reviews, witnessed in-progress surveillance testing, and reviewed completed surveillance packages. The inspector verified that the surveillance tests were performed in accordance with Technical Specifications, licensee approved procedures, and NRC regulations. These inspection activities were conducted in accordance with NRC inspection procedure 61726.

3.2 Inspection Findings

No violations were identified.

4. Maintenance Activities (MC 62703)

4.1 Inspection Activity

During this inspection period the inspector observed selected maintenance activities on safety related equipment to ascertain that these activities were conducted in accordance with approved procedures, Technical Specifications, and appropriate industrial codes and standards. These inspections were conducted in accordance with NRC inspection procedure 62703.

4.2 Inspection Findings

No unacceptable conditions or violations were directly observed by the inspector during the inspection period.

The inspector has noted an increase in the number of personnel errors associated with maintenance activities. This trend has been observed over the past several months. More specifically, the following personnel errors have been noted:

- On December 29, 1987, a maintenance crew performed work on the wrong valve. Details of this are described in NRC Inspection Report 50-322/87-22.
- During January, 1988, two motor operated valves were rewired incorrectly resulting in backwards operation of the valves. These deficiencies were identified by the licensee prior to returning the valves to service.
- A maintenance worker performed minor maintenance on the High Pressure Injection System (HPCI) booster pump thinking he was working on the HPCI pump. This activity was observed by the licensee's quality assurance group as part of a maintenance program audit conducted during February, 1988.
- The licensee has identified numerous instances of minor non-compliance with its Maintenance Work Request form program.

The inspector reviewed the above events and determined that each was of minor significance when considered independent of each other. The inspector discussed with senior plant management the apparent negative trend in field performance of Maintenance and Quality Control personnel. The inspector noted that plant management has self-identified this trend and has taken positive actions to prevent further incidents. These actions have included discussions and training with personnel to reiterate the need for attention to detail while conducting maintenance activities. For those incidents involving Quality Control, significant personnel actions were taken against individual inspectors. The inspector found these actions to be appropriate and adequate, however, future events resulting from these type personnel errors will continue to be evaluated by the inspector. Evaluations of future events of this nature for regulatory significance will include trending consideration as well as the safety significance of each event.

5. Engineered Safety Feature (ESF) System Walkdown (MC 71710)

5.1 Inspection Activity

The inspector verified the operability of selected ESF systems by performing a walkdown of accessible portions of the system to confirm that system lineup procedures match plant drawings and the as-built configuration. This ESF system walkdown was also conducted to identify equipment conditions that might degrade performance, to determine that instrumentation is calibrated and functioning, and to verify that valves are properly positioned and locked as appropriate. This inspection was conducted in accordance with NRC inspection procedure 71710.

5.2 Inspection Findings

The Residual Heat Removal System, Core Spray System, and Emergency AC Distribution System were inspected and found to be acceptable.

No violations were identified.

6. Licensee Reports (MC 92700, 36100)

6.1 In Office Review of Licensee Event Reports

The inspector reviewed Licensee Event Reports (LERs) submitted to the NRC to verify that details were clearly reported, including accuracy of the cause description and adequacy of corrective actions. The inspector determined whether information was required from the licensee, whether generic implications were involved, and whether the event warranted onsite follow-up. These reviews were conducted in accordance with NRC inspection procedure 92700. The following LERs were reviewed:

LER 88-01: Loss of continuous monitoring/sampling of Station Ventilation Exhaust.

LER 87-02: Missed Fire Protection surveillances

LER 87-35: Unplanned automatic initiation of RBSVS "A" Train due to technician error during surveillance.

The inspector had no further questions related to these LERs.

7. Suspected crack propagation on Emergency Diesel Generator (EDG) 102

On April 4, 1988, the licensee obtained indications that a previously identified crack on the EDG 102 had grown in depth from 0.052 inches to 0.195 inches. The crack is one of several located on the engine cam gallery saddle which the licensee must periodically inspect to comply with License Condition D of attachment 3 to the facility license NPF-36. License Condition G of attachment 3 also requires NRC staff evaluation of any "degraded conditions" and NRC staff approval prior to further operation of the engine. The licensee consulted with Failure Analysis Associates (FAA) of Palo Alto, CA to determine the cause of the growth indication and to assess the impact on safety and reliability of the EDG 102 due to the growth of the indication. The results of the FAA study produced the following significant conclusions:

- The crack in question has been exposed to compressive stresses only and no credible overstressing of the crack area has occurred since licensing of the engines. This leads to the conclusion that no condition has been present to cause growth in crack depth.
- The method of examination used by the licensee to measure the crack depth, although state of the art, is subject inaccuracies. The instrument used in these examinations operates by passing an electrical current along the inner surface of the crack. Because of this, small metal ligaments which form bridging current paths within the crack will cause readings less than the true crack depth. The subsequent degradation of these ligaments due to oxidation or local stresses causes an immediate growth in indicated crack depth. This is believed to be the cause for the indicated growth of the crack.

The licensee has completed its review of the FAA report and has concurred with the conclusions. The licensee has also determined that the indicated crack growth does not represent a "degraded condition" and therefore NRC evaluation and approval is not required. The inspector, along with regional specialist inspectors, reviewed the licensee's actions relating to this issue and found no cause for disagreement with the licensee conclusions.

8. Region I Temporary Instruction 88-01

The inspector completed the subject Temporary Instruction which concerned review of the licensee's fitness for duty program. No concerns were identified by the inspector, and the information obtained was provided to NRC Region I.

9. Management Meetings (MC 30702)

At periodic intervals and at the completion of this inspection, the inspector briefed the licensee management on the scope and findings of this inspection.

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

These activities were conducted in accordance with NRC inspection procedure 30702.