

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-322/82-24

Docket No. 50-322


License No. CPPR-92 Priority - Category B

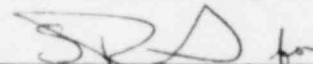
Licensee: Long Island Lighting Company
175 East Old Country Road
Hicksville, New York 11801

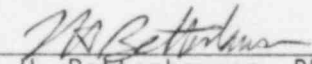
Facility Name: Shoreham Nuclear Power Station

Inspection at: Shoreham, New York

Inspection conducted: September 7-10, 1982

Inspectors:  9/28/82
S. A. Richards, Reactor Inspector date

 9/28/82
L. R. Plisco, Reactor Inspector date

Approved by:  9/29/82
L. H. Bettenhausen, Ph.D., Acting Chief, date
Plant Systems Section

Inspection Summary: Inspection on September 7-10, 1982 (Report No. 50-322/82-24)

Areas Inspected: Routine, unannounced inspection of licensee actions on previous inspection findings; the Plant Fire Protection/Prevention Program in the areas of Administrative Controls and Fire Brigade Training; and licensee actions regarding cable separation requirements. The inspection involved 52 inspection hours onsite and 8 hours of inoffice review by two region based inspectors.

Results: No violations were identified.

DETAILS

1. Persons Contacted

Long Island Lighting Company (LILCO)

R. De Rocher, Quality Assurance Engineer
*M. Giannattasio, Assistant Superintendent-Construction
*R. Gutmann, Maintenance Engineer (Fire Protection)
*G. Henry, Operational Quality Assurance Engineer
*R. Hohlman, Assistant Project Engineer
*W. Hunt, Assistant Construction Manager
*J. McCarthy, Field Quality Assurance Section Supervisor
L. Mofatt, Technical Training Specialist
*G. Price, Senior Assistant Project Engineer
P. Quinan, Maintenance Coordinator (Fire Protection)
*T. Spatz, Assistant Project Engineer

Stone and Webster Engineering Corporation (SWEC)

P. Baker, Structural Engineer
E. Hall, Quality Control Supervisor - Electrical
O. Melucci, Quality Control Inspector
R. Morris, Electrical Design Supervisor
K. Mullen, Field Support Engineer
W. Riess, Superintendent of Electrical Special Projects
J. Wright, Senior Electrical Engineer

U.S. Nuclear Regulatory Commission

*P. Hannes, Resident Inspector
*J. Higgins, Senior Resident Inspector

*Denotes personnel present at the exit meeting on September 10, 1982.

2. Licensee Action on Previous Inspection Findings

(Closed) Violation (322/79-07-02): Installation of cable into raceway which is known to violate separation criteria. The inspector reviewed a sampling of Engineering and Design Coordination Reports (E&DCR) which had been issued to identify cable separation violations and determined that the E&DCR's were being properly dispositioned to meet the separation criteria as described by the Shoreham Final Safety Analysis Report (FSAR) and the licensee's electrical installation specifications. This violation is closed. Electrical cable separation is further discussed in paragraph 3.

(Closed) Inspector Follow Item (322/82-04-03): Cable separation criteria for cables transiting between raceways or conduits not adequately defined; measurement of distance between cable trays is "bottom to bottom" vice "bottom to top." The licensee has issued EDCR F-41238D which defines the separation criteria for electrical cable in free air. Implementation of the program to meet these criteria is further discussed in paragraph 3. The inspector reviewed licensee documentation related to the measurement of cable separation and noted that the measurement of vertical distance between cable trays from the bottom of the lower tray to the bottom of the upper tray is consistent with the FSAR and with NRC regulatory requirements applicable to the Shoreham Nuclear Power Station (SNPS). This item is closed.

3. Electrical Cable Separation

The inspector reviewed licensee procedures, inspection reports, and correspondence associated with maintaining electrical cable separation to determine whether cable separation implementation at SNPS is consistent with the FSAR, industry codes and standards, and NRC regulatory requirements. For this determination, the following documents were reviewed.

- SNPS FSAR, Section 3.12,
- Institute of Electrical and Electronics Engineers (IEEE) Standard 384-1974, "Criteria for Separation of Class 1E Equipment and Circuits,"
- USNRC Regulatory Guide 1.75, Revision 2,
- Specification No. SHI-159, "Specifications for Electrical Installation," dated November 23, 1979,
- LILCO letters to the Office of Nuclear Reactor Regulatory (NRR) dated May 21, 1981 (SNRC-572), July 10, 1981 (SNRC-593), February 18, 1982 (SNRC-670), and June 18, 1982 (SNRC-712),
- NRR letters to LILCO dated August 31, 1981 and March 15, 1982,
- E&DCR Nos. F-41238, F-41238A, F-4 238D, F-41238E, F-39617 series A-W, F-39614, F-30610, F-30649, F-31315, F-19039,
- Quality Control Instruction (QCI) No. FS1-F12.1-18A, "Inspection of Tray Covers,"
- QCI No. FS1-F12.1-07D, "Inspections of Raceway Installation,"
- QCI No. FS1-F12.1-08I, "Inspection of Raceway (Conduit) Installation,"

- Quality Control Inspection Reports for cable installation in the Diesel Generator Room (Red),
- CABWRAP Cable Identification Report for the Screenwell Building and the Control Building Diesel Generator Room 103,
- Wyle Laboratories Report No. 56669, "Electrical Wire and Cable Isolation Barrier Materials Test for the Susquehanna Steam Electric Station Units 1 and 2 for Bechtel Power Corporation,"
- Wyle Laboratories Test Procedure No. 46287, dated August 6, 1982,
- NRC Staff Testimony on Electrical Separation in response to Suffolk County (SC) Contention 31 and Shoreham Opponents Coalition (SOC) Contention 19(g),
- NRC, SC, and SOC Agreement for Resolution of SC Contention 31/ SOC Contention 19(g) -- Electrical Separation,
- Okonite Company letter to SWEC dated June 28, 1982, and
- Kerite Company letter to SWEC dated July 12, 1982.

The licensee's separation criteria for cable in free air allows the separation distance between different division cables to be reduced if the cable is wrapped in a material called SILTEMP. The inspector requested data which showed SILTEMP to be qualified as an electrical barrier within the context of IEEE Standard 384-1974. The licensee provided test data to the inspector which qualified SILTEMP for use with control and instrumentation cable at the Susquehanna Steam Electric Station and stated that qualification of SILTEMP for use with 600 volt cable was presently being conducted by Wyle Laboratories for SNPS. The licensee also indicated that this testing would qualify the conduit and cable tray covers in use at SNPS as electrical barriers. This item is unresolved pending NRC review of the qualification data. (322/82-24-01)

The inspector questioned the possible thermal effects on electric cable caused by wrapping the cable in SILTEMP. SWEC correspondence with the manufacturers of cable used at SNPS indicates that the wrapping will have no adverse chemical effect on the cable jacket. However, the correspondence is inconclusive with regard to thermal effects. The licensee stated that the thermal effect on cable of the SILTEMP wrapping would be determined either by use of services provided by the cable manufacturers or by testing performed at Wyle Laboratories. This item is unresolved pending review of the associated test data. (322/82-24-02)

The licensee issued E&DCR F-41238D to define separation criteria for cable in free air as discussed in paragraph 2 above. A task group has been formed by the licensee to inspect the plant against separation criteria in order to identify cables which require either wrapping in SILTEMP or installing a solid barrier. The inspector noted that procedures existed for the installation and quality control inspection of cable wrapping, cable tray covers, and cable conduit. However, the activities of the task group to identify areas for wrap or tray cover installation were not well defined. The licensee agreed to develop a formal procedure to control this activity. This item is unresolved pending NRC review of the procedure. (322/82-24-03)

The inspector toured the Emergency Diesel Generator Room (Red Division) after reviewing documentation associated with the installation of cable wrapping and cable tray covers in the area. The inspector noted two examples where the separation of wrapped cable to cable tray did not meet the one inch minimum separation distance. Investigation by the inspector showed that the cables had been inspected and accepted by quality control personnel after the cable had been wrapped. The licensee provided objective evidence that the cables had been moved slightly as a result of unrelated work being performed in the area subsequent to the electrical quality control inspection. However, the final quality control inspection for the area had not yet been performed. The licensee took immediate action to correct one case and issued a Nonconformance and Deviation report to address the second case. Due to the fact that cable traversing from raceway to raceway normally has some flexibility for movement and in view of the relatively short minimum separation distance of one inch, the inspector expressed concern about the ability to maintain cable installation in accordance with separation criteria after final quality control acceptance. This will be particularly difficult in areas such as the cable spreading room. This item is designated as an inspector follow item. (322/82-24-04)

The inspector reviewed E&DCR F-41238E, which, when implemented, will revise the separation criteria for cable in free air. It was noted that the drawing for detail F1 was not consistent with details of the E&DCR as a whole. The licensee stated that the inconsistency in detail F1 appeared to be an oversight and would be corrected.

The inspector had no further questions in this area.

4. Fire Protection/Prevention Program

The inspector reviewed licensee procedures pertaining to the Fire Protection/Prevention Program to determine whether the licensee has developed adequate procedures consistent with the Fire Hazard Analysis Report, the FSAR, and applicable industry codes and standards.

The following procedures were reviewed:

- SP-39.500.01, Revision 1, "Organization and Administration of Fire Protection Program,"
- SP-39.500.02, Revision 1, "Fire Brigade Organization, Response, Practice and Drills,"
- SP-39.500.03, Revision 1, "Fire Protection Program Training,"
- SP-39.500.04, Revision 0, "Wading River Fire Department Interface,"
- SP-39.500.05, Revision 0, "Control and Use of Combustible Materials,"
- SP-39.500.06, Revision 0, "Fire Protection Permits, Watches Patrols, and Inspections,"
- SP-39.500.07, Revision 1, "Fire Protection Record System,"
- SP-39.506.01, Revision 0, "Fire Protection Equipment Inspection and Maintenance,"
- SP-12.023.01, Revision 2, "Station Housekeeping."

LILCO letter SNRC-572 to NRR, dated May 21, 1981, compares the SNPS Fire Protection Program to 10 CFR 50, Appendix R. With regard to Fire Brigade composition, Fire Brigade Training, and Administrative Controls, LILCO committed to comply with Appendix R requirements. The inspector noted that two administrative procedures did not specifically meet those requirements. Procedure SP-39.500.01 did not require the brigade leader and two brigade members to be knowledgeable of plant safety related systems. Procedures SP-39.500.01 and SP-39.500.02 did not require brigade members to receive an annual physical examination. The licensee agreed to revise the procedures to reflect Appendix R requirements. This item is unresolved pending NRC review of the revised procedures. (322/82-24-05)

While reviewing fire brigade training records, the inspector noted that, although brigade members had received appropriate training, Training Certification Sheets had not been completed as required by SP-39.500.03. The licensee stated that the station method for administratively recording training was under consideration for revision. Either the present certification sheet or a revised training form would be used. This item is designated an inspector follow item. (322/82-24-06)

The inspector observed that the Fire Protection Program was fully operational in the fuel storage area. The inspector verified that the shift watch bill designated the fire brigade members and that these members were properly trained.

The inspector reviewed the licensee's Cable Separation Analysis Report which analyzes the effect of a fire on the ability to achieve safe shutdown of the plant. Review of this report is discussed in NUREG 0420 Safety Evaluation Report, Supplement No. 1. The licensee informed the inspector that the analysis was being revised to address the loss of larger sections of the secondary containment due to a fire and to ensure the "as built" condition of the plant is reflected in the analysis. The revised report will be submitted to NRC for review.

The inspector had no further questions in this area.

5. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable, deviations, or violations. Unresolved items identified in this report are discussed in paragraphs 3 and 4.

6. Exit Interview

The inspector met with licensee representatives denoted in paragraph 1 at the conclusion of the inspection on September 10, 1982. The inspector summarized the scope and findings of the inspection. The NRC Senior Resident Inspector and the Resident Inspector were present at the meeting.