November 8, 1982

In the Matter of
Long Island Lighting Company
(Shoreham Nuclear Power Station, Unit 1)
Docket No. 50-322 (OL)

NOTE TO ATTACHED SERVICE LIST

Enclosed are copies of the following NRC Region I Inspection Reports:

82/19 (dated October 15, 1982)
82/24 (dated October 15, 1982).

Sincerely,

Bernard M. Bordenick
Counsel for NRC Staff

Enclosure:
As Stated

Distribution:
Bordenick/Dewey
Repka/Perlis
Reis/Lessy
Murray
Christenbury/Scinto
Chron (2)
J. Norris-AR-5008
A. Schwencer-116C
F. Weinkam/R. Gilbert-330
J. Higgins
OELD Formal Files (2)
Docket Files/PDR/LPDR

DS07

| OFC | :OELD BMB | :OELD | : | : | : | : |
|---|---|---|---|---|---|---|
| NAME | :BBordenick | :EReis/sab | : | : | : | : |
| DATE | :11/08/82 | :11/8/82 | : | : | : | : |

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

| | | |
|---|---|---|
| In the Matter of | ) | |
| | ) | |
| LONG ISLAND LIGHTING COMPANY | ) | Docket No. 50-322 |
| | ) | (OL) |
| (Shoreham Nuclear Power Station, Unit 1) | ) | |

Lawrence Brenner, Esq.
Administrative Judge
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dr. James L. Carpenter
Administrative Judge
Atomic Safety and Licensing Board
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Washington, DC 20555

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Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Atomic Safety and Licensing
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Office of the Secretary
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Daniel F. Brown, Esq.
Attorney, Atomic Safety and
Licensing Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

COURTESY COPY LIST

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General Counsel
Long Island Lighting Company
250 Old County Road
Mineola, NY 11501

Mr. Brian McCaffrey
Long Island Lighting Company
175 East Old Country Road
Hicksville, New York 11801

Marc W. Goldsmith
Energy Research Group, Inc.
400-1 Totten Pond Road
Waltham, MA 02154

David H. Gilmartin, Esq.
Suffolk County Attorney
County Executive/Legislative Bldg.
Veteran's Memorial Highway
Hauppauge, NY 11788

Mr. Jeff Smith
Shoreham Nuclear Power Station
P.O. Box 618
North Country Road
Wading River, NY 11792

MHB Technical Associates
1723 Hamilton Avenue
Suite K
San Jose, CA 95125

Hon. Peter Cohalan
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Mr. Jay Dunkleberger
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Agency Building 2
Empire State Plaza
Albany, New York 12223

OCT 15 1982

Docket No. 50-322

Long Island Lighting Company
ATTN: Mr. M. S. Pollock
Vice President - Nuclear
175 East Old Country Road
Hicksville, New York 11801

Gentlemen:

Subject: Inspection No. 82-19

This refers to the special inspection conducted by Mr. Richard H. Harris of this office on July 19, 1982, in the regional office and August 2-13, 1982, at Shoreham Nuclear Power Station, Shoreham, New York, of activities authorized by NRC License No. CPPR-95 and to the discussions of our findings held by Mr. Harry Kerch with Mr. J. M. Kelly of your staff at the conclusion of the inspection.

Areas examined during this inspection are described in the NRC Region I Inspection Report which is enclosed with this letter. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations by the inspector. In addition, physical measurements were made by the inspector using independent measurements procedures and the NDE Mobile Van.

Based on the results of this inspection, it appears that one of your activities was not conducted in full compliance with NRC requirements, as set forth in the Notice of Violation, enclosed herewith as Appendix A. This violation has been categorized by severity level in accordance with the NRC Enforcement policy (10 CFR 2, Appendix C) published in the Federal Register Notice (47 FR 9987) dated March 9, 1982. You are required to respond to this letter and in preparing your response, you should follow the instructions in Appendix A.

The responses directed by this letter and the accompanying Notice are not subject to the clearance procedures of the Office of Management and Budget as required by the Paperwork Reduction Act of 1980, PL 96-511.

In accordance with 10 CFR 2.790(a), a copy of this letter and the enclosures will be placed in the NRC Public Document Room unless you notify this office, by telephone, within ten days of the date of this letter and submit written application to withhold information contained therein within thirty days of the date of this letter. Such application must be consistent with the requirements of 2.790(b)(1). The telephone notification of your intent to request withholding, or any request for an extension of the 10 day period which you believe necessary, should be made to the Supervisor, Files, Mail and Records, USNRC Region I, at (215) 337-5223.

Your cooperation with us in this matter is appreciated.

Sincerely,

Original Signed By: Stewart D. Ebneter

for Thomas T. Martin, Director
Division of Engineering and Technical
Programs

Enclosure:
NRC Region I Inspection Report Number 50-322/82-19

cc w/encl:
J. Rivello, Plant Manager
J. L. Smith, Manager of
Special Projects
Director, Power Division
Edward M. Barrett, Esq.
Jeffrey L. Futter, Esq.
T. F. Gerecke, Manager, QA Department
Public Document Room (PDR)
Local Public Document Room (LPDR)
Nuclear Safety Information Center (NSIC)
NRC Resident Inspector
State of New York

bcc w/encl:
Region I Docket Room (with concurrences)
L. Narrow, Region I
Chief, Operational Support Section (w/o encls)
Wolfgang Landan
R. M. Gallo

| RI:DETP | RI:DETP | RI:DETP | RI:DETP |
|---|---|---|---|
| Harris/lp | Kerch | Durr | Ebneter |
| 9/13/82 | | 9/19/82 | 10/12 |

OFFICIAL RECORD COPY

APPENDIX A

NOTICE OF VIOLATION

Long Island Lighting Company
Shoreham

Docket No. 50-322
License No. CPPR-95

As a result of the inspection conducted during July 19 - August 12, 1982, and in accordance with the NRC Enforcement Policy, (10 CFR 2, Appendix C) published in the Federal Register Notice (47 FR 9987) dated March 9, 1982, the following violation was identified.

10 CFR 50.55a(d) Piping, requires that for Construction Permits issued after January 1, 1971, but before July 1, 1974, the reactor coolant pressure boundary piping must meet Class I requirements set forth in USAS B31.7.

Nuclear Power Piping ANSI B31.7, paragraph B-1-120.2(c), requires at least one penetrameter for each exposure and paragraph B-1-120.1 requires surface irregularities on both ID and OD be removed to a degree that resulting radiographic contrast cannot mask or be confused with the image or an objectionable defect.

Contrary to the above, on August 4, 1982, Associated Piping & Engineering Corporation radiographs were reviewed and found not to meet USAS B31.7 in that:

(1) Weld radiograph 1B21SH34-1-05, PS-1-A5, weld "B", views 15-20 and 25-0 did not have one penetrameter for each exposure.

(2) Weld radiograph APE 14398 61871 E1113WD25D1, film area 3-4 had indication of surface irregularities on the OD that could mask or be confused with objectionable defects. The indications of surface irregularities were not identified nor dispositioned.

This is a Severity Level IV violation (Supplement II).

Pursuant to the provisions of 10 CFR 2.201, Long Island Lighting Company is hereby required to submit to this office within 30 days of the date of this Notice, a written statement or explanation in reply, including: (1) the corrective steps which have been taken and the results acheived; (2) corrective steps which will be taken to avoid further violations; and (3) the date when full compliance will be achieved. Where good cause is shown, consideration will be given to extending this response time.

U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Report No. 50-322/82-19

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

Inspection At: Shoreham, New York

Inspection Conducted: July 19 - August 13, 1982

Inspectors: _____ _____
Harry W. Kerch date
Mechanical Engineer (NDE)

_____ 9/16/82
Richard H. Harris date
Engineering Technician

Approved By: _____ 9/19/82
Chief, Materials & Processes Section date

Inspection Summary:

Inspection on July 19 - August 13, 1982 (Report No. 50-322/82-19)

Areas Inspected: A routine, announced NRC independent measurements inspection of construction. The Mobile (NDE) Van and two region based personnel assisted by two NRC sub-contract nondestructive examination personnel were utilized. The inspection involved 393 on site inspection hours and 145 off site hours. The purpose of this program was to verify the adequacy of the licensee's welding quality control program. A representative sample of piping systems, sizes, and materials were reexamined to ASME and AWS requirements.
Results: One violation was identified in that two radiographs did not have required penetrameters and proper dispositions.

## DETAILS

1. Persons Contacted

Long Island Lighting Company (LILCO)

*J. M. Kelley, QA Manager (field)
*W. J. Museler, Construction Engineer
*M. H. Milligan, Project Engineer
*T. F. Gerecke, QA Manager

Stone and Webster (S&W)

*R. S. Costa, PQA Manager
*T. T. Arrington, Superintendent FQC
*B. C. Jersild, QA Engineer

U. S. Nuclear Regulatory Commission

*J. Higgins, Senior Resident Inspector
*H. W. Kerch, NRC Inspector
*R. H. Harris, NRC Technician
*J. P. Durr, Chief, M&PS

*Denotes those present at exit meeting on August 13, 1982.

2. Independent Measurements - NRC Nondestructive Examinations and Quality Records Review of Safety Related Piping System:

During the period from July 19 thru July 30, 1982, Quality Records received from Shoreham Nuclear Power Station were reviewed at Region I for completeness and compliance to the licensee's FSAR commitment to applicable codes, standards, and specifications.

An independent verification inspection was conducted during the weeks of August 2, 1982, through August 13, 1982, using Region I Mobile NDE laboratory. This inspection was conducted by Region I Engineering personnel in conjunction with two (2) NDE technicians contracted from Wisconsin Industrial Testing Co. under the supervision of Region I NRC.

The purpose of this examination was to verify the adequacy of the licensee's quality control program. In addition to the required examinations, pipe wall thickness measurements, hardness test and material analyses were performed.

A random sampling was made by the NRC resident inspector, intended to provide a representative sample of piping systems, components, pipe size, materials, shop and field welds to AWS and ASME Class 1, 2, and 3 codes. The items selected were previously accepted by the licensee based on vendor shop and onsite NDE records and process sheets by licensee contractors.

2.1 Nondestructive Examination Procedures

The inspector audited the following NDE procedures to ascertain compliance with ASME B&PV Code, Section III 1971 through winter 1972 addenda.

Stone and Webster Quality Assurance Directives

(1) QAD 9.31 Rev. 0 Liquid Penetrant Examination, General Requirements

(2) QAD 9.32 Rev. A Liquid Penetrant Examination, Visible Dye Technique

(3) QAD 9.41 Rev. A Radiographic Examination General Requirements

(4) QAD 9.42 Rev. 0 Radiographic Examination Pipe Welds

(5) QAD 9.62 Rev. 0 Magnetic Particle Examination Dry Powder, Prod Method

(6) QAD 9.63 Rev. A Magnetic Particle Examination Dry Powder, Yoke Method

Reactor Controls Inc.

(1) RE-1 Rev. 4 Radiographic Examination

(2) RCI-PE-1 Rev. 5 Penetrant Examination

NES - Nuclear Energy Services Inc.

(1) 80A0481 Rev. 6 dated August 21, 1981 ULTRASONIC Procedures for Piping Butt Welds and Longitudinal Welds

Courter & Co. Inc.

(1) QAP-8.3 Visible Light Liquid Penetrant Examination

Stone and Webster NDE Procedures

(1) NDT-11.1 Rev. A Liquid Penetrant Examination General Requirements

(2) NDT-12.2 Rev. N/A Radiographic Inspection of Pipe Welds

(3) NDT-12.1 Rev. 0 Radiographic Examination General Requirements

(4) NDT-14.2 Magnetic Particle Examination Dry Powder Prod Technique

(5) NDT-14.3 Magnetic Particle Examination Dry Powder Yoke Technique

Dravo Corp.

(1) ASME III-MP Rev. 6 Magnetic Particle Examination (Prod & Yoke Method), dated November 12, 1974

(2) ASME III-RT Rev. 2 Radiographic Test Procedure, dated January 11, 1974

(3) ASME III-DP Rev. 2 Liquid Penetrant Examination, dated August 13, 1974

Also audited were related welding procedures for each pipe to pipe weld examined and associated piping radiographs.

No violations were identified.

2.2 Associated Piping & Engineering (AP&E)

A review of AP&E radiographs and associated documentation was performed. The documents reviewed are as follows:

a. The inspector reviewed 27 shop weld radiographs, Spools PS-1-A1 and PS-1-A3.

b. LILCO letter dated June 8, 1982. Subject: NRC IE Bulletin 82-01.

c. LILCO letter dated July 21, 1982. Subject: NRC IE Bulletin 82-01.

d. Ultrasonic PSI nondestructive examination reports.

During the review of the above, the following problems were noted:

a. Weld APE 14398 61871 E1113WD25 D1 linear indications were visually apparent on AP&E radiographs. The radiographic report did not indicate interpretation of these linear indications. The licensee prepared overlays, confirmed and issued a report that the linear indications were visible O.D. weld ripples.

b. There were two (2) radiographic reports that had incorrect dates. Licensee contacted AP&E for correction.

c. Weld 1436 2-4-72 AH WB 56.9 SS1S PS-1-A5 film area 14-20 and 25-0 had no penetrameters. Original film was shot as a complete circumference single exposure. Film areas 14-20 and 25-0 were shot at a different exposure time and required penetrameters. Licensee reviewed remaining radiographs and found other film areas that did not have required penetrameters. Licensee has re-radiographed all areas that required penetrameters and has found the welds acceptable.

This is a violation of 10 CFR 50.55a, Codes and Standards (322/82-19-01). The quality of the welding is not in question, but the quality programs for these welds.

2.3 Material Traceability

Thirty document packages were reviewed for the following:

-- Material Certifications, including weld wire

-- NDE results

-- Fabrication Records - shop and field drawings (Isometrics)

-- Physical properties

No violations were noted.

2.4 Nondestructive Examination

The following examinations were performed by NRC and Wisconsin Testing Co., contracted and supervised by NRC Region I:

Radiography - Seventeen (17) welds were examined by radiography using an Iridium 192 source per NRC independent measurements procedure NDE-5, Rev. 0 addenda SH-1-5-1. Welds examined were ASME Class 1, 2 and 3 carbon steel.

Results - Weld E41-1C183-FW02 required further evaluation and did not meet the acceptance criteria of ASME III Code NB/NC 5300. Identified was a linear indication approximately 12 inches in length.

Site field weld E41-1C183-FW02 was re-radiographed and an elongated indication of several inches was apparent and a review of site radiographs verified the same indication.

The inspector returned to Shoreham on August 20, 1982, and reviewed the licensee accumulated data that he obtained after removal of the valve bonnet next to the weld.

a. Parallax radiographs confirmed that the indication was on the ID surface and that this indication was not masking other indications.

b. Replica molds were made of the ID that identified the indication as a slight machine mark on the pipe.

The site field weld E41-1C183-FW02 is now acceptable to the NRC.

No violations were identified.

Magnetic Particle - Twelve (12) weldments were examined per NRC procedure NDE-6 Rev. 0 addenda SH-1-6-1. Samples included two (2) ASME Class 3 welds and ten (10) AWS welds.

Results - All areas examined were found acceptable per applicable procedure and acceptance criteria.

Liquid Penetrant - Seventeen (17) welds were examined per NRC Procedure NDE-9 Rev. 0 addenda SH-1-9-1. Samples examined included ASME Class 1 and 3 welds.

Results - All areas examined were found acceptable per applicable procedure and acceptance criteria.

Thickness Measurements - Seven (7) weldments and adjacent pipe material were examined per NRC Procedure NDE-11 Rev. 0 using a Nortec NDT thickness gauge. Minimum wall thickness was determined by using ASTM standard pipe sizes and thickness chart.

Results - All areas examined were within requirements.

Hardness Measurements - Nine (9) pipe components were examined (base material adjacent to welds) using Equo-tip hardness tester per NRC procedure NDE-12 Rev. 0. Hardness numbers were converted to Brinnell hardness values and approximate tensile strength by use of conversion tables.

Results - All areas examined were within acceptable limits.

Ultrasonic Inspection - Two (2) weldments (pipe to valve) were ultrasonically examined per NRC procedure NDE-1 Rev. 0 and Nuclear Energy Service procedure No. 80A9481. Examination was performed from pipe side only due to inaccessibility to area.

Results - No reportable indications were identified.

Visual Examination - Thirty (30) weldments and adjacent base material were inspected for weld reinforcement, overall workmanship and surface conditions per NRC procedure NDE-14 Rev. 0.

Results - All areas inspected were acceptable.

Material - The Alloy Analyzer was used on three (3) stainless steel, type 304 pipes and eight (8) Cu. Ni, 90-10 pipe welds and adjacent base metal.

Results - All areas examined were within ± .02 of Certified Mill Test Reports values.

Components examined during the inspection and the results are tabulated in Attachment 1.

Exit Interview

At the conclusion of the Inspection, the exit interview was held with licensee representatives denoted in Paragraph 1, on August 13, 1982. The inspector summarized the purpose, results, and scope of this inspection.

| Spool/System | Weld No. | Radiography | Magnetic Particle | Liquid Penetrant | Thickness | Ferrite | Hardness | Weld Reinforcement | Alloy Analyz |
|---|---|---|---|---|---|---|---|---|---|
| E41 | FW01 | Accepted | N/A | N/A | Accepted | N/A | Accepted | Accepted | N/A |
| 1C181 | 979 C-U1 | " | " | " | " | " | " | " | " |
| E41 | 985 C-U1-5 | " | " | " | | " | " | " | " |
| 1C182 | FW04 | " | " | " | | " | " | " | " |
| E41 | FW02 | Rejected | " | " | Accepted | " | " | " | " |
| 1C183 | Ultrasonic Insp. FW04 | Accepted | " | " | " | " | " | " | " |
| E41 | FW05 | N/A | " | Accepted | N/A | " | N/A | " | " |
| 1C134 | FW06 | " | " | " | " | " | " | " | " |
| E41 | C-U1-5 | Accepted | " | N/A | " | " | " | " | " |
| 988 | A-U1-5 | " | " | " | " | " | " | " | " |
| E51 | FW01 | " | " | " | " | " | " | " | " |
| | 270-A&F | " | " | " | " | " | " | " | " |
| M50 | FW-T | N/A | " | Accepted | " | " | " | " | Accepted |
| | -- | -- | -- | -- | -- | -- | | -- | -- |

| Spool/System | Weld No. | Radiography | Magnetic Particle | Liquid Penetrant | Thickness | Ferrite | Hardness | Weld Reinforcement | Alloy Analyz |
|---|---|---|---|---|---|---|---|---|---|
| P41 | FW05 | N/A | N/A | Accepted | N/A | N/A | Accepted | Accepted | N/A |
| | FW06 | " | " | " | " | " | " | " | " |
| P41 | 516-A | " | " | " | " | " | " | " | " |
| | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| C41-B12-1-01 P0955 | H,I,J | N/A | N/A | Accepted | N/A | N/A | N/A | Accepted | Accepte |
| | K,L | " | " | " | " | " | " | " | " |
| E11 1C027 | FW15 | Accepted | N/A | N/A | Accepted | " | " | " | " |
| | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| E11 201 | H-UL | Accepted | N/A | N/A | N/A | N/A | N/A | Accepted | N/A |
| | J | " | " | " | Accepted | " | " | " | " |
| B21 SLP 206-3-03 | FWL | N/A | Accepted | " | N/A | " | " | " | " |
| | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| B21 1682 | B | N/A | Accepted | N/A | N/A | N/A | N/A | Accepted | N/A |
| | -- | -- | -- | -- | -- | -- | -- | -- | -- |

| Spool/System | Weld No. | Radiography | Magnetic Particle | Liquid Penetrant | Thickness | Ferrite | Hardness | Weld Reinforcement | Alloy Analy |
|---|---|---|---|---|---|---|---|---|---|
| E11 1C017 | FW02 | N/A | N/A | Accepted | N/A | N/A | N/A | Accepted | N/ |
| | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| E11 1C017 | FW06 | Accepted | N/A | N/A | N/A | N/A | N/A | Accepted | N/ |
| | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| E11 1C021 | FW05 | Accepted | N/A | N/A | N/A | N/A | N/A | Accepted | N/ |
| | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| B21 NS002 | BW02 | Accepted | N/A | N/A | N/A | N/A | N/A | Accepted | N/ |
| | BW06 | Accepted | " | " | " | " | " | " | " |
| E21 1C059 | FW07 | Ultrasonic Inspection | N/A | N/A | Accepted | N/A | N/A | N/A | N/ |
| | | Accepted | -- | -- | -- | -- | -- | -- | -- |
| E41 PSSH-024 | F-3E42 | Accepted | N/A | N/A | N/A | N/A | N/A | Accepted | N/ |
| | | -- | -- | -- | -- | -- | -- | -- | -- |
| M50 5058 | D, E, H | N/A | N/A | Accepted | N/A | N/A | N/A | Accepted | Accepted |
| | J, K | " | " | " | | | | " | " |

OCT 15 1982

Docket No. 50-322

Long Island Lighting Company
ATTN: Mr. M. S. Pollock
Vice President - Nuclear
175 East Old Country Road
Hicksville, New York 11801

Gentlemen:

Subject: Inspection 50-322/82-24

This refers to the routine safety inspection conducted by Mr. S. Richards of this office on September 7-10, 1982 of activities at the Shoreham Nuclear Power Station authorized by NRC License No. CPPR-95 and to the discussions of our findings held by Mr. Richards with Mr. W. Hunt of your staff at the conclusion of the inspection.

Areas examined during this inspection are described in the NRC Region I Inspection Report which is enclosed with this letter. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations by the inspector.

Within the scope of this inspection, no violations were observed.

In accordance with 10 CFR 2.790(a), a copy of this letter and the enclosure will be placed in the NRC Public Document Room unless you notify this office, by telephone, within ten days of the date of this letter and submit written application to withhold information contained therein within thirty days of the date of this letter. Such application must be consistent with the requirements of 2.790(b)(1). The telephone notification of your intent to request withholding, or any request for an extension of the 10 day period which you believe necessary, should be made to the Supervisor, Files, Mail and Records, USNRC Region I, at (215) 337-5223.

No reply to this letter is required. Your cooperation with us in this matter is appreciated.

Sincerely,

Original Signed by: Stewart D. Ebneter

for Thomas T. Martin, Director
Division of Engineering and Technical Programs

OFFICIAL RECORD COPY

Enclosure:
NRC Region I Inspection Report No. 50-322/82-24

cc w/encl:
J. Rivello, Plant Manager
J. L. Smith, Manager of
Special Projects
Director, Power Division
Edward M. Barrett, Esq.
Jeffrey L. Futter, Esq.
T. F. Gerecke, Manager, QA Department
Public Document Room (PDR)
Local Public Document Room (LPDR)
Nuclear Safety Information Center (NSIC)
NRC Resident Inspector
State of New York

bcc w/encl:
Region I Docket Room (with concurrences)
L. Narrow, Region I
Chief, Operational Support Section (w/o encls)
R. Gallo

| RI:DETP | RI:DETP | RI:DETP |
|---|---|---|
| Richards:hh | Bettenhausen | Ebneter |
| 9/27/82 | 9/29/82 | 10/1/82 |

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U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-322/82-24

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

Inspection at: Shoreham, New York

Inspection conducted: September 7-10, 1982

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

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

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

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. Giannattiasio, 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-41238D, 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.