

LILCO, August 12, 1983

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF RECORDS
WASHINGTON, D.C. 20540

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))

LILCO'S REPORT DOCUMENTING IMPLEMENTATION
OF THE ELECTRICAL SEPARATION AGREEMENT

I. Introduction and Summary of Results

This report is submitted pursuant to ¶ 1(c) of the "Resolution of SC Contention 31/SOC Contention 19(g) -- Electrical Separation," dated August 26, 1982 (the "Agreement"), as amended January 10, 1983 (the "Amendment"), attached as Exhibits 1 and 2 hereto. The Agreement, as amended, was approved by the Board on January 12 and 19, 1983 (Tr. 17,818, 18,595-96).

The Agreement, as amended, required the following:

(1) LILCO was required to utilize design criteria for physical separation of electrical cables and raceways between equipment and panels which meet or exceed the provisions of IEEE 384-74 and Reg. Guide 1.75 (Rev. 2). (Agreement, ¶ 1(a)).

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PDR ADOCK 05000322
G PDR

(2) LILCO was required to resolve any outstanding departures, known as "deviations," from its basic work specification for electrical separation, SH1-159, prior to the completion of fuel load, using one of the four options stated in the letter dated August 31, 1981 from R. L. Tedesco (NRC) to M. S. Pollock (LILCO) (Exhibit 3 hereto).^{1/} Any deviations resolved by analysis, Option 4 of the Tedesco letter, were to be available for expedited litigation. (Agreement, ¶ 1(b)).

(3) LILCO was required to conduct an inspection of 20% of Class 1E cable and raceway installation, and of 20% of non-Class 1E cable and raceways in the vicinity of Class 1E cable and raceways, for consistency with the basic electrical separation work specification, SH1-159. The inspection was to be conducted

^{1/} The four options listed in the Tedesco letter (Exhibit 3, at 3-4) are the following:

- (1) Correct the deficiency to meet the electrical equipment separation criteria set forth in Section 3.12 of the Shoreham Final Safety Analysis Report;
- (2) Correct the deficiency to meet Regulatory Guide 1.75, "Physical Independence of Electric Systems," Revision 2 dated September 1978;
- (3) Correct the deficiency by installing an acceptable barrier; or
- (4) Justify the deficiency by performing a specific analysis for each cable or raceway where the minimum separation is not met to demonstrate that a failure will not propagate because of the insufficient separation.

according to procedures and documentation requirements in part set out in the Agreement and Attachment A thereto, and in part arranged subsequently. Under the Agreement, as amended, the inspection sample was to consist of 1174 Class 1E raceways. Previously documented departures from Specification SH1-159 detected during the inspection, referred to as "in-process deviations," were required to be corrected prior to the completion of fuel load using one of the four Tedesco letter options; deviations corrected by Tedesco Option 4, but only those, were to be available for expedited litigation. Departures from SH1-159 not previously documented were to be classified as "violations." If 9 or more violations were discovered in the inspection, a 100% inspection of the plant would be required. All violations were to be resolved prior to completion of fuel load; any violations proposed to be resolved pursuant to Tedesco letter Option 4, but only those, were to be available for expedited litigation. Agreement, ¶ 1(c) and Attachment A thereto, ¶¶ C, D; Amendment, ¶¶ 1, 2.

(4) LILCO was to report the results of the inspection no later than 20 days before commencement of fuel load. That report, or a separate document delivered no later than completion of fuel load, must also confirm that all in-process deviations have been resolved or document that the in-process deviations would be resolved prior to completion of fuel load. LILCO was also required to make the detailed data underlying the report available at the

site, along with the persons who conducted the inspection.

Agreement, ¶ 1(c).

(5) LILCO was required, concurrently with the inspection, to verify the proper identification of cable trays according to the provisions of SH1-159, and to correct any deficiencies. Agreement, Attachment A, ¶ D.3.

This Report, with attached exhibits and table, documents LILCO's fulfillment of its obligations under the Agreement, as follows:

(1) LILCO affirms that it has utilized design criteria for physical separation of electrical cable and raceways between equipment and panels at Shoreham which meet or exceed the provisions of IEEE 384-74 and Reg. Guide 1.75 (Rev. 2).

(2) LILCO has resolved, or will resolve prior to completion of fuel load, all outstanding raceway deviations from Specification SH1-159. None of these deviations will be resolved using Tedesco Option 4; therefore none will be available for litigation.

(3) LILCO has completed the required inspection in accordance with the Agreement. Five (5) violations were discovered; therefore there is no requirement for a 100% inspection. One (1) in-process deviation was discovered. It and the violations will be resolved prior to the completion of fuel load, using only methods other than Option 4 of the Tedesco letter;^{2/} therefore none

^{2/} See Table 1 attached hereto for an itemized listing of the method of disposition of each violation.

will be available for litigation.

(4) This document, with attachments and exhibits, constitutes the report required by the Agreement. LILCO has provided all of the inspectors' individual raceway inspection forms to Suffolk County and the NRC Staff. LILCO has also made all of the work papers and other documentation underlying the inspection and all the inspectors, as well as others familiar with the inspection, available at the Shoreham site for two full days of review and questioning by Suffolk County consultants, on June 29 and July 15, 1983, and has provided to Suffolk County copies of all documentation requested at that time. See Exhibit 5 hereto.

(5) Raceway identification was verified and separately documented by the inspectors. Thirteen (13) labeling deficiencies were noted and individually documented; each has been corrected or will be corrected prior to completion of fuel load. The results of this inspection are summarized on Table 2. The documentation underlying this inspection was made available to Suffolk County consultants on July 15.

Subject to providing notification to the Board and to all parties prior to the completion of fuel load that the outstanding deviations from SH1-159, and the five violations, one in-process deviation and thirteen identification deficiencies detected by the inspection have been resolved, LILCO represents, and this Report documents, that it has discharged all of its obligations under the

"Resolution of SC Contention 31/SOC Contention 19(g) -- Electrical Separation," as amended.

II. Background of the Inspection

The Agreement, at ¶ 1(c), required LILCO to conduct an inspection of Class 1E cable and raceway installation at Shoreham for electrical separation, focusing on deviations from the basic work specification, SH1-159. The principal requirements of that inspection, and LILCO's compliance therewith, are summarized below:

1. Scope of and Procedures for Inspection: The Agreement required LILCO to inspect a randomly selected 20% of Class 1E cable and raceway installation, and 20% of non-class 1E cable and raceways in the vicinity of Class 1E cables and raceways at Shoreham. Agreement ¶ 1(c); Attachment A thereto, ¶ D.1. In addition, concurrently with the separation inspection LILCO was required to verify that cable trays had been properly identified according to the provisions of SH1-159. Agreement, Attachment A, ¶ D.3. The 20% sample was chosen by a random sampling methodology, described in a November 15, 1982 letter from Donald P. Irwin to Lawrence Coe Lanpher, at 4, and in an attachment thereto entitled "Resolution of SC Contention 31/SOC Contention 19(g) -- Electrical Separation: Sample Selection and Inspection Procedures," at 1 (collectively, Exhibit 4 hereto). Pursuant to that

methodology, 1174 raceways, out of the 5869 Class 1E raceways in the plant, were selected for inspection. The plant was then divided into 23 areas (later consolidated to 22) for inspection.

Procedures for the inspection, outlined in general terms in the Agreement and Attachment A thereto, were required to be, and were, submitted in more detail to Suffolk County for comment by August 31, 1982. Following this submission and several rounds of comments by Suffolk County and responses by LILCO, dealing primarily with the extent of documentation and its accessibility for review by Suffolk County representatives, final agreement was reached by early January 1983.^{3/} At that time, on January 10, 1983, agreement on the Amendment also was reached.

2. Board Questions and Approvals: In August 1982, at the time of the initial submittal of the Agreement, Tr. 9930-35, Board members raised three questions:

1. How would the statistically valid distribution of the inspection sample required by the Agreement be accomplished?

^{3/} The comments and responses are contained in correspondence between LILCO and Suffolk County representatives over the course of the fall of 1982, and need not be repeated in detail here.

2. Could inspections be conducted in sequence or by other means to avoid a "traffic jam" immediately before fuel load, if any matters raised by the inspection were sought to be litigated?
3. Could the Staff provide one or more persons to become sufficiently knowledgeable about the inspection to provide an independent assessment of its conduct?

These questions were addressed in the letter attached as Exhibit 4 hereto, as follows: As to the first question, the random-sampling methodology resulting in selection of 1174 raceways for inspection was explained in the letter attached as Exhibit 4 and Attachment A thereto. That process has been adhered to in the conduct of the inspection. As to avoidance of a "traffic jam" immediately prior to fuel load, the letter indicated that LILCO intended to conduct the inspections in sequence, area by area, with preliminary area-by-area results being forwarded to Suffolk County representatives as the inspection proceeded. As is explained in more detail below, this procedure was followed, with Suffolk County representatives receiving documentation of the inspection's progress in a half-dozen installments between June 9 and July 15, 1983.

On January 10, 1983 the parties submitted to the Board the Amendment to the original Agreement, which clarified the definition of the sample being inspected and incorporated a

corresponding change in the number of violations which would trigger a 100% inspection. The parties also indicated that they did not foresee the need for any further modifications to the Agreement. At that time, with its own independent questions having been answered by the letter attached as Exhibit 4, the Board approved the Agreement and Amendment on January 12 and 19, 1983. Tr. 17,818, 18,595-96.

3. Conduct of the Inspection: The Agreement required that the inspection be conducted by inspectors from Stone & Webster Field Quality Control, of whom none had previously participated in either the design or installation of cables and raceways at Shoreham, nor in previous quality assurance inspections for separation of cables or raceways being inspected by him pursuant to the Agreement. Agreement, ¶ 1(c); Attachment A, ¶ C. The physical inspection was conducted between May 24, 1983 and July 14, 1983 by five qualified Stone & Webster Field Quality Control inspectors: George A. Carter, Joseph R. Flocco, Jr., Scott Foster, Robert L. Friscia, and Alex Onishenko. Each raceway selected for inspection was inspected by one of these five inspectors. Some of the 22 inspection areas were inspected entirely by one inspector; others involved collaboration by two or more inspectors. After physical inspection of each area and research with respect to available documentation,^{4/} the inspector wrote up a separate

^{4/} The research tools available to the inspectors involved principally documentary investigation, supplemented by personal

preliminary sheet for each raceway documenting its compliance, or apparent lack thereof, with the provisions of Specification SH1-159 and referenced guidance. These sheets, entitled Quality Control Inspection Reports (QCIR's), were then aggregated for each area with a summary cover report and distributed to Suffolk County, and simultaneously were routed to the Shoreham Site Engineering Office (Engineering) for further review and disposition as appropriate.

The inspectors wrote up any departure from Specification SH1-159 which they had not found to have been properly documented at that time, i.e., prior to completion of engineering review, on an N&D (Nonconformance and Disposition) form, thus establishing it as an apparent violation for purposes of the inspection. In addition, they wrote up separately, as an in-process deviation, any deviation from Specification SH1-159 which was properly documented but whose disposition had not been implemented. Each N&D, reporting an apparent violation, and each in-process deviation, was noted on the area-by-area reports.^{5/}

(Footnote continued)

communications as needed. On five occasions, one or another of the inspectors requested an interpretation of design requirements from Engineering. In each case, Engineering provided its answers in a written Inter-Office Communication (IOC).

^{5/} As Table 1 indicates, seven N&Ds in total were written up. Of these, five became violations. The other two were voided after Engineering reviewed them and located pre-existing documentation of the deviation, which was then shown to the perti-

(Footnote continued)

Concurrently with the separation inspection, a verification was conducted of the identification of those raceways being inspected for electrical separation characteristics. Attachment A to Agreement, ¶ D.3. The results of that verification were separately written up on individual QCIR forms for each raceway.

4. Observation of the Inspection: As had been requested by the Board, the Staff made Mr. James Higgins, the resident NRC inspector at Shoreham, available to monitor the progress of the inspection. While LILCO cannot present Mr. Higgins' views of the consistency of the inspection as conducted with the terms of the Agreement, LILCO is aware that Mr. Higgins has kept in active touch with the inspection process and with those conducting it from the outset, and believes that he has an adequate basis on which to present judgments about the inspection, if required.

The Agreement guaranteed Suffolk County access, at the Shoreham site, to the detailed data underlying the inspectors' reports or any separate document covering resolution of in-process deviations, and to the inspectors and other persons responsible for resolution of in-process deviations. Agreement, ¶ 1(c). Pursuant to these provisions, LILCO has afforded Suffolk County

(Footnote continued)

nent inspector, who concurred that the deviation had been documented.

consultants two full-day visits to the Shoreham site, on June 29 (Messrs. Hubbard and Minor) and July 15 (Mr. Minor). During those visits, Messrs. Minor and Hubbard were given access to each of the five inspectors and in fact talked with each of them individually; they also talked with Mr. Higgins on June 29, without the presence of LILCO personnel. In addition, all documentation relating to the inspection was made available to them for their review; and all documentation requested by them to be copied was copied. See Exhibit 5 hereto, itemizing documentation sent to Suffolk County. During their visits they also interviewed, or were given access to, the following LILCO personnel knowledgeable about the inspection: Lawrence F. Britt (UNICO Systems Superintendent); D. Earl Hall (FQC Inspector Supervisor -- Electrical); Brian R. McCaffrey (Manager, Nuclear Compliance and Safety); W. James Riess (UNICO Electrical Special Projects Superintendent); and Robert L. Bernard (Assistant Manager, FQC Division).

III. Results of the Inspection

A. Cable/Raceway Separation

The basic results of the inspection may be summarized as follows:

- .. Violations: 5 6/
- .. Violations being resolved by Tedesco
Option 4: 0
- .. Number of in-process deviations: 1
- .. Deviations being resolved by
Tedesco Option 4: 0

These results are displayed in more detail, area-by-area, in Table 1 attached hereto.

The Agreement requires LILCO to perform a 100% inspection of the Shoreham plant if one or more violations were found in each of 9 or more of the 1174 raceways inspected. Agreement, Attachment A, ¶ D.2.; Amendment, ¶ 2. Since fewer than nine violations were found, a 100% inspection need not, and will not, be conducted.

6/ One of the five violations involves a raceway (1TC445B in the Relay Room) which has no cable in it, and is uncovered, for approximately 11' of its 19' length. Because of the plant's configuration, cable will never be laid in any part of that 11' empty run. A conduit crosses raceway 1TC445B during that empty run at a distance less than the 1' x 3' separation provided for in Specification SH1-159 for open trays. This crossing of an empty tray is the sole basis for a violation on raceway 1TC445B. LILCO has included it in the total of 5 violations, but considers it to be a violation only in the most technical sense.

The Agreement also obligates LILCO to resolve all deviations from Specification SH1-159, and violations detected by the inspection, prior to the end of fuel load. Agreement, ¶¶ 1(b),(c). Each of the areas inspected had already been completed in terms of electrical work. Thus, the only deviations remaining to be corrected were violations and in-process deviations.^{7/} They will all be corrected before the end of fuel load, in the manners indicated on Table 1.8/

The Agreement permits LILCO to use any of the four methods described in the Tedesco letter (Exhibit 3 hereto) to resolve separation deficiencies. The Agreement also provides Suffolk County

^{7/} The logic of the electrical separation inspection runs as follows: Specification SH1-159 is the basic specification for electrical installation. A departure from it is, at the time it occurs, a "deviation." A deviation which has been properly documented but not yet dispositioned in accordance with the four options of the Tedesco letter is an "in-process deviation." A deviation not properly documented is a "violation." A deviation which has been properly documented and dispositioned becomes a part of the plant's design and no longer remains a deviation. All departures from Specification SH1-159 should be documented by QA/QC programs as work proceeds in an area. The inspection performed pursuant to the Agreement was not performed, except as indicated in footnote 8, until planned work was complete in any given area. As a result, normal QA/QC programs should have already detected all departures from SH1-159; and thus any such departures found during the inspection pursuant to the Agreement would not be merely "deviations," but either "in-process deviations" or "violations."

^{8/} Two raceways on Elevation 78' were physically unavailable for inspection at the time it was conducted because of rework in progress in the immediate area. One of these, Raceway ICC901SA6, has been subsequently inspected satisfactorily. The other, Raceway 1CX901TA2, will be inspected prior to fuel load, as contemplated by the Agreement.

the opportunity to challenge by expedited litigation the resolution by LILCO of any deviation corrected by analysis (Tedesco Option 4), by filing contentions within ten days of receipt of notice of the Staff's acceptance of the analysis, but not to challenge any other method of resolution of deviations. Agreement, ¶ 2. LILCO has not used Tedesco Option 4 to resolve any deviations from Specification SH1-159. Therefore, there are no resolutions of deviations eligible to be litigated. The manner in which each of the violations and in-process deviations uncovered by the inspection is to be resolved is displayed on Table 1 hereto, which presents, area by area, a summary of the results of the inspection.

B. Raceway Identification Inspection

Raceways are required by Specification SH1-159 to be marked with an identifying number and color coding to indicate their electrical division. Concurrently with the electrical separation inspection, the inspectors conducted an inspection of all 1174 raceways for proper identification and color coding. Thirteen marking deficiencies were found. The nature of each deficiency and the raceway on which it was located are displayed on Table 2. All marking deficiencies will be corrected prior to fuel load.

IV. Other Matters

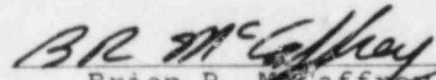
The Agreement also obligated LILCO to resolve outstanding Staff concerns with respect to two other matters: cable separation in NSSS cabinets, and potential missile hazards from RPS motor generator sets. (Agreement, ¶ 1(d)). The Agreement also provided Suffolk County with the opportunity to challenge the Staff's acceptance of these issues by filing a contention with respect to them within ten days of receipt of notice of the Staff's proposed method of resolution of the matter. The Staff notified all parties of its acceptance of LILCO's proposed RPS motor generator set missile analysis by letter dated January 4, 1983 (Exhibit 6 hereto), and of LILCO's NSSS cabinet cable separation analysis by letter dated February 17, 1983 (Exhibit 7 hereto). No contentions were timely filed regarding either of these two matters, and they are therefore closed.

V. Conclusion

Subject to confirmation to the Board and to all parties prior to the completion of fuel load that all violations and in-process deviations have been resolved, LILCO has discharged all of its obligations under the "Resolution of SC Contention

31/SOC Contention 19(g) -- Electrical Separation," and the
Amendment thereto in the manners stated above.

Respectfully submitted,


Brian R. McCaffrey,
Manager, Nuclear Compliance &
Safety (LILCO)

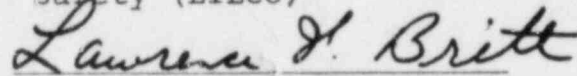

Lawrence F. Britt,
UNICO Systems Superintendent
(LILCO)

TABLE 1
ELECTRICAL SEPARATION INSPECTION: SUMMARY OF RESULTS

Inspection Area (No., Name, Inspector (Inits.))	Raceways Inspected (Qty.)	Raceways Accepted (Qty.)	N&Ds		Violations				In-Process Deviations	
			Raceway ID No.	N&D ID No.	Quantity	Raceway ID No.	Nature of Disposition	Basis of Disposition (Tedesco Option)	Quantity	Raceway ID No.
1. Reactor Building Primary (GAC)	39	39	0	--	0	--			0	--
2. Reactor Building El. 175' (AO)	15	15	0	--	0	--			0	--
3. Reactor Building El. 8' (JRF, RLF)	107	107	0	--	0	--			0	--
4. Reactor Building El. 150' (JRF)	37	37	0	--	0	--			0	--
5. Reactor Building El. 112' (SF)	121	119	1CL941BL 1CX783BA	6023 6024	0 1	-- 1CX783BA			0	--
6. Reactor Building El. 95' (RLF)	6	6	0	--	0	--	Accept as is	3	0	--
7. Reactor Building El. 78' (GAC)	152	149 1/	1CX902CB2 1CX671RH1	5971 5977	1 0	1CX902CB2 --	Cover tray	3	1	1CC901TA8 3/
8. Reactor Building El. 63' (JRF, RLF, SF)	50	49	1CX633RX1	5958	1	1CX633RX1	Accept as is	1,2	0	--
9. Reactor Building El. 40' (JRF, RLF)	50	50	0	--	0	--			0	--
10. Screenwell (RLF)	20	19 1/	0	--	0	--			0	--
11. Manhole No. 1, Tur- bine Bldg., Normal Switchgear Room Area El. 5'8" (AO)	7	7	0	--	0	--			0	--
12. Control Building Battery Rooms A, B, C, Hallway No. 8, El. 25' (AO)	17	17	0	--	0	--			0	--
13. HVAC Room El. 44' (RLF)	8	8	0	--	0	--			0	--
14. Chiller and HVAC Rooms, El. 63' (JRF)	52	52	0	--	0	--			0	--
15. Chiller Room El. 44' (RLF)	13	13	0	--	0	--			0	--
16. [Combined with Area 14]										
17. Emergency Switch- gear Rooms El. 25' (JRF, RLF)	126	126	0	--	0	--			0	--
18. Control Room (SF)	96	96	0	--	0	--			0	--
19. Relay Room El. 44' (JRF, RLF, AO)	149	147	1TC445B 1TC423R	5966 5975	1 1	1TC445B 1TC423R	Accept as is Cover tray	1,2 3	0	--
20. Turbine Bldg. (SF)	42	42	0	--	0	--			0	--
21. Diesel Generator Room (RLF)	58	58	0	--	0	--			0	--
22. Yard (JRF)	9	9 2/	0	--	0	--			0	--
GRAND TOTALS	1174	1165 1/	7		5				1	

1/ The category of "Raceways Accepted" does not include two raceways which do not contain any known electrical separation defects but were not available for inspection at the time it was conducted. Raceway 1TC353B, located in Manhole No. 2, had been permanently sealed per engineering guidelines and with NRC Staff approval prior to the inspection, and will not become available for inspection. Raceway 1CX901TA2, located on Elevation 78', was unavailable for inspection because of unrelated rework in the area. It will be inspected prior to completion of fuel load.

2/ Ends of ducts in Manhole No. 2 on Raceways 1DL914R29, 1DH914011, 1DC914B07, were inaccessible for inspection because of sealed manhole. The balance of each raceway was inspected and found satisfactory, and accepted on that basis.

3/ This in-process deviation had already been properly documented and dispositioned at the time of the inspection. The disposition (installation of a tray cover) had not yet been implemented at the time of the inspection, but will be prior to fuel load.

TABLE 2

RACEWAY IDENTIFICATION INSPECTION SUMMARY

A. Summary of Results

Raceways Inspected For Identification Markings: 1174
Raceways With No Identification Marking Discrepancies: 1161
Raceways With Identification Marking Discrepancies: 13

B. Itemization of Identification Discrepancies

<u>Raceway</u>	<u>Area</u>	<u>Discrepancy</u>
1CC667RQ1	1	No identification
1CX960TB1	2	No identification markers between El. 175' and El. 8'
1CL941BL	5	Redundancy markers not installed every 15'
1CC901TA7	7	DCO-19503 Open
1CX902CA1	7	DCO-19530 Open
1TL770B	7	Redundancy marker missing on El. 78'
1WK761BD1	7	No identification
1WK761BO6	7	No identification
1CC971BJ	12	Lacks ID or redundancy marker at wall penetration (Batt. Rm.)
1CX9710A1	12	Missing ID and redundancy markers
1FL56037	14	Name plate and redundancy marker missing*/
1FH560R21	14	Name plate and redundancy marker missing*/
1FC560BO6	14	Name plate and redundancy marker missing*/

*/ Closed as of 7/25/83.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

In the Matter of)

LONG ISLAND LIGHTING COMPANY)

(Shoreham Nuclear Power Station,
Unit 1))

) Docket No. 50-322 (OL)

RESOLUTION OF SC CONTENTION 31/
SOC CONTENTION 19(g) -- ELECTRICAL SEPARATION

THIS AGREEMENT by and among Long Island Lighting Company ("LILCO"), the Nuclear Regulatory Commission Staff ("Staff"), Suffolk County ("SC") and the Shoreham Opponents' Coalition ("SOC") (hereinafter collectively, the "Parties"), resolves SC Contention 31 and SOC Contention 19(g) in accordance with the terms stated below, subject to the approval of the Atomic Safety and Licensing Board ("ASLB" or "Board").

RECITALS

A. SC and SOC have each filed substantially identical contentions, denominated SC 31 and SOC 19(g), which allege two principal types of defects regarding the physical independence of electrical cables for the Shoreham Nuclear Power Station ("Shoreham"). The first allegation asserts that LILCO's design criteria for electrical separation of electrical cables and raceways fail to comply with NRC's General Design Criteria 3, 17, and 21. Reg. Guide 1.75 (Rev. 2), which incorporates the guidance of IEEE 384-74, sets forth a method acceptable to the

NRC Staff to meet electrical separation requirements for assuring electrical independence pursuant to General Design Criteria 3, 17, and 21. The second allegation concerns the adequacy of LILCO's implementation of its stated separation criteria (i.e., S&W Specification SH1-159 and FSAR Section 3.12).

B. The Staff questioned, in its direct testimony, whether the cable separation criteria used in various NSSS cabinets at Shoreham were fully consistent with the regulatory requirements stated in Reg. Guide 1.75 (Rev. 1) (Testimony of John D. Knox, et al. filed May 25, 1982, at para. d, pp. 8-9). While recognizing other exceptions to the guidelines of IEEE 384-74 and Reg. Guide 1.75 (Rev. 1), the Staff's direct testimony in all other respects took the position that the cable separation criteria used at Shoreham are consistent with all pertinent regulatory requirements.

C. In a letter to LILCO dated May 27, 1982 and describing the results of Safety Inspection No. 50-322/82-08, conducted between March 30 and May 10, 1982, the Staff also raised a question concerning potential missile hazards associated with failure of the Reactor Protection System ("RPS") Motor Generator Sets on nearby Class 1E cables. The letter indicated that LILCO would need to conduct a review to determine the effects of any potential missiles and provide the results of that review to the Staff (pp. 7-8).

D. The Parties have met to discuss resolution of these Contentions. As a result of this process, LILCO, as set forth below, has agreed to implement actions requested by SC and the Staff which, in the view of SC and SOC, will enhance the safety of Shoreham. Accordingly, the Parties agree to resolution of SC Contention 31 and SOC Contention 19(g) on the terms and conditions outlined below.

AGREEMENT

1. LILCO agrees to the following:

(a) LILCO's design criteria for physical separation of electrical cables and raceways between equipment and panels will meet or exceed the provisions of IEEE 384-74 and Reg. Guide 1.75 (Rev. 2). For purposes of this Agreement, the following guidelines will be used to judge particular aspects of LILCO's physical separation criteria (in all other respects, LILCO's physical separation criteria for electrical cables and raceways between equipment and panels will be judged with reference to the provisions of IEEE 384-74 and Reg. Guide 1.75 (Rev. 2)):

(1) For purposes of determining compliance with 3-foot or 5-foot vertical separation requirements of IEEE 384-74, distance may be measured from bottom of tray to bottom of tray.

(2) Where a non-Class 1E tray is above a Class 1E tray and otherwise applicable vertical separation criteria are not met, only the Class 1E tray need be covered. If the vertical separation is less than the 3-foot or 5-foot requirement, the non-Class 1E tray in this instance shall be assumed to be of open ladder design and shall be no closer than 12 inches from the Class 1E tray, measured from bottom of lower tray to bottom of upper tray.

(3) In crossing situations between redundant (i.e., different colored) Class 1E trays where otherwise applicable vertical separation criteria are not met, the lower tray will be covered where it crosses the upper tray and extending one foot beyond the upper tray on each side.

(b) Any deviations, as defined in paragraph B.1 of Attachment A hereto, will be resolved prior to the completion of fuel load, utilizing one of the four options stated in the letter dated August 31, 1981 from R. L. Tedesco (NRC) to M. S. Pollock (LILCO) ("Tedesco letter"). Any deviations to be resolved by Option 4 of the Tedesco letter shall be identified not later than 20 days prior to start of fuel load, and documentation identifying such deviations to be resolved by Option 4 and describing or analyzing their resolution shall be

submitted to the Staff, SC, and SOC at that time. Any deviation corrected by analysis (Option 4) and accepted by the Staff may be challenged by SC or SOC pursuant to paragraph 2 below. The Staff shall use its best efforts to evaluate and resolve any such submittal within 14 days from receipt, and shall promptly notify the Board and the other Parties when it resolves any deviation corrected by analysis.

(c) LILCO has inspected, or will inspect prior to the start of fuel loading, 20% of Class 1E cable and raceway installation, and 20% of non-Class 1E cable and raceways in the vicinity of Class 1E cable and raceways. The basic inspection procedure is set forth in Attachment A hereto. Detailed inspection procedures will be provided to the Parties on or before August 31, 1982. Questions by the Parties relating to the adequacy of such procedures to accomplish the inspection called for by this paragraph shall be presented to LILCO within 15 days of their receipt. LILCO shall promptly consider them in good faith. Any Party dissatisfied with LILCO's resolution of such questions may present them to the Board within 10 days of receiving such resolution by LILCO, for expedited decision. The inspection will be conducted by inspectors, of whom none shall have previously participated in the design or installation of cables or raceway at Shoreham, nor in previous quality assurance inspections for separation of cable or raceway being

inspected by him pursuant to this Agreement. Any violations, as defined in paragraph B.2 of Attachment A hereto, found by the inspectors will be resolved prior to the completion of fuel load, utilizing one of the four options stated in the Tedesco letter. Any violations to be resolved by Option 4 of the Tedesco letter shall be identified not later than 20 days prior to start of fuel load, and documentation identifying such violations and describing or analyzing their resolution shall be submitted to the Staff, SC, and SOC at that time. Any violation corrected by analysis (Option 4) and accepted by the Staff may be challenged by SC or SOC pursuant to paragraph 2 below. The Staff shall use its best efforts to evaluate and resolve any such submittal within 14 days from receipt, and shall promptly notify the Board and the other Parties when it resolves any violation corrected by analysis.

The results of the inspection shall be documented by the inspectors in a report which shall be provided to the Board and the Parties at the earliest possible time, but in no case less than 20 days prior to the commencement of fuel load. The report (or a separate document delivered no later than completion of fuel load) shall also confirm that all in process deviations (as defined in Attachment A) have been resolved, or shall document that the in process deviations will be resolved prior to completion of fuel load. If requested by the Board or

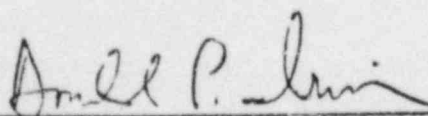
any of the Parties, LILCO shall make available at the site the detailed data underlying the report (or any separate document covering resolution of in process deviations) and shall make available for discussions the persons who conducted the inspection or resolution of in process deviations.

(d) LILCO agrees to resolve the concerns expressed in the direct testimony of the Staff concerning cable separation in NSSS cabinets, and those noted in I&E Report 82-08 concerning missile hazards from the RPS motor generator sets. Such resolution shall take the form of a submittal by LILCO to the Staff on each matter, with copies simultaneously provided to SC, SOC and the Board, on or before August 31, 1982. The Staff shall use its best efforts to evaluate and resolve any such submittal within 14 days from receipt, and shall promptly notify the Parties and the Board upon acceptance of such submittal. Each submittal, as accepted by the Staff, and subject to the provisions of paragraph 2 below, shall be implemented by LILCO prior to the completion of fuel loading. If the Staff does not find a LILCO submittal to be acceptable, the Staff shall give its reasons for such finding to LILCO and the Parties and LILCO shall make new submittals until the Staff finds them acceptable.

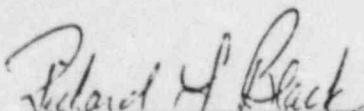
2. In the event that (a) any deviation described in paragraph 1(b) above or any violation described in paragraph 1(c) above shall be resolved by an analysis (Option 4 of the Tedesco letter) which is satisfactory to the Staff but not to SC or SOC, or (b) either or both of LILCO's submittals proposing to resolve the NSSS panel and RPS motor generator set matters described in paragraph 1(d) above shall be satisfactory to the Staff but not to SC or SOC; then such matters shall be available for litigation among the Parties on an expedited basis on the following terms and conditions. If SC or SOC desires to litigate any matter described in item (a) or (b) of this paragraph, they shall submit a revised contention(s) related to such item. If both SC and SOC desire to litigate any such matter, they shall file a joint contention. Any contention must be submitted within 10 days of receipt of notice of the Staff's acceptance of LILCO's proposed method of resolution of the matter, shall be limited to the scope of the matter under consideration in LILCO's proposal, and shall specify why in the view of SC and/or SOC the manner of resolution accepted by the Staff is not sufficient to meet the separation requirements of Reg. Guide 1.75 (Rev. 2) and IEEE 384-74 and why any analysis supporting the Staff and LILCO positions is inadequate to meet the intent of Reg. Guide 1.75 (Rev. 2) and IEEE 384-74. SC agrees that in any expedited litigation it shall offer

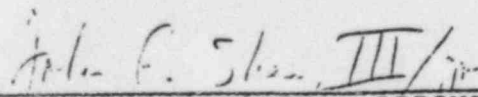
testimony to support each of its contentions submitted pursuant to this Agreement. As noted above, any litigation shall proceed on an expedited basis, with the intention being that any such expedited litigation will be completed and the Board will have issued findings thereon (either oral or in writing) prior to completion of fuel load. In the event the Board has not issued findings prior to completion of fuel load, or in the event the Board does issue findings sustaining SC's or SOC's position, then the parties shall have the right to advise the Board, on an expedited basis, of their respective views, under applicable law, as to whether the situation requires a delay in initial criticality. The Board, upon consideration of these views and the applicable law, shall make whatever findings are necessary concerning the date of initial criticality.

3. SC agrees to withdraw Contention 31, and SOC agrees to withdraw Contention 19(g), subject to the right to resubmit contentions under paragraph 2 of this Agreement.


COUNSEL FOR LONG ISLAND
LIGHTING COMPANY


COUNSEL FOR SUFFOLK COUNTY


COUNSEL FOR NUCLEAR REGULATORY
COMMISSION


COUNSEL FOR SHOREHAM OPPONENTS
COALITION

DATED: August 20, 1982

ATTACHMENT A

ELECTRICAL INSPECTION PROGRAM SEPARATION OF ELECTRICAL CABLES AND RACEWAYS

A. Purpose

This attachment implements an inspection program described in paragraph 1(b) of a "Resolution of SC Contention 31/SOC Contention 19(g) -- Electrical Separation" ("Agreement"), and describes a program to inspect installed cable and raceways routed between equipment and panels at Shoreham prior to the commencement of fuel loading in order to assure final "as-built" conformance of such cable and raceways with the pertinent separation criteria of FSAR Section 3.12, as further defined in detail on work specification SH1-159.

B. Definition

1. Deviation - A failure to meet the cable separation requirements of work specification SH1-159.

2. Violation - A deviation that has not previously been identified on an E&DCR. An E&DCR shown incorrectly as having been implemented on an as-built drawing used for the inspection shall be considered to be a violation. All violations will be written up on a Nonconformance and Disposition report.

3. In Process Deviation - A deviation that has been identified on an E&DCR but the resolution (meeting one of four options in Tedesco letter) has not been implemented.

C. Inspection

The inspection shall be performed by inspectors from Stone & Webster Field Quality Control (FQC), of whom none shall have previously participated in either the design or installation of cable or raceway at Shoreham, nor in previous quality assurance inspections for separation of cable or raceway being inspected by him pursuant to this Agreement.

D. Scope

1. The inspection shall include 20%, on a statistically valid distribution, of 1E cable and raceway routed between equipment and panels at Shoreham, and of non-1E cable and raceway in the vicinity of such 1E cable and raceway. The inspection will document all deviations from work specification SH1-159 with respect to cable separation. The inspection shall be made according to approved procedures and shall be documented. It is understood that inspections are typically performed only after all outstanding E&DCR's have been dispositioned and implemented. It is also understood that there may be cases where an outstanding E&DCR is noted on an as-built drawing at the time of the independent inspection. Any such E&DCR (or in process deviation) will be followed by FQC through disposition and implementation of any required corrective action and will be documented as required in paragraph 1(b) of the Agreement.

2. MIL STD-105D methodology shall be used to determine the number of acceptable violations found during the inspection. If the number of violations disclosed by the inspection exceeds 15 (from the sample of approximately 2400 cables and raceways inspected), then 100% of Class 1E cable and raceway running between equipment and panels, and all non-Class 1E cable in the vicinity of such 1E cable, will be inspected.

3. All violations disclosed by this inspection shall be resolved using one of the four methods set forth in the Tedesco letter. Concurrently with the separation inspection, verification of proper identification of cable, tray and conduit, per the provisions of SH1-159, will be performed. Any deficiencies will be corrected. Upon completion of the 20% inspection, and of the 100% inspection if held, a report covering the entire inspection will be promptly prepared and made available to the Parties and the Board in accordance with the provisions of paragraph 1(c) of the Agreement. Documentation of cable and raceway inspections may be attached to the report or may be made available for inspection at the Shoreham site.

E. Tolerances

A tolerance of ± 1 inch is permitted for determining compliance with SH1-159 or IEEE 384-74, but in no case shall the separation be less than 1 inch (unless an analysis is performed pursuant to Option 4 of the Tedesco letter).

In the Matter of

LONG ISLAND LIGHTING COMPANY

(Shoreham Nuclear Power Station,
Unit 1)

Docket No. 50-322 (OL)

AMENDMENT TO "RESOLUTION OF
SC CONTENTION 31/SOC CONTENTION 19(g) --
ELECTRICAL SEPARATION"

On August 26, 1982, LILCO, Suffolk County ("SC"), the Shoreham Opponents Coalition ("SOC"), and the NRC Staff (collectively, the "Parties") entered into an agreement entitled "Resolution of SC Contention 31/SOC Contention 19(g) -- Electrical Separation." In subsequent discussions, the Parties have determined that the August 26 Resolution needs to be amended. Accordingly, the August 26 Resolution is amended as follows:

1) The 20 percent inspection of Class 1E cable and raceway will involve 1174 Class 1E raceways and all non-Class 1E raceway in the vicinity of such Class 1E raceway (The 1174 Class 1E raceways average slightly more than 5 cables per raceway).

2) As provided in the August 26 Resolution, all deviations, violations and in-process deviations will be documented in the inspection. Thus, there may be multiple deviations or violations documented for a single raceway. However, for

purposes of determining whether a 100 percent inspection is required, the following criterion applies: if one or more violations are identified on each of 9 or more raceways, then a 100 percent inspection is required.

3) In all other respects, the August 26 Resolution remains unchanged.

Amel P. Linn
COUNSEL FOR LONG ISLAND
LIGHTING COMPANY

Lawrence C. Lough
COUNSEL FOR SUFFOLK COUNTY

Bernard Baidenich
COUNSEL FOR NUCLEAR REGULATORY
COMMISSION

Stephen B. L. Rom
COUNSEL FOR SHOREHAM OPPONENTS
COALITION by Amel P. Linn

DATED: January 10, 1983

In the Matter of
LONG ISLAND LIGHTING COMPANY
(Shoreham Nuclear Power Station,
Unit 1)

Docket No. 50-322 (OL)

AMENDMENT TO "RESOLUTION OF
SC CONTENTION 31/SOC CONTENTION 19(g) --
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2) As provided in the August 26 Resolution, all deviations, violations and in-process deviations will be documented in the inspection. Thus, there may be multiple deviations or violations documented for a single raceway. However, for

purposes of determining whether a 100 percent inspection is required, the following criterion applies: if one or more violations are identified on each of 9 or more raceways, then a 100 percent inspection is required.

3) In all other respects, the August 26 Resolution remains unchanged.

Amel P. Linn

COUNSEL FOR LONG ISLAND
LIGHTING COMPANY

Lawrence Lee Langley

COUNSEL FOR SUFFOLK COUNTY

Bernard Baidenick

COUNSEL FOR NUCLEAR REGULATORY
COMMISSION

Stephen B. L. Horn

COUNSEL FOR SHOREHAM OPPONENTS
COALITION

by *Amel P. Linn*

DATED: January 10, 1983



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

AUG 31 1981

Docket No. 50-322

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

Dear Mr. Pollock:

SUBJECT: STAFF POSITIONS - SHOREHAM NUCLEAR POWER STATION

During our review of LILCO's application for an operating license for the Shoreham Nuclear Power Station, we developed staff positions on several issues. These issues must be resolved prior to issuance of an operating license. A discussion of our positions are presented below.

The first issue is item II.B.3 from NUREG-0737, "Clarification of TMI Action Plan Requirements." We reviewed LILCO's letters of May 15, July 23, and July 31, 1981, which describe your proposal to meet the requirements of II.B.3. We found that these submittals did not provide sufficient information to demonstrate that the reactor coolant and suppression chamber samples are representative, to provide a procedure for relating radionuclide concentrations to fuel damage, and to provide operational capability of the post-accident sampling system with loss of off-site power. Our specific concerns in these areas are as follows:

1. That the reactor coolant liquid sample which is taken from the jet pump diffuser will be diluted to an uncertain degree by the reactor coolant system makeup water source. This condition occurs when low volumes of steam are being generated which significantly reduces the amount of moisture which leaves the core and is subsequently returned to the downcomer via the moisture separators. This condition can result in the samples being analyzed at lower concentrations of soluble species (chloride, boron, iodine, etc.) than are actually present in the core area, and thus provide an imprecise estimate of the core damage.
2. That the suppression chamber samples, due to the location of the sample points relative to reactor coolant system safety valve discharge points, will either be excessively diluted or virtually undiluted resulting in erroneous estimates of core damage. We require the applicant to provide information to demonstrate to our satisfaction that these sample points are located such that adequate mixing will occur and the samples are representative of the mixture rather than only the discharged fluid.

3. That an acceptable procedure be provided to relate specific radionuclide concentrations to the estimated extent of core damage.
4. That all electrically powered components associated with post-accident sampling are capable of being supplied with power and operated within thirty minutes of an accident in which there is core degradation, or supplied with power at some time greater than thirty minutes after an accident so that a sample can be taken and analyzed within three hours of an accident, assuming loss of offsite power.

The next issue involves our review of the Remote Shutdown System at Shoreham. In the event of loss of habitability of the control room for reasons other than fire, we are concerned that random single failures in the instruments and controls of systems controlled from the remote panel or in the systems themselves may prevent attaining cold or hot shutdown from the remote shutdown panel.

It is our position that you demonstrate a capability to attain and maintain hot shutdown and subsequently cold shutdown from outside the control room, assuming a single failure in the systems required for affecting safe shutdown. Offsite power should be assumed to be unavailable.

Your response to this issue should address the following specific requirements. These requirements must be met in order to demonstrate compliance with 10 CFR Part 50, Appendix A (GDC-19), Appendix K, and Appendix R.

- 1) The design should provide redundant safety grade capability to achieve and maintain hot shutdown from a location(s) remote from the control room, assuming no fire damage to any required systems and equipment and assuming no accident has occurred. Credit may be taken for manual actuation (exclusive of continuous control) of systems from locations that are reasonably accessible from the Remote Shutdown Panel. Credit may not be taken for manual actions involving jumpering, rewiring or disconnecting circuits.
- 2) The design should provide redundant safety grade capability for attaining subsequent cold shutdown through the use of suitable procedures.
- 3) The design should be such that the manual transfer of control to the remote location(s) should not disable any automatic actuation of ESF functions while the plant is attaining or maintained in hot shutdown, other than where ESF features are manually placed in service to achieve or maintain hot shutdown. It is permissible to disable automatic LPCI actuation in this manner only when necessary in order to enable control of the RHR system from the remote location and while operating this system to effect cold shutdown from hot shutdown.

- 4) The design should provide, as a minimum, non-redundant safety grade systems necessary to achieve and maintain hot shutdown from either the control room or from a remote location(s) assuming a postulated fire in any fire area, including the control room or the Remote Shutdown Panel. Credit may be taken for manual actuation (exclusive of continuous control) of systems from locations that are reasonably accessible from the control room or the Remote SHutdown Panel, as applicable. Credit may not be taken for manual actions involving jumpering, rewiring or disconnecting circuits.
- 5) The design should provide, as a minimum, non-redundant safety grade systems necessary to achieve and maintain cold shutdown from either the control room or from a remote location(s). The design should be such that in the event of fire damage in any fire area, systems could be repaired or made operable within 72 hours if required for cold shutdown.

The last issue involves the minimum separation criteria for electrical cables and raceways at Shoreham. LILCO was originally notified of this problem in Inspection Report 50-322/79-07 dated August 21, 1979. You committed to separation criteria for electrical equipment in Section 3.12 of the Shoreham Final Safety Analysis Report. These criteria were found acceptable by the NRC Staff during our current review of Shoreham. The Office of Inspection and Enforcement identified several instances where the electrical cables and raceways did not meet the separation criteria. This failure to meet your minimum separation criteria at Shoreham has been a continuing violation as stated in 79-07 and subsequent reports from the Office of Inspection and Enforcement.

In LILCO's letter to Report T. Carlson of the Region 1 Office of Inspection and Enforcement dated April 16, 1980 (SNRC-471), you stated that a separation analysis was being developed to justify your policy of not correcting the separation deficiencies at Shoreham. In a meeting held on February 10, 1981, your representatives presented the Shoreham separation analysis to members of the NRC staff. Shortly after this meeting, our Shoreham project manager notified your representatives that the separation analysis was an unacceptable justification for not meeting your own minimum separation criteria at Shoreham.

It is our position that each deficiency in separation for electrical cables and raceways meet one of the following options:

1. Correct the deficiency to meet the electrical equipment separation criteria set forth in Section 3.12 of the Shoreham Final Safety Analysis Report.

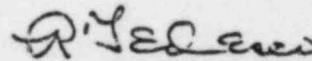
M. S. Pollock

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2. Correct the deficiency to meet Regulatory Guide 1.75, "Physical Independence of Electric Systems," Revision 2 dated September, 1978.
3. Correct the deficiency by installing an acceptable barrier.
4. Justify the deficiency by performing a specific analysis for each cable or raceway where the minimum separation is not met to demonstrate that a failure will not propagate because of the insufficient separation.

I encourage you to give your personal attention to each of these matters so that they may be resolved expeditiously.

Sincerely,



Robert L. Tedesco, Assistant Director
for Licensing
Division of Licensing

cc: See next page

Mr. M. S. Pollock
Vice President - Nuclear
Long Island Lighting Company
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November 15, 1982

Lawrence Coe Lanpher, Esq.
Kirkpatrick, Lockhart, Hill,
Christopner & Phillips
Eighth Floor
1900 M Street, N.W.
Washington, DC 20036

BY HANDElectrical Separation: SC 31/SOC 19(g)

Dear Larry:

This letter responds to the Atomic Safety and Licensing Board's questions of August 27, 1982 (Tr. 9930-35) concerning various provisions of the Resolution of SC Contention 31/SOC Contention 19(g) -- Electrical Separation, dated August 26, 1982 (the "Agreement"). It also responds to the comments tendered on behalf of Suffolk County (the "County") under cover of your letter of October 11, 1982, concerning inspection procedures sent to the County by LILCO on August 31, 1982.

I. BACKGROUND

On August 27, 1982, the Board requested clarification of three aspects of the Agreement:

1. Whether, in view of the closeness to fuel load of various actions contemplated by the Agreement, the NRC Regulatory Staff should be enabled to become sufficiently knowledgeable about the performance of the inspection called for under ¶ 1(c) of the Agreement to be able to render a timely, independent judgment on it (Tr. 9930-31, 9934-35);

2. Why the time frame for resolution of disputes, relating to the electric inspection needed to be so close (potentially beginning as little as 20 days) before fuel load (Tr. 9932); and

HUNTON & WILLIAMS

3. The basis for selection of the 20% sample of cable and raceway contemplated in ¶ 1(c) of the Agreement (Tr. 9932).

Your October 11 letter forwards an attachment which suggests that the inspection procedures sent by LILCO to Suffolk County on August 31, 1982 pursuant to ¶ 1(c) of the Agreement (Stone and Webster (SWEC) Quality Control Instructions FS 1-F 12.1-07D (April 4, 1980) and FS 1-F 12.1-08I (March 19, 1982)) appeared inconsistent in six stated respects with various provisions of the Agreement and Attachment A thereto.^{1/} I have appended the attachment to your October 11 letter to this letter.

In anticipation of our report to the Board tomorrow, November 16, I will address both sets of questions -- the Board's and yours -- in this letter.

II. LILCO'S INSPECTION

Let me start, however, by identifying what LILCO is doing to fulfill its commitments under the Agreement. First, although the Agreement does not require it,^{2/} LILCO is in fact

^{1/} The attachment to your October 11 letter also asserts that SC wishes to reserve a later opportunity to compare the inspection procedures for consistency with FSAR § 3.12 and the basic S&W work specification, SH1-159. The scope of the inspection called for under ¶ 1(c) of the Agreement, and thus of SC's right of comment on the adequacy of procedures to accomplish that inspection, do not, of course, extend to the full breadth of either FSAR § 3.12 or SH1-159, and LILCO does not accept the attempted reservation of nonexistent rights. LILCO's position would be no different if the October 11 letter had been timely submitted, i.e., by September 15, as required by ¶ 1(c) of the Agreement.

^{2/} The Agreement states that "LILCO has inspected or will inspect . . ." the stipulated kinds and number of cable and raceway according to the criteria in the Agreement. LILCO believes that the inspections already accomplished using the QCI's forwarded to you on September 15 substantially satisfied the requirements of ¶ 1(c) of the Agreement and of Appendix A thereto, and that the reference to a "reinspection program" in the first paragraph of the attachment to your October 11 letter misconceives the requirements of the Agreement. Nevertheless, as stated above, LILCO is in fact performing a special 20% inspection.

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independently reinspecting 20% of the Class 1E cable and raceway installations and the non-Class 1E cables and raceways in the vicinity of such Class 1E cables and raceways. The inspection is being conducted using a randomly selected 20% sample of cable and raceway distributed among each of 23 areas covering the entire plant. The results of the inspection, including violations, will be written up on inspection reports ("QCIR's") specifically designed for the inspection. The basic procedure for this inspection (the "Procedure"), including the method of selection of the 20% sample, actual inspection procedures, sample QCIR inspection report form, and listing of the 23 sectors into which the plant has been divided for purposes of the inspection, is set forth in the attached document entitled "Resolution of SC Contention 31/SOC Contention 19(g): Electrical Separation: Sample Selection and Inspection Procedure," dated November 2, 1982.

Under the inspection process, which is to commence in the immediate future, individual areas will be inspected in sequence as work on them is completed and they are turned over to the plant staff. Individual areas will be inspected per the Procedure and the results, including any violations which LILCO proposes (Tedesco Option 4), will promptly be made available to the Staff, Suffolk County and SOC, in accordance with the Agreement.^{3/} One purpose of this sequential process will be to move as many of the inspection results as possible as far forward in time as possible, so as to minimize the likelihood of last-minute litigation immediately before planned fuel load. The final inspection report will be submitted, as called for by ¶ 1(c) of the Agreement, at least 20 days before fuel load. Although it will probably not be possible before that time to determine definitively whether the number of violations is such as to require a 100% inspection, it should be possible to get a sense of its likelihood as the inspection proceeds.

Finally, Brian McCaffrey has talked with Mr. James Higgins, the chief NRC resident inspector at Shoreham, concerning NRC participation in the inspection process. Under this Agreement, Mr. Higgins, or one of his staff, will become knowledgeable about the Procedure and will accompany Stone & Webster Field Quality Control inspectors at random on inspections of various (though not necessarily all) areas, verify

^{3/} As you know, under ¶¶ 1(c) and 2 of the Agreement, the Staff has committed to use its best efforts to evaluate within 14 days any violation proposed by LILCO to be resolved by analysis, and SC and SOC have 10 days thereafter to submit any contentions relative to any violations corrected by analysis.

HUNTON & WILLIAMS

that the inspection was being conducted in accordance with the Procedure, and provide the "element of witnessing" with which the Board was concerned.

III. BOARD QUESTIONS

Let me now turn to specific response to the questions posed by the Board:

1. NRC Staff Participation: As stated above, one or more of the NRC I&E resident inspectors on the Shoreham site will (a) be familiar with the Procedure and (b) accompany Stone & Webster FQC personnel on random inspections to witness such inspections and verify their conduct in accordance with the Procedure.

2. Timing of Inspections: As noted above, the plant has been divided into 23 sectors which will be inspected sequentially. Reports on individual sector inspections will be filed (thus triggering, in the event of violations, the Staff's and the County's response periods) promptly upon completion of each sector. In this way, we hope to minimize the possibility of last-minute litigation resulting from the inspection under ¶ 2 of the Agreement.

3. Selection of the 20% Sample: The sample of Class 1E cables is to be selected at random from all Class 1E cables and raceways throughout the plant, with attention to the inclusion of cables and raceways from each of the 23 areas. The methodology is more fully described in the "Sample Selection Method" portion of the attached Procedure. The population of non-Class 1E cables in the vicinity of the Class 1E cables is a function of the location of Class 1E cables: thus, wherever a Class 1E cable or raceway is inspected, non-Class 1E cables within separation criteria range (vicinity) of it will also be inspected for the adequacy of the appropriate safety-related/non-safety-related separation criteria.

I propose to recite the gist of the above to the Board next Tuesday, in resolution of its three questions. I do not see any of these matters as requiring modification of the Agreement.

IV. OCTOBER 11, 1982 LETTER

The attachment to your October 11 letter raises six questions about the inspection, based on the procedures sent to the County on August 31. Let me address them in the context of the preceding discussion:

HUNTON & WILLIAMS

(a) A separate, special inspection, following the attached Procedure, is to be conducted beginning in the immediate future. The County's apparent fears about whether such an inspection would be conducted are needless.

(b) The attached Procedure details the basis for random selection of the 20% sample of Class 1E cables and raceways. The basis for selection of non-Class 1E cable and raceway in the vicinity of Class 1E cable and raceway, as noted above, is simply that non-Class 1E cable and raceway within separation distance of Class 1E cable and raceway is to be inspected. The random number series by which the Class 1E 20% sample is being generated will be kept on site and available for inspection.

(c) The special inspection Procedure requires that the inspection be conducted on the basis of all outstanding documents, including E&DCR's. Incorrect implementation of E&DCR's is a violation under the Procedure. Following up on E&DCR implementation and in-process deviations, while a requirement of the Agreement, is not a function of the inspection per se and hence is not included in the Procedure.

(d) The Procedure and attached QCIR form set forth the basis for determination of violations. The basis for crossing the threshold from a 20% to a 100% inspection is specified in ¶ D.2 of the Attachment A to the Agreement, and does not need to be repeated in the Procedure itself.

(e) The QCIR form attached to the Procedure requires identification of raceway and location and makes use of SH1-159 as a reference, thus assuring proper identification of raceways and conduits. The reporting requirements for each inspected area are set forth in the Procedure; the requirements for the overall inspection report are set forth in the Agreement at ¶ 1(c) and in Appendix A thereto at ¶ D.3, and need not be repeated in the Procedure.

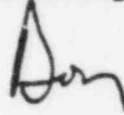
(f) The Procedure defines violations, which are the only items giving rise to either the need for a further inspection or the possibility of further litigation. Thus, the terms "deviation" and "in-process deviation", when not associated with violations, do not need to be set forth in the Procedure. As to the choice of methods of resolution of violations, that lies within the province of LILCO project management, not FQC inspectors, and hence is not properly a part of the Procedure. As to violations corrected (or proposed to be corrected) by analysis, the Agreement specifies, at ¶ 2, the process for their resolution. Further, that material is not relevant to

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the preparation for or conduct of the inspection and hence not appropriate for inclusion in the special inspection Procedure.

I apologize for the length of time it has taken me to get back to you on all this. I trust that the County's difficulties expressed in your October 11 letter will be resolved by this letter and its attachment. If you or Dick Hubbard have any further questions, please call me or have Dick call Brian directly.

Sincerely yours,



Donald P. Irwin

91/728

Attachment

cc: Bernard M. Bordenick, Esq.
Stephen B. Latham, Esq.

RESOLUTION OF SC CONTENTION 31/SOC CONTENTION 19 (g)

ELECTRICAL SEPARATION

Sample Selection and Inspection Procedure

This document describes the detailed inspection procedures as called for on page five (5) paragraph C of the subject agreement and its attachment A.

Sample Selection Method

The sample of raceways to be inspected to resolve Suffolk County Contention thirty-one (31) was selected in a manner that insured that all Safety Related raceways had an equal chance of being included in the sample and insured that all areas of the plant were included in the sample.

First an alphanumeric listing of all Safety Related raceways, The Stone & Webster EC-6 report with all Category II raceways suppressed, was generated. It was determined from this report that there were five thousand eight hundred sixty-nine (5,869) Safety Related raceways. A list of one thousand one hundred seventy-four (1,174) random numbers, twenty (20) percent of five thousand eight hundred sixty-nine (5,869), was then developed by the LILCO "Quality Assurance Random Number Generator" computer program. As each raceway contains at a minimum one cable, the inspection will encompass one thousand one hundred seventy-four (1,174) raceways and at least one thousand one hundred seventy-four (1,174) cables.

The raceway sample was then selected by utilizing the two lists in the following manner. The alphanumeric Safety Related list was numbered from one (1) to five thousand eight hundred sixty-nine (5,869) and the raceways whose numbers correspond to numbers from the random list were designated to be the sample of raceways to be inspected.

Sample Inspection Process

The twenty (20) percent separation criteria inspection of cables and raceway shall be conducted on an area basis as follows:

After specific plant areas are completed by construction and inspected by FQC, an independent inspection of the raceways shall be performed on an area basis from the sample list provided by LILCO FQA. This will ensure that the separation requirements have been met. The inspection

shall be performed by inspectors from Stone & Webster Field Quality Control (FQC), of whom none shall have previously participated in either the design or installation of cable or raceway at Shoreham, nor in previous Quality Assurance inspections for separation of cable or raceway being inspected by him pursuant to this agreement. They shall be qualified to the latest inspection guidelines in accordance with site procedures. The inspections shall be performed to the latest revision to the electrical installation specification and all applicable design drawings, E & DCR's etc. The results of inspections shall be documented on a Quality Control Inspection Report (QCIR) (see attached sample).

Violations* shall be reported on an N & D and processed in accordance with existing site FQC procedures. The N & D numbers shall be recorded on the QCIR.

A summary shall be written for each specific plant area listing the overall findings. Attached to the report will be all of the individual raceway QCIR's as well as a raceway number inspection list as extracted from the twenty (20) percent sample list.

* Electrical Separation Agreement - Attachment A, Para. B.2

Violation - A deviation that has not previously been identified on an E&DCR. An E&DCR shown incorrectly as having been implemented on an as-built drawing used for the inspection shall be considered to be a violation. All violations will be written up on a Nonconformance and Disposition Report.

QUALITY CONTROL
INSPECTION REPORTJOB NUMBER
11600.50

DATE

SYSTEM(S) OR
PART(S) NAME

LOCATION(S)

REFERENCE
DOCUMENT(S)Circuit Breaker
Circuit No. _____

Bldg. _____

Elev. _____

SH1-159 Rev. _____

Section 3.9

FQC 6.1 Rev. _____

(NonConformance & Disposition
FQC 12.1 Rev. _____ Report
(Electrical Installations)ITEM NO.
P.O.

ITEM QTY.

DESCRIPTION(S) AND INSPECTION REMARK(S)

SAT

UNSAT *

N/A

1. Horizontal Separation Criteria

2. Vertical Separation Criteria

3. Color to Noncolor Separation Criteria

4. Separation Between Differently Color Coded Conduit Within The Same Group

Remarks:

*UNSAT is equivalent to violation as defined in
Agreement--Electrical Separation, Attachment A,
Para. B.2

QUALITY CONTROL INSP./ENG.

DATE

PAGE

OF

QUALITY CONTROL
INSPECTION REPORT

JOB NUMBER 11600.50	DATE
------------------------	------

SYSTEM(S) OR PART(S) NAME	LOCATION(S)	REFERENCE DOCUMENT(S)
Accessway No. _____	Bldg. _____ Elev. _____	SH1-159 Rev. _____ Section 2.1 & 3.2 FQC 6.1 Rev. _____ (NonConformance & Dispositi FQC 6.4 Rev. _____ Repor (Deficiency Correct. Orders FQC 12.1 Rev. _____ (Electrical Installations)

AVG NO IR PO	ITEM	QTY	DESCRIPTION(S) AND INSPECTION REMARK(S)	SAT	UNSAT	N/A
	1.		Identification			
			Remarks:			

ELECTRICAL SEPARATION AGREEMENT
RESOLUTION OF SC CONTENTION 31/SOC CONTENTION 19 (G)

INSPECTIONS BY AREA

1. Reactor Building Primary
2. Reactor Building 175'
3. Reactor Building 8'
4. Reactor Building 150'
5. Reactor Building 112'
6. Reactor Building El. 95'
7. Reactor Building El. 78'
8. Reactor Building El. 63'
9. Reactor Building El. 40'
10. Screenwell
11. Manhole No. 1
12. Hallway No. 8 and Battery Rooms
13. HVAC El. 44'
14. HVAC El. 63'
15. Chiller Room El. 44'
16. Chiller Room El. 63'
17. Emergency Switchgear Rooms
18. Control Room El. 63'
19. Control Room El. 63'
20. Relay Room El. 44'
21. Turbine Building
22. Diesel Generator Rooms
23. Yard Area

EXHIBIT 5

DOCUMENTS PROVIDED TO SUFFOLK COUNTY

- A. Documents Provided Pursuant to Electrical Separation Settlement Agreement
1. Electrical Separation Inspection Sheets For All Class IE Raceways Inspected (1174 Sheets)
 2. Area Inspection Summaries (22 Sheets)
- B. Documents Provided Pursuant To Requests Made On June 29, 1983
1. SH1-159 Rev. 6: Cover Sheet, Index, Electrical Separation Section.
 2. Raceway Identification Inspection Sheets by Area.
 3. (a) Copy of G. Carter's Work Sheet For In-Process Deviation For Conduit 1CC901TA8.

(b) Copy of G. Carter's Field Notebook Listing Raceways Within 3 x 5 Foot Envelope of 1CC901TA8.
 4. All Inspection Sheets For "In-Process Deviations" By Area.
 5. E&DCR F-43728B Sheets 1, 2, 3, 4, 27, and 28. Sheet 28, originally requested, did not exist; however, sheets 15 and 19 were provided on 7-15-83 to resolve the question.
 6. E&DCR F-43914
 7. E&DCR F-43698 Resolution Pages, Sheets 1, 30, and 69-80 For R.B. Vertical Trays.
 8. I.O.C. for Vertical Tray Documentation Requirements From R. Morris on 6-22-83.
 9. E&DCR F-41757
 10. (a) E&DCR F-42098 For Description Of APRM Channels Separation.

(b) I.O.C. by J. Wright on 6-27-83 Clarifying E&DCR For APRM Separation Criteria.

11. I.O.C. by K. Mullen on 6-24-83 For Inspection Criteria Of Manhole No. 1 Per SH1-159
12. I.O.C. by J. Wright on 6-28-83 For Inspection Criteria For Floor Openings.

C. Documents Provided Pursuant To Requests On July 15, 1983.

1. Sample of DCO's For Identification Tag Inspections
2. Copies of N&D's 5966, 5975, 6023 and 6024 (RR & 112').
3. Copy of E&DCR F-41238A For Siltemp Wrapping Procedure.
4. Copy of N&D 5977 (78 S.T.).
5. I.O.C. by John Wright on 7-13-83 For Tray Cover Inspections.
6. Copy of E&DCR F-39624X, associated with N&D 6023.
7. Copy of E&DCR F-43701, associated with N&D 5977.
8. Copy of N&D 5958 (63').
9. Copy of N&D 5971 (78').
10. Copy of E&DCR F-9418B For RR Tray Cover Inspections.
11. Copy Alex Onishenko Notes of Five Tray to Conduit Relationships.
12. Copy of Cable Tray Cover Installation Drawings For Relay Room.

D. Raceway Identification Inspection Documents

All Raceway Identification Documents For Emergency Switchgear Rooms (126 Sheets).*/

*/ All other raceway identification documents made available on site during 7-15-83 site visit.

LILCO, August 12, 1983

DOCKETED
USNRC

'83 AUG 15 P12:34

CERTIFICATE OF SERVICE

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

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

I hereby certify that copies of LILCO's Report Documenting Implementation Of The Electrical Separation Agreement were served this date upon the following by first-class mail, postage prepaid, or by hand indicated by one asterisk (*) or by Federal Express as indicated by two asterisks(**).

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DATED: August 12, 1983