

ORIGINAL

OFFICIAL TRANSCRIPT  
PROCEEDINGS BEFORE

NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

DKT/CASE NO. 50-322-OL

TITLE LONG ISLAND LIGHTING COMPANY  
(Shoreham Nuclear Power Station)

PLACE Bethesda, Maryland

DATE December 7, 1982

PAGES 15,477 - 15,661

*Return orig copy (stapled) plus 3 extra copies  
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2 copies to Mr. Haas P320C.*

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WASHINGTON, D.C. 20001

1 UNITED STATES OF AMERICA  
2 NUCLEAR REGULATORY COMMISSION  
3 BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

4 ----- -x  
5 In the Matter of: :  
6 LONG ISLAND LIGHTING COMPANY : Docket No. 50-322-OL  
7 (Shoreham Nuclear Power Station) :  
8 ----- -x

9 Bethesda, Maryland  
10 Tuesday, December 7, 1982

11 The hearing in the above-entitled matter  
12 convened, pursuant to recess, at 9:05 a.m.

13 BEFORE:

- 14 LAWRENCE BRENNER, Chairman  
Administrative Judge  
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16 JAMES CARPENTER, Member  
Administrative Judge  
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18 PETER A. MORRIS, Member  
Administrative Judge

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## 1 APPEARANCES:

2 On behalf of Applicant:

3 ANTHONY F. EARLEY, Esq.  
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1 C O N T E N T S

2 WITNESS: DIRECT CROSS REDIRECT RECROSS BOARD

3 Richard B. Hubbard (Resumed)  
4 By Mr. Ellis 15,516

5 (Afternoon Session.....15,563)

6 Richard B. Hubbard (Resumed)  
7 By Mr. Ellis 15,564

8

9 E X H I B I T S

10 NUMBER IDENTIFIED RECEIVED BOUND IN  
TRANSCRIPT

11 LILCO 45, 46, 47 & 48 15,505 15,506

12 Suffolk County 90 15,512 15,513

13

14 Resolution of Suffolk County Contention 5 -- Loose  
Parts Monitoring.....page 15,480

15

16 Resolution of Suffolk County/Shoreham Opponents  
Coalition Contention 18 -- Human Factors, Equip-  
ment.....page 15,481

17

18 Stipulation Regarding Supplemental Testimony on  
Water Hammer Procedures & Training with attached  
19 affidavits from Messrs. Kreps and Notaro;  
Stipulation Regarding Supplemental Testimony on  
20 Safety Relief Valve Maintenance and Polymeriza-  
tion with attached affidavits from Messrs.  
21 Boseman, Guttman and Smith.....page 15,504

22

23 RECESSES:

24 Morning - 15,514  
25 Noon - 15,563  
Afternoon - 15,605

P R O C E E D I N G S

(9:05 a.m.)

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JUDGE BRENNER: Good morning. We have three proposed settlements pending before us, and we would like to take those three up first.

We are prepared to approve, and hereby do approve, the resolution of Suffolk County Contention 5 on loose parts monitoring. And if a copy is available now or shortly, we can bind it in at this point.

(The information referred to follows:)

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 O.L.
(Shoreham Nuclear Power Station,	)	
Unit 1)	)	
	)	

RESOLUTION OF SUFFOLK COUNTY  
CONTENTION 5 -- LOOSE PARTS MONITORING

THIS AGREEMENT among Long Island Lighting Company ("LILCO"), the Nuclear Regulatory Commission Staff ("Staff") and Suffolk County ("SC") (hereinafter collectively, the "Parties"), resolves SC Contention 5 in accordance with the terms stated below, subject to the approval of the Atomic Safety and Licensing Board ("ASLB" or "Board").

A. RECITALS

1. SC Contention 5 concerns the Loose Parts Monitoring System ("LPMS") and program at the Shoreham Nuclear Power Plant. In SC Contention 5, as amplified by its written and oral testimony, SC alleged that LILCO has failed to install an adequate LPMS and implement an adequate Loose Parts Monitoring Program at Shoreham. SC contends that early detection of a loose part in the primary system could prevent serious economic damage to the facility and could avert an accident with potentially adverse consequences to public health and safety.

2. On April 13, 1982, the Parties prefiled direct testimony on SC Contention 5, providing information relative to the LPMS and program at Shoreham. From June 1st through June 4th 1982 (Tr. pp. 2691-3540), the prefiled testimony of the parties was introduced and cross-examination was conducted.

3. In oral testimony submitted on SC Contention 5, SC alleged that the Shoreham LPMS is deficient, particularly in that it utilizes only four sensors (accelerometers) to detect loose parts. These four sensors are located on the reactor feedwater inlet nozzles (at 45 degrees and 225 degrees azimuth) and on the control rod drive housings (at 160 and 340 degrees azimuth). SC alleged that at least six sensors should be utilized, with the two additional sensors to be located on the reactor recirculation pump suction nozzles. SC believes that these additional locations constitute natural collection points that need to be monitored and that the additional sensors will significantly upgrade the detection potential of the LPMS. In its testimony on SC Contention 5, SC also discussed its concerns that LILCO had failed to demonstrate: (a) that the Shoreham LPMS will minimize spurious alarms; and (b) the precise procedures to be followed upon receipt of an LPMS alarm. SC therefore alleged that such inadequacies in the Shoreham LPMS and program could result in violation of 10 CFR 50, Appendix A, GDC 1 and 13, as well as 10 CFR 20.1(c), and 10 CFR 50.36(c)(2), (3) and (5).

4. LILCO does not, by the fact of joining in this Agreement, endorse the characterizations of SC Contention 5 or of SC's testimony thereon in paragraphs A.1 and A.3 of this Agreement, nor concede the validity of the concerns there expressed.

5. Subsequent to the trial of the LPMS issue, the parties have discussed means to resolve this issue. LILCO has made an additional LPMS submittal to the NRC Staff (SNRC-721, June 28, 1982), and has furnished SC with copies of it. This submittal provides further information on the LPMS program's consistency with Regulatory Guide 1.133. LILCO has also provided, for review by SC technical consultants, additional information and proposed Technical Specifications for the Shoreham LPMS. Based on review of these materials, discussions with LILCO's personnel concerning the LPMS and program, and LILCO's agreement, stated in paragraph B.1 below, to undertake certain actions requested by SC, SC agrees to consider SC Contention 5 resolved.

6. During litigation of the LPMS issue, the Staff witness indicated that the Staff had generally upgraded its LPMS review since completing the Shoreham SER, that it therefore considered the adequacy of the Shoreham LPMS to be an open SER item, and that it would meet with LILCO to consider further matters prior to closing its SER review of the matter entirely. LILCO's submittal in SNRC-721, referred to in paragraph 5 above, was the first step in resolving the Staff's further inquiries. Subsequent communications with the Staff identified five areas of further Staff

interest which need to be addressed in order for the Staff to close out its SER review: (1) a cost/benefit justification of the existing degree of separation of electric cables in the LPMS system, relative to full observance of the cable separation guidance in Regulatory Guide 1.133; (2) development of a test program, to be completed before the end of plant startup, to implement the Deliberate Plant Maneuver Feature; (3) number and location of sensors; (4) evaluation of the four-contacts-in-five-seconds LPMS alarm threshold; and (5) provision of intended operating procedures or descriptions thereof. LILCO's commitments to SC stated in paragraph B.1 below have entirely resolved Staff item (3) and largely resolved Staff item (5). In addition, LILCO has committed, as set forth in paragraph B.2 below, to resolve the remaining Staff review items. Based on LILCO's commitments to SC and to the Staff stated in Part B, below, the Staff agrees to consider SC Contention 5 resolved.

B. AGREEMENT

1. In order to resolve the concerns of Suffolk County recited in paragraphs A.1 and A.3 of this Agreement, LILCO agrees to implement the following actions prior to completion of fuel load, except as otherwise permitted by paragraph B.1.G. below:

A. LILCO will install two additional LPMS sensors, to be located on the reactor recirculation pump suction nozzles at the reactor vessel exit. Promptly upon execution of this Agreement, LILCO will undertake all

necessary design and procurement activities to permit installation and calibration of the two sensors prior to the completion of fuel loading.

B. LILCO will provide for the LPMS alarm output to be included in alarm printouts of the process computer system.

C. LILCO will provide a second LPMS tape recorder, either permanently installed or portable, to facilitate comparison of loose part event recordings with previously-recorded "baseline" recordings. Promptly upon execution of this Agreement, LILCO will undertake all necessary design and procurement activities to permit installation of the tape recorder prior to the completion of fuel loading.

D. LILCO will perform additional "baseline mapping" of the LPMS, to include recording of sensor responses to calibrated impacts at various locations distributed around the exterior surface of the RPV.

E. LILCO will provide for review by SC consultants copies of LPMS calibration and operation procedures for the LPMS as installed pursuant to this Agreement. Based upon a review of these procedures, SC may provide to LILCO recommendations for modification of these procedures. LILCO will review any such recommendations and will advise SC of its disposition of any SC

recommendations and, upon request by SC, its reasons for such disposition.

F. LILCO will establish and implement training requirements and, as necessary, programs for personnel using the LPMS, including operators, instrument technicians, shift technical advisors, and technical support engineers.

G. Promptly upon becoming aware of the occurrence of any event or situation which, in LILCO's view, is beyond the control of LILCO and will unavoidably delay completion of one or more of the tasks set forth in paragraphs B.1.A., B.1.B. and B.1.C. beyond the end of fuel load, LILCO shall notify the Board and the Parties. Such notification shall include statements of (1) the nature and date of occurrence of the event or situation, (2) the date on which LILCO became aware of it, (3) the reasons why its occurrence was beyond the control of LILCO, (4) the length of the estimated delay in completing tasks B.1.A., B.1.B. and B.1.C. or any of them, (5) the steps taken or to be taken by LILCO to minimize its length, (6) why further steps would be unreasonable or ineffective, (7) why initial criticality should not be delayed to permit completion of the tasks which are incomplete, and (8) how training in the use of the enhanced LPMS will be achieved if the LPMS is not fully

functional during the period of initial criticality. All documentation relating to the delay and items 1-8 above shall be made available for SC review if SC so requests. If SC believes that LILCO has not justified the basis for any delay in completing tasks under B.1.A., B.1.B. and B.1.C. or any of them, SC may seek a Board order delaying initial criticality or providing other appropriate relief. With respect to vendor-related delays (delays in delivery of components or delivery of defective components), LILCO and SC are agreed that such events are presumptively beyond the control of LILCO and that resultant delays, if documented in accordance with the second sentence of this paragraph and shown to be kept to the minimum length necessary, shall not preclude initial criticality. With respect to any other source of delay, LILCO and SC are agreed that the events are presumptively not beyond the control of LILCO and the burden shall be on LILCO to show, in addition, that the occurrence of the event or situation as a result of which LILCO seeks a delay was beyond the control of LILCO.

2. A. LILCO has agreed to take the following actions, on or before October 1, 1982 except as otherwise provided in this paragraph, to resolve the Staff's concerns recited in paragraph A.6 of this Agreement:

(1) To conduct and submit to the Staff a cost/benefit evaluation comparing the operation of the Shoreham LPMS with the currently designed cable separation criteria against its operation assuming backfitting to achieve complete consistency with the separation guidelines of Re. Guide 1.133.

(2) To prepare and submit to the Staff a description of a test program, which program will be conducted and completed prior to completion of plant startup, in order to implement the Deliberate Plant Maneuver Feature. The results of the program will be reported in the Full Power LPMS Report to be submitted to the Staff within 90 days after commercial operation.

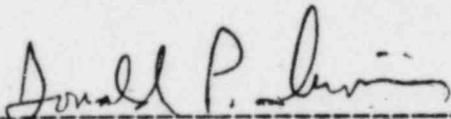
(3) To conduct, and provide to the Staff in the Full Power LPMS Report, an evaluation of the LPMS alarm threshold.

(4) To provide to the Staff copies or descriptions of the preoperational test procedure, startup test procedure, channel calibration procedure, system functional check procedure, LPMS operating procedure, and LPMS alarm response procedure, in accordance with SNRC-721, dated June 28, 1982.

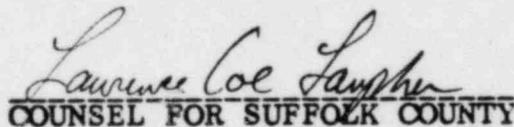
S. LILCO has provided to the Staff all of the information required in paragraph 2A to have been submitted by October 1, in serial letter SNRC-769 (September 14,

1982), a copy of which was also provided simultaneously to SC. Copies of all further submissions to the Staff pursuant to paragraph 2A shall be provided simultaneously to SC. The Staff shall promptly review any such LILCO submissions and any timely comments SC may have thereon. If the Staff concerns are not resolved by the LILCO submissions, the Staff shall advise LILCO, with copies to SC, of areas of continued concern and LILCO shall make further submissions (with copies to SC) until all concerns are resolved. Upon satisfactory completion of all submissions necessary thereto, the Staff will issue an SER Supplement or portion thereof closing SER Open Item 64.

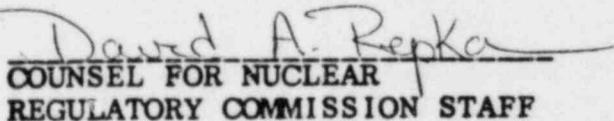
3. Suffolk County agrees to withdraw Contention 5.



COUNSEL FOR LONG ISLAND  
LIGHTING COMPANY



COUNSEL FOR SUFFOLK COUNTY



COUNSEL FOR NUCLEAR  
REGULATORY COMMISSION STAFF

DATED: *November 30*, 1982

1           JUDGE BRENNER: We are also prepared to  
2 approve the resolution of Contention 18, human factors  
3 equipment. The proposed agreement notes the fact that  
4 one aspect was to be handled within the context of the  
5 security proceeding, and, of course, subsequent to the  
6 execution of this agreement, or perhaps at about the  
7 same timeframe, as we understand it, although handled in  
8 the context of the security proceeding, that matter,  
9 too, has been resolved in that proceeding. Is that  
10 right?

11           MR. IRWIN: That is correct, Judge Brenner.

12           JUDGE BRENNER: Well, I just wanted to get  
13 that clarification on the record and we are prepared to  
14 approve that agreement, and we do so at this time. And  
15 although it is a little thick, I guess we will bind it  
16 in for consistency at this point.

17           (The resolution of Contention 18 follows:)

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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) )

RESOLUTION OF SUFFOLK COUNTY/SHOREHAM  
OPONENTS COALITION CONTENTION 18 --  
HUMAN FACTORS, EQUIPMENT

This Agreement among Long Island Lighting Company (LILCO), the Nuclear Regulatory Commission Staff (Staff); Shoreham Opponents Coalition (SOC) and Suffolk County (SC) (hereinafter collectively, the Parties), resolves SC/SOC Contention 18 in accordance with the terms stated below, subject to the approval of the Atomic Safety and Licensing Board (Board).

A. RECITALS

1. SC/SOC Contention 18 concerns the human factors aspects involved in the design and implementation of equipment in the Shoreham control room. SC and SOC have alleged that LILCO has failed to eliminate certain design deficiencies and other deficiencies identified during the NRC's control room audit conducted in March and April, 1981, and therefore has failed to satisfy 10 CFR Part 50, Appendix A. SC and SOC believe that the existence of such deficiencies in the Shoreham control room makes it more difficult for an operator to recognize off-normal conditions and take required mitigating actions, and also results in an increased probability of operator error. Accordingly, SC and SOC have contended that elimination of the deficiencies identified in SC/SOC Contention 18 is necessary in order to protect the health and safety of the public.

2. On May 25, 1982, the Parties prefiled direct testimony on SC/SOC Contention 18. By this Resolution, LILCO documents that it either has taken or will take the steps described below, which respond to the SC and SOC concerns expressed in SC/SOC Contention 18. SC and SOC have determined that LILCO's actions respond to the matters set forth in SC/SOC Contention 18 and in SC's direct testimony on that contention, and thus satisfy the County's and SOC's concerns. In SC's and SOC's view, these actions result in a material improvement to

the equipment in the Shoreham control room and to the ability of operators to use such equipment properly, and thus will contribute to the safe operation of Shoreham. Accordingly, based upon LILCO's agreement to carry out these actions, SC and SOC find that SC/SOC Contention 18 is resolved with the exception of part 18(e)(iv) involving the location of the secondary alarm station (SAS) -- the security console -- in the control room. As a result, SC, LILCO, SOC and the Staff jointly urge the Board to accept this Resolution to terminate litigation of SC/SOC Contention 18, except for that portion dealing with the location of the SAS. The details of this Resolution and LILCO's agreement to implement the actions specified herein are described below.

B. AGREEMENTS

1. SC/SOC Contention 18(e)(iv) --  
Location of Security Console (SAS)

The Parties agree to litigate SC's and SOC's concern about the location of the SAS security console in the control room in the context of the pertinent contention in the ongoing Shoreham security proceeding. LILCO will have an opportunity to supplement its witness panel on the SAS issue in the security proceeding in order to address human factor aspects in the context of that security contention. SC and SOC will similarly have an opportunity to supplement their security testimony to address human factors considerations.

2. SC/SOC Contention 18(a) -- Lack of  
First-Out Capability -- and  
18(d) -- Availability and  
Reliability of Process Computer

SC and SOC have alleged that the combination of the lack of first-out annunciator capability at Shoreham and the slow process computer could delay operator response to multiple plant alarms. SC and SOC have urged in SC/SOC Contention 18(a) the importance of first-out capability in providing diagnostic information to plant operators. In SC/SOC Contention 18(d), SC and SOC have alleged that the Shoreham process computer and printer is slow and unreliable and not adequately integrated with alarm response procedures.

Subsequent to the filing of testimony on SC/SOC Contention 18, LILCO provided SC and SOC consultants with documentation of its intended use of the process computer to provide first-out and sequence of events data. Additional information, subsequently provided by LILCO, concerning the capabilities of the process computer, indicates that the computer can produce annunciator alarm data, and relate those data to the time sequence of alarm sequences. Based upon a review of this information, SC consultants agree that the process computer has the capability of providing a substantial equivalent to a first-out annunciator system.

However, in light of LILCO's reliance on the process computer as the only means of providing operators with data on the sequence of annunciator trips and events leading to reactor

and turbine trip conditions. SC and SOC have urged that certain improvements in the process computer are necessary.

Specifically, SC and SOC believe that: (i) the computer printer is too slow and that it could become overloaded; (ii) the computer output is not adequately integrated with alarm response procedures used by the operators, and (iii) the computer system is unreliable. In response to these SC and SOC concerns LILCO has taken or will take the following actions:

(i) To upgrade the process computer printer, the printer has been replaced with one having a 300 line per minute capability with a one line buffer. SC and SOC consultants have reviewed information provided by LILCO which documents this improvement. As a result of such review, SC and SOC are satisfied that LILCO has now addressed SC's and SOC's concerns relating to the speed and capacity of the process computer printer.

(ii) At the request of SC consultants, LILCO has agreed to provide prior to initial criticality a hard copy index correlating process computer data points for the NSSS and BOP first-out sequence of events computer points to the appropriate Alarm Response Procedures (ARPs). This index and cross reference will also correlate the NSSS and BOP sequence of events (first-out) computer points with those corresponding data points in the Emergency Response Facilities' (Phase II) pre-event log. In the view of SC and SOC consultants, the

availability of this information will eliminate extra steps previously necessary for operators to identify the appropriate ARP from a computer generated sequence of events. SC and SOC consultants find that the above-described action by LILCO addresses the SC and SOC concern relating to the need for integration of the process computer outputs and alarm response procedures.

(iii) To address SC and SOC concerns about the reliability of the process computer, LILCO has:

- (a) Obtained from GE/Honeywell a generic analysis of the reliability of the Model 4010 main frame computer. That analysis indicates a 98 to 99 percent monthly reliability for the main frame computer (letter dated July 16, 1982, from D. Dorer, Honeywell, to R. Mola, Stone & Webster).
- (b) Agreed to provide a cross reference between NSSS and BOP sequence of events computer points and those corresponding data points in the emergency response facilities (Phase II) pre-event log, thus providing an alternate source of post-event diagnostic information in the event the process computer is unavailable.

(c) Agreed to implement a procedure governing the use and availability of the process computer, which will include the provisions set forth in Attachment 1 hereto. A copy of the procedure will be provided to SC and SOC prior to fuel load. SC and SOC consultants may recommend modifications in the procedure and such recommendations will be considered, in good faith, by LILCO and will be implemented if appropriate. The final procedure will be implemented prior to initial criticality.

Based upon a review of documentation provided by LILCO concerning the actions described above, SC and SOC consultants have determined that with the implementation of the foregoing actions, LILCO will have addressed the SC and SOC concerns relating to the reliability of the process computer. For the foregoing reasons, SC and SOC consider SC/SOC Contentions 18(a) and (d) to be resolved.

3. SC/SOC Contention 18(b) -- Lack of Ring-Back Feature on Annunciators

SC and SOC have alleged that the annunciator system in the Shoreham control room fails to indicate to the operator that an alarmed condition has cleared. SC and SOC have urged

the need for such an indication to provide the operator with necessary information concerning what actions should be taken.

Subsequent to the filing of testimony on SC/SOC Contention 18, SC and SOC consultants met with LILCO Operations Staff and discussed the need for providing a ringback feature on the annunciators. It is LILCO's position that information equivalent to that provided the operator by a ringback system will be available to Shoreham operators through their implementation of ARPs. At the request of SC and SOC consultants, LILCO has provided SC and SOC with information describing how the operators use ARPs and how, in LILCO's view, completion of the steps set out in ARPs will achieve the same result -- i.e., verification that the alarmed condition has been cleared -- as is achieved by a ringback feature on the annunciators.

In addition, LILCO agrees to have the Independent Safety Engineering Group perform a three-phase review of all the Main Control Room ARPS to verify that if the instructions in each ARP are followed to completion, it will result in assurance to the operator that the alarmed condition has cleared or that the system status is appropriately logged.

Phase I will consist of a review of all ARPs relating to the core spray and high pressure coolant injection systems (a total of 61 procedures). Phase I will be completed, and documentation of the results will be provided to SC, as soon as possible but in any event by March 1, 1983, or fuel load,

whichever is earlier. Such documentation will include a description of the review process and required revisions or modifications to the ARPs. SC and SOC consultants may submit comments on the review and its results, and LILCO will, in good faith, consider such comments and implement them, if appropriate. The ARPs, including any necessary revisions, will be implemented two months after completion of the review.

Phase II of the review will consist of a review of the remaining safety related systems ARPs, and will be completed, with documentation provided to SC and SOC, as soon as possible but in any event, prior to the first refueling outage. Phase III will consist of a review of the remaining ARPs. It will be completed with documentation provided to SC and SOC, as soon as possible but in any event prior to the second refueling outage.

Finally, LILCO agrees that the addition of a ringback feature will be evaluated as part of the Shoreham long-term control room design review, and that LILCO will implement the changes relative to ringback resulting from the review that are required by the NRC staff.

Based on a review of the materials described above, SC and SOC consultants have determined that with the implementation of the additional actions committed to by LILCO above, LILCO will have addressed SC's and SOC's concerns stated in SC/SOC Contention 18(b). Accordingly, SC and SOC consider SC/SOC Contention 18(b) to be resolved.

4. SC/SOC Contention 18(c) -- Lack of Bypass or Inoperative Status Indications on Systems

SC and SOC have alleged that because annunciators showing systems are inoperable do not indicate whether the inoperability is due to an actual malfunction or a deliberate bypass (e.g., because of maintenance activities), the operator is deprived of important information. It is SC's and SOC's view that an operator should know whether a system is in fact capable of functioning, even if it has been bypassed, and, accordingly, SC and SOC have recommended that the operator be provided with an indication of this fact.

In response to this concern, LILCO provided SC and SOC with a copy of SP 21.002.01 (Rev. 3), "Operations Logs and Records," which demonstrates that at the beginning of each shift, Shoreham operators are provided with information concerning the status of plant systems. SC and SOC consultants have reviewed this procedure and have discussed its implementation with LILCO Operations Staff. Based on this review and these discussions, SC and SOC consultants have determined that the shift turnover sheet, watch engineer's log, and operations logs, which the Watch Engineer must review prior to his accepting responsibility for a watch, contain specific and necessary information concerning the operability of those systems not in service, including whether they are in a bypassed or degraded condition. This information is supplemented by an oral report received from the Watch Engineer responsible for the prior watch.

Furthermore, the above procedure reviewed by SC and SOC consultants indicates that prior to coming on duty, each nuclear station operator will review the shift turnover sheet and operations logs and will also receive, from his counterpart who is going off-duty, an oral summary of the information contained in the operations logs (including that pertaining to the operability of systems). LILCO hereby agrees to maintain this type of control in effect to assure that operators will receive the necessary information on system status and operability, but reserves the right to amend or replace the procedure as changes of circumstances dictate.

Based upon a review of the information and commitments described above, SC and SOC consultants have determined that LILCO has addressed the concerns stated in SC/SOC Contention 18(c). Accordingly, SC and SOC consider those concerns to be resolved.

5. SC/SOC Contention 18(e) --  
Lack of Response to Items  
Identified in Control Room Audit

In SC/SOC Contention 18(e), SC and SOC alleged that 10 unresolved control room environment and control board problems, identified in the NRC control room audit conducted in March and April 1981, collectively could result in serious operational difficulties over time. The 10 items, and LILCO's actions or undertakings to resolve them are set forth below.

(i) Control Room Ventilation

Control room ventilation was untestable during the NRC control room audit due to the stage of construction at that time. Accordingly, during the audit no judgment could be made of its adequacy. Subsequently, LILCO committed to perform a check of ventilation and make corrections as required prior to fuel load (see SSER Appendix C, Item No. 2.1; and SNRC-741). In addition, SC and SOC consultants toured the Shoreham control room in August 1982, and determined that there are no gross ventilation discrepancies. Therefore, SC and SOC consider their concern stated in SC/SOC Contention 18(e)(i) to be resolved.

(ii) Background Noise Levels

Background control room noise levels were also untestable at the time of the NRC control room audit. Subsequently, LILCO committed to test background noise levels and make corrections as required prior to fuel load. (See LILCO's Response to NRC Control Room Audit, Finding 2.7). In addition, SC and SOC consultants toured the control room during a period of light construction activity and noted no unusual levels of background noise. Therefore, SC and SOC consider their concern stated in SC/SOC Contention 18(e)(ii) to be resolved.

(iii) Lighting Level

Lighting levels in the control room were untestable at the time of the NRC control room audit because the ceiling diffuser panels had not been installed. Subsequently, LILCO committed to check lighting levels and make corrections as required prior to fuel load (see SSER Appendix C, Item No. 2.2; and SNRC-741). SC and SOC consultants have toured the control room since the panels have been installed, and no gross lighting problems were noted. Therefore, SC and SOC consider their concern stated in SC/SOC Contention 18(e)(iii) to be resolved.

(iv) Security Console

See paragraph 1 on page 3 above.

(v) J-handled Switches

During the NRC control room audit, the location of J-handled switches in the front row of the control boards was identified as creating a potential for inadvertent actuation of the controls involved. SC and SOC have urged the need for testing to ensure that inadvertent operation is not possible, and/or a modification to the control boards to prevent such a possibility.

At the request of SC and SOC consultants, LILCO agrees to perform experimental testing to determine the susceptibility of the switches to inadvertent operation resulting from contact with tools, flashlights or other equipment that could be carried by operators or technicians.

The test methodology and failure criteria, as well as the remedy to be implemented should the test results so require, are set forth in Attachment 2 hereto. LILCO agrees to provide SC and SOC, prior to fuel load, with documentation of the test results and implementation of remedies as required.

(vi) Mirror Image Arrangement of IRM Selectors

SC and SOC have expressed a concern that the mirror image arrangement of IRM selector switches on the Shoreham control panels could lead to erroneous operator actions. This concern was also identified in the NRC control room audit. As a result of a tour of the Shoreham control room, SC and SOC consultants have now verified that the IRM displays are arranged in the same mirror image format as the selectors. Therefore, because the selectors are located so as to correspond with the matching displays, SC and SOC consider their concern stated in SC/SOC Contention 18(e)(vi) to be resolved.

(vii) Location of Service Air Controls

SC and SOC were concerned because at the time of the NRC control room audit, service air controls were located on a separate panel from the associated meter displays. SC and SOC consultants have now verified that, as a result of changes in system design made subsequent to the time of the control room audit, this fact no longer presents a human factors concern and SC/SOC Contention 18(vii) is resolved.

(viii) Range of the Reactor Water Level Display

During the NRC control room audit, the range of the reactor water level display on control panel 602 was determined to be inadequate because a measurement lower than reactor vessel instrument zero could not be obtained from the display range. In response to this concern, LILCO subsequently installed a meter which provides wide-range indication of reactor vessel water level (i.e., +60 inches /0/ -150 inches), referenced to reactor vessel instrument zero and calibrated for normal operating reactor pressure and temperature. LILCO has placed this meter on panel 602 (See SSER Appendix C, Item No. 6.17; and SNRC-741). SC and SOC consultants have toured the control room and verified that the wide-range meter, as described above, has been installed. Therefore, SC and SOC consider their concern stated in SC/SOC Contention 18(e)(viii) to be resolved.

(ix) Strip Chart Recorders

During the NRC control room audit, strip chart recorders were found inadequate with respect to the following:

- (a) strip chart recorders were loaded with chart paper having scales that did not match the recorder scales;
- (b) units associated with the recorder scales were not identified; and

- (c) most chart recorders were not operational and could not be evaluated completely.

Subsequently, LILCO has committed to take the following actions prior to fuel load:

- (a) insert proper chart paper into the chart recorders (SSER Appendix C, Item 10.1 and SNRC-741);
- (b) identify the units associated with the chart recorder scales either on the recorder or on the recorder label (SSER Appendix C, Item 10.3; and SNRC-741); and
- (c) verify that chart recorders associated with plant operation are fully operational (SSER Appendix C, Item 10.4; and SNRC-741).

In addition, during the NRC control room audit, the blue and green ink traces were identified as being indistinguishable on some strip chart recorders. SC and SOC consultants have subsequently toured the control room and determined that the blue and green ink traces are indistinguishable only where they overlap because the same parameter value is being recorded on voltage recorder 1R42-ER-001. In addition, SC and SOC consultants understand that the parameter values recorded by the above-mentioned strip chart recorder traces are concurrently logged in the ERF computer for retrieval, and are displayed by instrumentation located on the

control boards in the control room. Based upon the above commitments of LILCO, a review of related documentation, and a control room tour, SC and SOC consider its concerns stated in SC/SOC Contention 18(e)(ix) to be resolved.

(x) Reactor Mode Switch and Key Location

During the NRC control room audit, the practice of leaving the key in the reactor mode switch was determined to be undesirable because removal of the key in any switch position would lock the switch in that mode. Subsequently, LILCO has committed to enforce an administrative directive which requires that the key remain in the mode switch when the switch is in the RUN position (see SSER Appendix C, Item 4.13). SC and SOC consultants have received and reviewed a copy of the administrative directive and conclude that it addresses the concern stated in SC/SOC Contention 18(e)(x). Therefore, SC and SOC consider their concern stated in SC/SOC Contention 18(e)(x) to be resolved.

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DATED: November 30, 1982

ATTACHMENT 1

OUTLINE OF KEY PROVISIONS TO BE  
CONTAINED IN SHOREHAM PROCEDURE  
REGARDING PROCESS COMPUTER SYSTEM

The availability of the plant process computer will be determined and recorded on a weekly basis.

Step 1: If the weekly availability of the plant process computer is less than 95 percent for four (4) consecutive weeks, additional corrective action (beyond normal maintenance activities) will be taken immediately to restore the plant process computer to a weekly availability of at least 95 percent.

Step 2: If the weekly availability of the plant process computer is less than 85 percent for two (2) consecutive weeks then, in addition to all the actions required by Step 1, the availability of the Emergency Response Facilities (ERF) computer system will be verified immediately to ensure that the two (2) hour pre-event log is available to provide post-trip diagnostic information. If the ERF pre-event log is not available, follow the action specified in Step 3. Step 2 is applicable until availability of the plant process computer has been restored to at least 95 percent.

Step 3: If the weekly availability of the plant process computer is less than 70 percent for any week, all the actions specified in Steps 2 and 3 above will be taken. In addition, until the weekly availability is restored to at least 90 percent, the status (analog value where applicable) of each point on both the NSSS and BOP sequence of events logs will be recorded once per shift.

The average availability of the plant process computer will be determined for the preceding six months during the months of January and July of each year.

If the average availability, over a six month period, of the plant process computer is less than 95 percent, corrective action will be taken immediately to restore the six month average availability to at least 95 percent.

LILCO agrees to maintain this procedure in effect until the first refueling outage unless a 95 percent availability for the computer over a six-month period has been established, in which case, the procedure may be discontinued. If by the first refueling outage the computer has not achieved such availability, then LILCO will take appropriate action to ensure that the information necessary for diagnostic purposes will be available. LILCO may do so either by improving the availability of the process computer or by providing such diagnostic information through other means or techniques having greater availability than the computer.

ATTACHMENT 2

Static and Dynamic Verification  
of "J-handle" Switch Suitability

PURPOSE: Description of a quasi-experimental approach to ascertain the relative ease or difficulty of accidental activation of "J-handled" switches that are close to board edge.

DESCRIPTION: Phase I: Static Test

Obtain personnel that have the approximate hip size and hip heights of 5th percentile (female) and 95th percentile (male); obtain a person who is an average of these dimensions; outfit the personnel with the following items:

- 1) Motorola walkie-talkie similar to one used at Shoreham;
- 2) Flashlight on belts; and
- 3) Tool holster with typical tools used by Shoreham technicians.

Each subject will wear one item at a time and stand next to the board and adjacent to "J-handled" switches. Thus, there will be nine different experimental scenarios (three persons each with three different items). The amount of contact, if any, with the "J-handled" switches will be recorded

by a Human Factors Engineer from General Physics Corporation.

Phase II: Dynamic Test

Using the same personnel and items (again, nine different scenarios) have persons walk down close to the board's edge. Have them touch the board's edge with their bodies. These scenarios will be observed by a Human Factors engineer from General Physics Corporation who will verify the validity of the test.

Both the static and dynamic tests may be done either on the actual control board or a mock-up. Use of a mock-up is preferable to preclude any adverse consequences should a switch be inadvertently operated during the course of testing. If a mock-up is used, it will exactly reproduce the dimensions of that portion of the control board in question. The switch used in the mock-up will be the switch type requiring least amount of torque for operation. The switch will be mounted on the mock-up in a manner to replicate the control room usage of the switch. The mock-up will reproduce the section of the benchboard (3-4 feet) where the switch is actually used. Clearance measurements for forward, backward and lateral

approaches to the mock-up will be taken in the static test for information only. The test and test results will be recorded and documented by the General Physics Human Factors Engineer.

FAILURE CRITERIA:

1. Failure criteria will be based on the results of the dynamic test only.
2. Failure is defined as a switch contact changing state.

TEST MATRIX

EQUIPMENT

	Walkie-Talkie	Flashlight	Tool Holster
Test Subject 5%	10 trials	10 trials	10 trials
Percentage 50%	10 trials	10 trials	10 trials
95%	10 trials	10 trials	10 trials

- a. Failure occurrence in any one 10-trial cell shall not exceed one (1).
- b. Failure occurrence in any one "Test Subject" percentile row will not exceed two (2).
- c. Failure occurrence in entire test will not exceed three (3).

REMEDY:

If failure of the test case switch exceeds the criteria established above, switches of that type on the front row of the benchboards will be modified or protected to preclude inadvertent operation. In such event, the test will also be performed using, as the test case switch, the switch type requiring the next greatest amount of torque for operation, or all "J-handled" switches on the front row of the benchboards will be modified or protected.

1           JUDGE BRENNER: We have a couple of questions  
2 about the proposed other agreement, the Proposed  
3 Resolution of Suffolk County Contention 24, SOC  
4 Contentions 19(c) and (d), Cracking of Materials and  
5 Material Selection. With respect to the matters that is  
6 not resolved, which I believe I can briefly and  
7 hopefully accurately describe as sensitization of  
8 reactor and internal components, that has also been  
9 referred to as the so-called Halliphatt's concern,  
10 previously on this record.

11           The timeframe is totally open, as I read the  
12 agreement -- maybe we are missing something -- as to  
13 when this matter can be raised before us. Have the  
14 parties considered that? Right now, the parties want to  
15 keep talking about it. That is all right with us,  
16 within reason. We want to know what reason should  
17 dictate in terms of the timeframe.

18           MR. IRWIN: Judge Brenner, LILCO's view of it  
19 is, as I think the Board suggested, that there is an  
20 implicit notion of timeliness in it. The issue is still  
21 under active discussion within the staff. There have  
22 been discussions at which representatives of the staff,  
23 LILCO and Suffolk County have been present to discuss  
24 this, the actual resolution of this issue, and we expect  
25 that it will approach closure within the next couple of

1 weeks.

2           Loosely taken, we do not expect it to be a  
3 pacing issue, and you can be sure that we will be  
4 vigilant to keep our eye on it from that perspective.

5           JUDGE BRENNER: Well, I suppose we are less  
6 troubled by the open timeframe as long as we keep  
7 getting reports in on it.

8           MR. REPKA: Judge Brenner, for the Board's  
9 information on the Halliphatt's concern, this was a  
10 differing professional opinion of Mr. Halliphatt's, and  
11 roughly two weeks ago the county, the staff and LILCO  
12 and GE people all met in order to discuss the staff's  
13 final resolution of DPO. A resolution was reached at  
14 that time and the staff is in the process of formalizing  
15 that resolution.

16           Preliminary indication among all parties at  
17 that time was that everybody was fairly happy with the  
18 resolution. So we are not expecting it to become a  
19 difficult matter.

20           JUDGE BRENNER: Would it be reasonable to hear  
21 about it again the last week before we break, or is that  
22 too soon?

23           MR. REPKA: That is fine. We can report back  
24 then.

25           MR. LANPHER: Judge Brenner, I think to use

1 the term pacing term, we were -- the county's  
2 representative was at that meeting. I think we can  
3 report back anytime but we would like to see the formal  
4 staff resolution. I think that is what we need first,  
5 prior to being able to give you a definitive view on  
6 whether there is a problem here or not.

7 I think that last meeting was quite favorable  
8 toward eliminating this concern, but we want to see what  
9 the final resolution is. So if Mr. Repka knows what the  
10 timeframe for that formal resolution is, that would be  
11 helpful.

12 JUDGE BRENNER: Mr. Repka?

13 MR. REPKA: That resolution has been due any  
14 day now for a few days.

15 (Laughter.)

16 JUDGE BRENNER: That's not very encouraging.  
17 Okay. Well, let's set it for report back on the 21st of  
18 December, and if the report, in fact, had been out in  
19 sufficient time for other parties to review it, we will  
20 expect something reasonably definitive. If, in fact,  
21 the report is not out then or has not been out long  
22 enough to be looked at, we will be apprised of what the  
23 situation is.

24 In that same context, if the county does  
25 propose to litigate the issue instead of bifurcating the

1 procedure, as it is contemplated in the agreement, --  
2 that is, the county would first argue that the issue is  
3 within the contention, and then in the event the Board  
4 found it was not within the contention, it would be  
5 given two weeks to come back and argue that it should be  
6 litigated in any event -- we would like to not go  
7 through two separate steps.

8           And if, in fact, the county wants to propose a  
9 contention, we would ask that the county put all of its  
10 arguments forward at the time of the initial proposing  
11 of the contention as to why, in the county's view, it is  
12 part of the admitted contention or, in the alternative,  
13 why we should litigate it anyway. And then we can get  
14 responses to both views if necessary, and a further  
15 reply from the county and handle it in a tighter  
16 timeframe.

17           Those are the easy questions. Judge Morris  
18 has a question about one part of this also relating to  
19 the calculation of the -- well, not the calculation, but  
20 the application of the stress role index. And if you  
21 have the agreement in front of you, I think it relates  
22 to page 9 or thereabouts.

23           MR. LANPHER: I'm sorry, I didn't bring a copy  
24 down with me.

25           MR. IRWIN: Nor did I, but I take notes.

1 JUDGE BRENNER: All right. We will try to  
2 read it slowly or lend you a copy if necessary and give  
3 you time to answer if you don't know right now.

4 JUDGE MORRIS: There is one sentence that  
5 leaves me a little bit up in the air and it begins on  
6 line 7 on page 9, and it reads, "The SRI acceptance  
7 criteria will require that the welds SRI must be shown  
8 to be less than 1.0, assuming the most conservative use  
9 of the error bands."

10 I don't understand that expression "most  
11 conservative use of the error bands," and I doubt that  
12 it can be answered today. But I think there are two  
13 kinds of uncertainty. One, how will the error bands be  
14 calculated, what do they represent, what confidence  
15 level. And then, how will they be applied. Will there  
16 be permitted some overlap, or must the error bands be  
17 mutually exclusive or just what?

18 MR. LANPHER: You are right, Judge Morris.

19 JUDGE MORRIS: There may have been some  
20 discussion about it and there may be understanding, but  
21 that understanding, if it exists, doesn't transmit to me.

22 MR. LANPHER: We are just going to have to get  
23 back to you on that.

24 JUDGE BRENNER: Let's go off the record.

25 (Discussion off the record.)

1           JUDGE BRENNER: Let's go back on the record.  
2 In terms of the clarification as to the procedural part  
3 in the beginning, don't bother rewriting it. And  
4 subject to clearing up Judge Morris's question we can,  
5 at the appropriate time, approve it with the further  
6 clarification that we have modified some of the  
7 procedures. So we won't have to go through the effort  
8 of redrafting it.

9           I think the parties know by now, but lest my  
10 silence be misconstrued I will say it expressly. We do  
11 commend the parties not only for all of these  
12 settlements, but for, candidly, the quality of the  
13 settlement agreements in terms of assisting us in our  
14 understanding. This has been of great help to us since  
15 by now we know more about the contention than would be  
16 known at the very beginning of the proceeding through  
17 the testimony and other means, and we appreciate it, and  
18 the parties are to be commended.

19           I am not sure what to take up next in our  
20 plate of miscellaneous matters, so I will try a few  
21 things and you tell me if we should not take them up now.

22           With respect to inadequate core cooling, the  
23 parties had asked for time through the end of the day  
24 today, and we are prepared not to discuss it now if the  
25 parties still need that additional time, but we can

1 discuss it now if you wish to.

2 MR. IRWIN: Judge Brenner, my impression is  
3 that by the end of the day today we will, in fact, know  
4 whether a comprehensive agreement will be reached.  
5 LILCO believes that there are one or two significant  
6 items still left to be discussed and a host of minor  
7 ones. If the one or two significant ones are resolved,  
8 the minor ones will resolve themselves.

9 JUDGE BRENNER: All right. Why don't we defer  
10 it until tomorrow morning if that is all right with the  
11 county and the staff also, unless there is something  
12 about it you want to raise right now.

13 (No response.)

14 I guess the next appropriate matter would be  
15 the issues for which no testimony schedule has ever been  
16 set, due to the pendency of staff review. We have  
17 received written reports which we reviewed only in the  
18 last few minutes this morning before going on the  
19 record, from separate reports from the staff and from  
20 LILCO.

21 It is our judgment now, unless the parties  
22 think we need to get into it at this juncture, to give  
23 you another couple of days to see if you can talk about  
24 a schedule. There are some definitive views as to  
25 schedule expressed in those filings, and rather than

1 hear about it on the record, we would like the county to  
2 have an opportunity to get involved with those proposals  
3 and to come back and propose a testimony filing schedule  
4 on all of those issues.

5 MR. IRWIN: Judge Brenner, Mr. Lanpher and Mr.  
6 Repka and I have discussed the possible filing schedules  
7 and the fact that discussions are to take place  
8 tomorrow, and LILCO's filing is intended to indicate  
9 only when LILCO believes it could file testimony; not to  
10 advocate that the schedules be set today. We think the  
11 Board's suggestion is useful.

12 JUDGE BRENNER: If you recall, I alluded to  
13 the possibility last time. I didn't have to -- the  
14 parties are aware of the various possibilities. We can  
15 have joint filing on a given date, which is usually what  
16 we prefer for testimony, or we can have the staff file  
17 first at the same time it files the technical documents  
18 that are still to be issued, where that is the case.  
19 And the relatively short timeframe for subsequent  
20 filings by the other parties, given the involvement to  
21 date.

22 How about discussing it again on Thursday of  
23 this week?

24 MR. LANPHER: That's fine.

25 JUDGE BRENNER: We may do it at the end of the

1 day Thursday. That is, depending upon the schedules we  
2 know. We may want to allow Mr. Hubbard to catch that  
3 plane, and we can --

4 MR. LANPHER: Judge Brenner, I should have  
5 reported this earlier.

6 JUDGE BRENNER: Well, I didn't ask.

7 MR. LANPHER: The Diablo meeting, for reasons  
8 unknown to myself, has been changed. They're going to  
9 have a Commission meeting tomorrow, so the staff  
10 technical meeting has been postponed, so Mr. Hubbard  
11 will be here as required this week.

12 JUDGE BRENNER: Very good. You have taken a  
13 lot of pressure off me for Monday, the 13th, as a matter  
14 of fact, so that has that side benefit from my selfish  
15 point of view.

16 All right. In that case, we will take this up  
17 first thing Thursday morning. That is, the schedule for  
18 the issues which we have not scheduled testimony on as  
19 yet.

20 According to LILCO's filing, at least we infer  
21 from LILCO's filing, that we still are not at a  
22 definitive point on either electrical separation,  
23 Suffolk County Contention 31, or ECCS cutoff/restart,  
24 Suffolk County Contention 28(a)(i). Is that correct?

25 MR. IRWIN: That is correct in LILCO's view,

1 Judge Brenner.

2 MR. LANPHER: That is correct.

3 JUDGE BRENNER: Can you give us an update, Mr.  
4 Lanpher, on when the county would present a draft to  
5 LILCO on the ECCS cutoff issue?

6 MR. LANPHER: Hopefully, tomorrow. And I  
7 would expect no later than Thursday.

8 JUDGE BRENNER: These two issues, as the  
9 parties know, are the subject of previously-approved  
10 settlement agreements which had matters subsequent  
11 within those agreements, and these are the subsequent  
12 matters that we are discussing now.

13 Well, I guess we are getting into a rut on  
14 Tuesday mornings. Why don't we hear about it next  
15 Tuesday, to give you more than just a day or two? So on  
16 Tuesday, December 14th, we will hopefully have something  
17 more definitive on electrical separation and ECCS cutoff.

18 That is all I had in terms of scheduling of  
19 matters related to contentions. We have some other  
20 matters. But do the parties have anything else with  
21 respect to the scheduling of issues?

22 (No response.)

23 All right. Hearing nothing, --

24 MR. IRWIN: Judge Brenner, let me just note  
25 one further item for the record. The remote shutdown

1 panel agreement, as I noted on our filing, has been  
2 approved by attorneys for the parties and has been  
3 circulated for review by their clients, and we hope to  
4 get it to the Board soon. If the Board would like a  
5 copy before it is submitted formally, we could provide  
6 that.

7 JUDGE BRENNER: I think we can wait as long as  
8 you are going to provide it shortly. Thank you. I  
9 should have brought that matter up.

10 Last week, we indicated that we would postpone  
11 indefinitely, I guess, the testimony filing date  
12 provided. That was by mutual consent, and we left it  
13 that if we didn't hear back, we would assume mutual  
14 consent.

15 So we can now put on the record apparently  
16 that that was the case. Even though it isn't executed,  
17 I take it, -- and let me ask each party -- that the  
18 parties are as certain as possible prior to the actual  
19 signing that there is an agreement and that there is no  
20 need to worry about a testimony schedule date.

21 MR. LANPHER: That is correct, from the  
22 county's point of view.

23 MR. IRWIN: Also from LILCO's.

24 MR. REPKA: And from the staff's.

25 JUDGE BRENNER: Very good. Give me one

1 moment, please.

2 (Board conferring.)

3 JUDGE BRENNER: Last week, we had asked the  
4 staff some questions about what we termed miscellaneous  
5 matters, and staff's letter to us from counsel dated  
6 December 6th, responds to those.

7 Looking at that letter, page 3, item 2 relates  
8 to our questions as to the NUREGs issued by the staff  
9 with respect to safety relief valves, actually,  
10 suppression pool responses in the circumstance of an SRV  
11 discharge. And also, -- well, I forget which NUREG  
12 number is which, but the other one was on the  
13 containment analysis.

14 We have no questions given the staff's answer  
15 as to that item, but if any party wishes to respond or  
16 file its view, we will give it an opportunity. But as  
17 far as we're concerned, we're not going to follow those  
18 two items in the context of the contentions which we  
19 previously litigated.

20 Mr. Lanpher, do you want to consider whether  
21 you want an opportunity to respond?

22 MR. LANPHER: On just item 2 on page 3?

23 JUDGE BRENNER: Yes, we're going to take up  
24 item 1 in a moment.

25 MR. LANPHER: As to item 2, I do want to speak

1 with Mr. Bridenbaugh about that. Then I will let the  
2 Board know whether we would like an opportunity to  
3 respond or not.

4 JUDGE BRENNER: All right. If you do want an  
5 opportunity to respond, unless you tell us why the date  
6 is unreasonable we would like to get it in two weeks;  
7 that is, December 21st.

8 MR. LANPHER: I'm sure that's fine. Thank you.

9 JUDGE BRENNER: But if you want to tell us  
10 earlier that you are or are not going to, just orally on  
11 the record, we would appreciate knowing.

12 As to item 1, that involves our question as to  
13 the schedule for completing SC open item 47 concerning  
14 multiple control system failures. Staff's letter  
15 informs us that the staff intends to keep the item open  
16 until after power operation, although only low power  
17 operation. If we had heard that before, we didn't  
18 appreciate it. Is that stated anywhere in anything we  
19 have had heretofore, Mr. Repka?

20 MR. REPKA: I don't believe it is, but this  
21 just came up as an expectation. This multiple control  
22 system barrier has been handled as a proposed startup  
23 confirmatory item in the Susquehanna and Grand Gulf  
24 cases, and that is why I believe the staff expects to  
25 handle it the same way in this case.

1           JUDGE BRENNER: Well, it was news to us in  
2 this case, and we have certainly discussed the matter in  
3 the context of a contention here. I am not stating now  
4 whether the entire open item comes within the contention  
5 or vice versa, but there is some apparent overlap, at  
6 least preliminarily. And we certainly want to see the  
7 justification and the bases as to why, given the  
8 contention we have before us and the issue we have even  
9 beyond the contention as to what the basis is for  
10 allowing, in the staff's view, power operation, low  
11 power operation.

12           MR. REPKA: The technical staff has yet to  
13 write this up as a formal position, so when they do I'm  
14 sure they will be providing subsequent information. I  
15 was just trying to give some advance word from what they  
16 told me, as of this past week.

17           JUDGE BRENNER: Well, if they have reached a  
18 conclusion they must have the justification already in  
19 mind, even if not written up; particularly if it was  
20 done in other cases. So we had better get it sooner  
21 rather than later, because if the Board disagrees with  
22 the staff we are going to have to do something about it.

23           MR. REPKA: We will try to do that.

24           JUDGE BRENNER: All right. We're going to  
25 give the other parties a chance to express their views

1 on this subject also. Rather than set a formal time  
2 now, why don't we treat this as we've treated other  
3 issues, and that is for the parties to talk to each  
4 other so that there is understanding as to what is  
5 involved.

6           Then, at the time the staff issues its  
7 assessment, everyone will have previously been brought  
8 up to speed and we can set relatively tight response  
9 timeframes. And what we receive from the staff would  
10 have to have the technical justification as well as the  
11 explanation in the context of the contention as to why  
12 it can be deferred. The contention I am talking about,  
13 of course, is 7B.

14           Again, we are not ruling that it is part of  
15 the contention, and you can make an argument for  
16 whatever reason you want to express that it is not. And  
17 also, that in addition, the justification, technical  
18 justification, is present.

19           The schedule we would hope for would be early  
20 January, given the schedule of this proceeding, for the  
21 staff's analysis. Is that something we can hear about  
22 again on December 21st, Mr. Repka? Would that be a fair  
23 date?

24           MR. REPKA: That is fine with us, but we would  
25 have to hear from LILCO also. The May 83 date I quoted

1 in here is an informal LILCO position. So I'm saying  
2 that I can only speak for the staff in this review.

3 JUDGE BRENNER: Well, according to the letter,  
4 the staff has concluded that operation of low power up  
5 to 5 percent is acceptable.

6 MR. REPKA: I think I said the staff expects.  
7 The staff has not concluded anything in writing. We  
8 haven't even gotten the May 83 suggestion from LILCO  
9 formally. That was just an informal indication between  
10 licensing people.

11 JUDGE BRENNER: Well, your letter states, and  
12 I quote, "Staff, therefore, expects resolution prior to  
13 operation above 5 percent power." That quote comes  
14 after the estimated LILCO schedule of completing its  
15 analysis before May 1983. The logical inference which  
16 the Board drew from that sentence is that that was  
17 perfectly okay with the staff, so if that is not the  
18 case you had better tell us.

19 MR. REPKA: We will do that, but I was not, in  
20 this letter, trying to speak for -- I was not intending  
21 to write an SER.

22 JUDGE BRENNER: No, I understand that, but I  
23 thought you were attempting to present a staff  
24 conclusion that you would defer it beyond fuel loading  
25 in operation up to 5 percent.

1 MR. REPKA: I apologize.

2 JUDGE BRENNER: Well then, what you said about  
3 the other plants and the treatment by the staff of the  
4 other plants just reinforced our view of your sentence.

5 MR. REPKA: I would repeat. The only point  
6 I'm trying to make is that this is an informal, advance  
7 expectation of how the staff expects to handle this open  
8 item. We have not come out with a formal position on  
9 how this open item will be handled, and we can't do that  
10 until we get the formal submittal from LILCO on the RFI  
11 we sent on November 24th.

12 JUDGE BRENNER: That is the formal submittal  
13 that LILCO says they will file by May?

14 MR. REPKA: They have said that informally.  
15 They have never said that --

16 JUDGE BRENNER: Wait a minute, we're talking  
17 about two different things, Mr. Repka. You're talking  
18 about the ultimate resolution perhaps being deferred  
19 until approximately May. I'm talking about the staff  
20 position as to whether it is okay to defer matters until  
21 May and allow, in the staff's view, some operation in  
22 the interim.

23 MR. REPKA: And what I'm saying is based upon  
24 the precedent of other cases, we would probably find  
25 that okay but we haven't done so yet.

1 JUDGE BRENNER: You had better tell us sooner  
2 rather than later, is our point.

3 MR. REPKA: We will certainly do that.

4 JUDGE BRENNER: All right, we will come back  
5 to it on December 21st. When we look at these letters  
6 from counsel we consider them positions of the client.  
7 I recognize they are not detailed analyses, but as far  
8 as we're concerned, they are binding on what the  
9 position is, unless we're apprised to the contrary. So  
10 if you didn't mean to imply by that language what we  
11 inferred, Mr. Repka, you had better take another look at  
12 the context of the paragraph.

13 Well, what we would appreciate hearing from  
14 the staff on December 21st is what its position will be,  
15 even if it is just an oral conclusion, if you know  
16 that. If you don't, you don't. And in addition, when  
17 we will see the staff's analysis. And we would also  
18 want to see the view as to whether it is part of the  
19 contention that was litigated before us; the aspect that  
20 is still open on open item 47 and the why or why not in  
21 the staff's view. We would like to see that by the 21st.

22 So after the 21st, we will at least be in a  
23 position to schedule views of the parties as to whether  
24 or not it comes within the contention, and whatever  
25 other arguments the parties want to make. I guess we

1 had better receive that in writing on the 21st and then  
2 we will set response times. But in the meantime, we  
3 want the parties to talk to each other.

4 The only other matter I had was to ask LILCO  
5 what form and timeframe they would respond to our  
6 questions which arose out of the IE reports, and maybe  
7 that is Mr. Ellis.

8 MR. ELLIS: Judge Brenner, may I propose that  
9 we submit something in writing to the Board the week  
10 before Christmas?

11 JUDGE BRENNER: All right. The week of the  
12 20th you are saying; is that the week you mean?

13 MR. ELLIS: Yes, sir.

14 JUDGE BRENNER: Why don't we set it for the  
15 21st like everything else that week, even though we will  
16 be in hearing on the 20th. We have, by the way, seen  
17 LILCO's response to one of the items, SNRC 802, December  
18 1st, 1982. But if we have occasion to discuss another  
19 context, sometimes we appreciate these letters and the  
20 connection to something we are doing on the record, and  
21 sometimes we don't. So we use those for general  
22 background information but not for formal responses to  
23 questions we have asked or noticed to us.

24 We have one other miscellaneous matter that we  
25 are prepared to dispose of, and this relates to the IE

1 bulletins involving the falsification of radiographs of  
2 welds. Just to recap briefly, on April 7, 1982, we  
3 issued our order after reading IE Bulletin Number 82-01,  
4 regarding potential alteration of radiographs of welds  
5 by a contractor. And this was a generic notice, and  
6 Shoreham was on the list of potentially affected  
7 facilities.

8           In response to our further request, LILCO  
9 provided us on November 9th, 1982, a package collecting  
10 the IE bulletins through their revisions and  
11 supplements, and also, LILCO's response to the original  
12 bulletin, and also, an inspection report number 82-19.  
13 And subsequent to that, we have also reviewed SNRC-798  
14 which responds -- this happens to be one of the ones we  
15 found which responds to the inspection report open  
16 item. And we have no reason to follow this matter  
17 anymore. The direct concern in the bulletin was  
18 resolved sometime ago by the response from LILCO to the  
19 staff.

20           The other item in the staff's inspection  
21 report relates to radiographs of welds, but is not the  
22 direct item involving possible falsification by AP&E  
23 Welders, which is the contractor involved. In addition,  
24 there was no apparent involvement of Grinnell with the  
25 Shoreham facility in this matter. The Grinnell problem

1 was the subject of one of the supplements to the  
2 bulletin, and we are confident that the staff is well  
3 following through its normal inspection the matter the  
4 staff itself raised in its inspection, so we have no  
5 reason to follow this matter any longer and we are  
6 satisfied. And we appreciate the information provided  
7 in the staff's inspection reports and in the staff  
8 bulletins and LILCO's responses.

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1 I guess we should state that we raised it  
2 because it was a potentially serious matter, worthy of  
3 quick and thorough effort, and in our view LILCO and the  
4 Staff responded with quick and thorough effort.

5 We have no other matters. I don't know if the  
6 parties do.

7 MR. REVELEY: Judge, I have one, but I would  
8 like to get under way. It is an ancient matter and it  
9 involves the actual submission for the record of the  
10 supplemental water hammer testimony and safety relief  
11 valve testimony. At issue are two stipulations, five  
12 affidavits, four sets of testimony, and many  
13 attachments.

14 What I would propose to do is give to the  
15 Board and parties a copy of the October 29th description  
16 of this material that we served on everyone, let you  
17 review it, and then I will reappear. And if no one has  
18 any problems, and no one had any problems a month and a  
19 half ago, go ahead and ask that the documents either be  
20 bound into the record as appropriate or marked as  
21 exhibits.

22 JUDGE BRENNER: If it is the same material you  
23 provided us a month ago -- and that looks like a  
24 complete package, then, including the affidavits --

25 MR. REVELEY: It is.

1 JUDGE BRENNER: -- you can do it right now if  
2 you want.

3 MR. REVELEY: Fine. What I would ask, then,  
4 is that we actually have bound into the transcript two  
5 documents with the pertinent attached affidavits. They  
6 are entitled "Stipulation Regarding Supplemental  
7 Testimony on Water Hammer Procedures and Training," with  
8 attached affidavits from Messrs. Kreps and Notaro. The  
9 second document, entitled "Stipulation Regarding  
10 Supplemental Testimony on Safety Relief Valve  
11 Maintenance and Polymerization," with attached  
12 affidavits from Messrs. Roseman, Guttman and Smith.

13 I would ask that these be bound in and that  
14 there then be marked -- and Judge Morris, you will have  
15 to help me, if you will.

16 JUDGE MORRIS: The next number is 45.

17 (The documents referred to follow:)

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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)	)	

STIPULATION REGARDING SUPPLEMENTAL  
 TESTIMONY ON WATER HAMMER PROCEDURES AND TRAINING

1. Pursuant to Board request, see Tr. 2681-83, LILCO has filed supplemental testimony on water hammer procedures and training ("supplemental testimony"). This testimony was served on July 9, 1982. Suffolk County's prefiled direct testimony on SC Contention 4, and an addendum thereto filed on April 21, 1982 addressed procedures and training relating to the prevention and mitigation of water hammer. The Staff has not filed supplemental testimony on water hammer procedures and training.

2. The supplemental testimony, although occasioned by a request made in the context of SC Contention 4 -- Water Hammer, has been joined for hearing purposes with SC Contention 19 -- Human Factors: Procedures.

3. Suffolk County (SC or County) moved on July 20, 1982, to strike certain portions of the supplemental testimony. LILCO opposed the motion on July 23, and the Board denied it on July 30. See Tr. 8547-48.

4. The parties have agreed to a resolution of SC Contention 19.

5. LILCO agrees to withdraw from the supplemental testimony question and answer 22 on pages 11-12.

6. The parties agree to the admission into evidence of the supplemental testimony, minus question and answer 22, once LILCO submits to the Board and parties sponsoring affidavits from Messrs. Kreps and Notaro, who prepared the testimony.

7. By agreeing to Point 6 of this Stipulation, Suffolk County does not concede the truth of the facts asserted in the supplemental testimony. Suffolk County believes that the supplemental testimony contains merely general information, much of which is not related to water hammer. Further, the County believes that the supplemental testimony fails to address the concerns raised in SC Contention 4, relating to the prevention and mitigation of water hammer. Therefore, in the County's view, the supplemental testimony does not add materially to the existing record on SC Contention 4. In light of the state of the record on SC Contention 4, Suffolk County has determined that it is not necessary to pursue cross examination with respect to the supplemental testimony. By agreeing to this

Stipulation, the County does not waive its right to cross-examine LILCO witnesses on the supplemental testimony in the event the Board or other parties interrogate those witnesses on matters raised in that testimony.

8. LILCO disagrees with all aspects of SC's characterization of the record in Point 7 above.

*Donald P. Levin*

\_\_\_\_\_  
Counsel for  
LONG ISLAND LIGHTING COMPANY

*Karla J. Fetsche*

\_\_\_\_\_  
Counsel for  
SUFFOLK COUNTY

*Bernard M. Bordenick*

\_\_\_\_\_  
Counsel for  
NUCLEAR REGULATORY  
COMMISSION STAFF

DATED: September 10, 1982

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

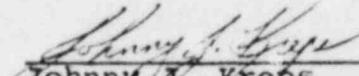
In the Matter of )  
LONG ISLAND LIGHTING COMPANY ) Docket No. 50-322 (OL)  
(Shoreham Nuclear Power Station, )  
Unit 1) )

AFFIDAVIT OF JOHNNY J. KREPS

Johnny J. Kreps, being duly sworn, deposes and says as follows:

1. My name is Johnny J. Kreps. I am co-author of "Testimony of Johnny J. Kreps and Jack A. Notaro for the Long Island Lighting Company on Water Hammer Procedures and Training," which was filed with the Board on July 9, 1982.

2. I hereby solemnly swear and affirm that the testimony referred to in paragraph one (1) above is true and correct to the best of my knowledge and belief.

  
\_\_\_\_\_  
Johnny J. Kreps

STATE OF Texas  
COUNTY OF Somervell ) SS

Subscribed to and sworn before me this 20 day of October, 1982.

  
\_\_\_\_\_  
Notary Public

My Commission expires: Sept. 4, 1982.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

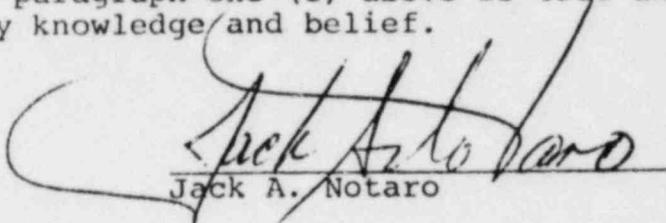
In the Matter of )  
 )  
LONG ISLAND LIGHTING COMPANY ) Docket No. 50-322 (OL)  
 )  
(Shoreham Nuclear Power Station, )  
Unit 1) )

AFFIDAVIT OF JACK A. NOTARO

Jack A. Notaro, being duly sworn, deposes and says as follows:

1. My name is Jack A. Notaro. I am co-author of "Testimony of Johnny J. Kreps and Jack A. Notaro for the Long Island Lighting Company on Water Hammer Procedures and Training," which was filed with the Board on July 9, 1982.

2. I hereby solemnly swear and affirm that the testimony referred to in paragraph one (1) above is true and correct to the best of my knowledge and belief.

  
Jack A. Notaro

STATE OF New York  
COUNTY OF Suffolk ) SS

Subscribed to and sworn before me this 13<sup>th</sup> day of October, 1982.

Leda M. Moncayo  
Notary Public

LEDA M. MONCAYO  
Notary Public, State of New York  
No. 52-2746125  
Qualified in Suffolk County  
Commission Expires March 30, 1983

My Commission expires: March 30, 1983

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 )

STIPULATION REGARDING SUPPLEMENTAL TESTIMONY ON  
SAFETY RELIEF VALVE MAINTENANCE AND POLYMERIZATION

THIS STIPULATION, by and among Long Island Lighting Company (LILCO), the NRC Regulatory Staff (Staff), Suffolk County (SC) and the Shoreham Opponents Coalition (SOC) is as follows:

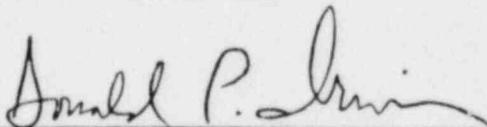
1. Following cross-examination of all witnesses on Suffolk County Contentions 22 and 28(a)(vi)/SOC Contention 7A(6), the Board requested that LILCO file supplemental testimony on maintenance of Safety/Relief Valves (SRVs) and potential for polymerization of SRV lubricants. Tr. 8483-84, 8878-80, 9296, 9507-08. Pursuant to these requests, LILCO filed three pieces of supplemental testimony (collectively, "Supplemental Testimony"), which were served on August 19 and 31, 1982.<sup>1/</sup>

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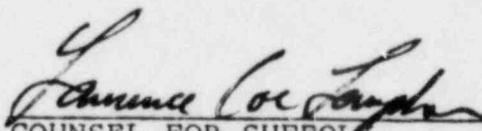
<sup>1/</sup> Supplemental Testimony of Jeffrey L. Smith, John J. Boseman and Richard Gutmann Concerning Maintenance of Safety/Relief Valves at Shoreham Nuclear Station (served August 19, 1982); Supplemental Testimony of John J. Boseman on Behalf of Long Island Lighting Company Concerning Polymerization of SRV Lubricants (served August 19, 1982); Further Supplemental Testimony of John J. Boseman on Behalf of Long Island Lighting Company Concerning Polymerization of SRV Lubricants (served August 31, 1982.)

2. The parties agree to the admission into evidence of the Supplemental Testimony, once LILCO submits to the Board and parties sponsoring affidavits from Messrs. Boseman, Smith and Gutmann, who prepared the Supplemental Testimony.

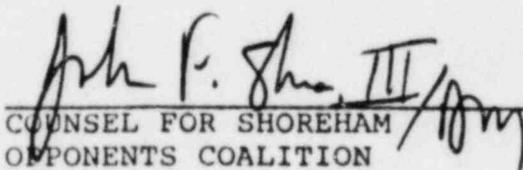
3. By agreeing to paragraph 2 of this Stipulation, neither SC, SOC nor the Staff concedes the truth of the facts asserted in the Supplemental Testimony. However, in light of the existing state of the record on SC Contentions 22 and 28(a)(vi)/SOC Contention 7A(6), SC, SOC and the Staff have determined that it is not necessary to pursue cross-examination with respect to the Supplemental Testimony. By agreeing to this Stipulation, SC, SOC and the Staff do not waive their rights to cross-examine LILCO witnesses on the Supplemental Testimony in the event the Board interrogates those witnesses on matters raised in that testimony.



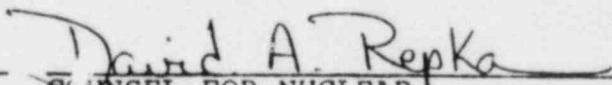
COUNSEL FOR LONG ISLAND  
LIGHTING COMPANY



COUNSEL FOR SUFFOLK  
COUNTY



COUNSEL FOR SHOREHAM  
OPONENTS COALITION



COUNSEL FOR NUCLEAR  
REGULATORY COMMISSION STAFF

DATED: September 22, 1982

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. 50-332 (OL)

AFFIDAVIT OF JOHN J. BOSEMAN

STATE OF CALIFORNIA )  
COUNTY OF SANTA CLARA ) SS:

John J. Boseman, being duly sworn, desposes and says:  
That his name is John J. Boseman. I am the author of Supplemental Testimony of John J. Boseman on Behalf of Long Island Lighting Company Concerning Polymerization of SRV Lubricants and of Further Supplemental Testimony of John J. Boseman on Behalf of Long Island Lighting Company Concerning Polymerization of SRV Lubricants, and one of the co-authors of Supplemental Testimony of Jeffrey L. Smith, John J. Boseman and Richard Gutmann Concerning Maintenance of Safety/Relief Valves at Shoreham Nuclear Station, dated August 19, 1982, August 31, 1982 and August 19, 1982, respectively, and previously filed in this proceeding.

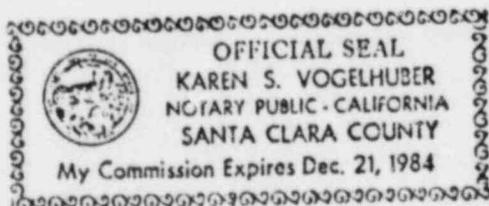
I hereby solemnly swear and affirm that all of the testimony referred to in paragraph one above, of which I am an author or co-author, is true and correct to the best of my knowledge and belief.

15 October 1982  
Date

John J. Boseman  
John J. Boseman

Subscribed and sworn to before me on 15th day of October, 1982.

Karen S. Vogelhuber  
NOTARY PUBLIC, STATE OF CALIFORNIA



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
Before the Atomic Safety and Licensing Board

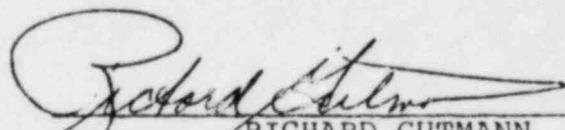
In the Matter of )  
 )  
LONG ISLAND LIGHTING COMPANY ) Docket No. 50-322 (OL)  
 )  
(Shoreham Nuclear Power Station,) )  
Unit 1) )

AFFIDAVIT OF RICHARD GUTMANN

Richard Gutmann, being duly sworn, deposes and says as follows:

1. My name is Richard Gutmann. I am one of the authors of Supplemental Testimony of Jeffrey L. Smith, John J. Boseman and Richard Gutmann Concerning Maintenance of Safety/Relief Valves at Shoreham Nuclear Station, dated August 19, 1982, and previously filed in this proceeding.

2. I hereby solemnly swear and affirm that the portions of the testimony referred to in paragraph one and sponsored by me are true and correct to the best of my knowledge and belief.

  
RICHARD GUTMANN

County of Suffolk )  
 ) ss  
State of New York )

Subscribed to and sworn before me  
this 14<sup>th</sup> day of October, 1982.

  
Notary Public

My commission expires 3/30/84.

NOTARY PUBLIC, State of New York  
No. 52-8326330, Suffolk County  
Term Expires March 30, 1984

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

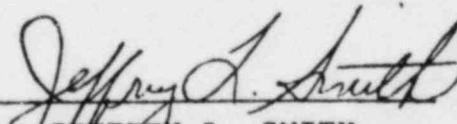
In the Matter of )  
LONG ISLAND LIGHTING COMPANY ) Docket No. 50-322 (OL)  
(Shoreham Nuclear Power Station, )  
Unit 1) )

AFFIDAVIT OF JEFFREY L. SMITH

Jeffrey L. Smith, being duly sworn, deposes and says as follows:

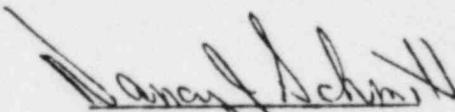
1. My name is Jeffrey L. Smith. I am one of the authors of Supplemental Testimony of Jeffrey L. Smith, John J. Boseman and Richard Gutmann Concerning Maintenance of Safety/Relief Valves at Shoreham Nuclear Station, dated August 19, 1982, and previously filed in this proceeding.

2. I hereby solemnly swear and affirm that the portions of the testimony referred to in paragraph one and sponsored by me are true and correct to the best of my knowledge and belief.

  
JEFFREY L. SMITH

County of Suffolk )  
State of New York ) ss

Subscribed to and sworn before me  
this 13<sup>th</sup> day of October, 1982.

  
Notary Public

My commission expires 3/30/84

NANCY J. SCHMITT  
NOTARY PUBLIC, State of New York  
No. 52 8826330, Suffolk County  
Term Expires March 30, 1984



1 objections and pursuant to the previously approved  
2 stipulations, we will admit LILCO Exhibits 45 through 48  
3 into evidence.

4 (The documents referred  
5 to, previously marked  
6 LILCO Exhibit Nos. 45,  
7 46, 47, and 48 for  
8 identification, were  
9 received in evidence.)

10 JUDGE BRENNER: Let's go off the record.

11 (Discussion off the record.)

12 JUDGE BRENNER: Back on the record.

13 Are there any other matters prior to resuming  
14 the testimony? Mr. Bordenick?

15 MR. BORDENICK: Yes, Judge Brenner, I have two  
16 brief items. One is really an inquiry to the County. I  
17 read a press report that an emergency plan had been  
18 submitted by the County Executive to the County  
19 Legislature, I believe last Thursday. I was wondering  
20 whether the Board and the parties were going to be  
21 provided with a copy of that plan.

22 MR. LANPHER: The County did submit an  
23 emergency plan to the legislature. I believe LILCO has  
24 been provided with a copy or maybe more than one copy, I  
25 don't know. And we will be submitting copies to the

1 Staff and the Board as soon as the printer gets the rest  
2 of the copies to us, which I think is imminent.

3 MR. REVELEY: We do in fact have a copy.

4 MR. LANPHER: The first run was just a limited  
5 number of copies.

6 JUDGE BRENNER: We were going to raise the  
7 subject next week, and we hadn't forgotten it, although  
8 we were not aware that the plan had been already  
9 submitted to the County Executive.

10 MR. LANPHER: To the County Legislature.

11 JUDGE BRENNER: The time is upon us for the  
12 parties to decide what procedures within what time  
13 frames, should form the framework for approaching the  
14 litigation of the offsite emergency planning issues.  
15 And I guess I would just leave it at that and ask the  
16 parties to come back to us prior to the Christmas break  
17 with at least, at that time, a preliminary indication of  
18 what that time frame and framework might be.

19 MR. REVELEY: Judge, as with everything else,  
20 if you gave us a date certain I think that might spur  
21 thought.

22 JUDGE BRENNER: Well, the week before  
23 Christmas. We will let you pick a date that week,  
24 because it involves other counsel and you might have to  
25 look at schedules. But Monday, Tuesday or Wednesday of

1 that week.

2 MR. REVELEY: Okay.

3 JUDGE BRENNER: And I realize we are not  
4 setting dates certain for testimony filing and things  
5 like that. But I want to hear -- the Board wants to  
6 hear first what the situation is on the week of December  
7 20th. Let us know in advance which dates you want.

8 And let's go off the record for a minute.

9 (Discussion off the record.)

10 JUDGE BRENNER: Let's go back on the record.

11 I take it this emergency plan of the County's  
12 is a draft plan still?

13 MR. LANPHER: This is a draft plan, for review  
14 by the legislature and for approval by the legislature.  
15 It is for its review, and my understanding is that the  
16 legislature is going to take that up formally in  
17 January.

18 JUDGE BRENNER: And we will hear more about  
19 the schedule on the week of December 20th. And we can  
20 hear then what the approvals have been, whether the  
21 executive has approved it or whether his approval awaits  
22 the legislature's review, and so on. And in addition,  
23 the coordination with FEMA should be renewed with vigor  
24 or continued with vigor, whichever the case may be,  
25 through the Staff, and arrangements should be made for

1 the report to be distributed to the appropriate  
2 organizations, recognizing its status, and one of those  
3 organizations presumably is FEMA.

4 So when we hear about this the week of  
5 December 20th we're going to want to know what the  
6 County is doing and what LILCO is doing and what the  
7 Staff is doing and what FEMA is doing, those four  
8 entities.

9 MR. BORDENICK: Judge Brenner, I had one  
10 additional miscellaneous item. On August 23 of this  
11 year, I believe it was Mr. Repka served a filing which  
12 identified SER sections with respect to the contentions  
13 that we will be turning to in a few moments, 12 through  
14 15.

15 We identified section 17 since that time, as a  
16 result of cross-examination of the Applicant's panel by  
17 the County, and in anticipation that the Staff will be  
18 getting some questions in those areas I have a few  
19 additional sections of the SER which I would like to  
20 pre-serve on the Board and the parties. And I will do  
21 that now. I think they mainly concern the ISEG  
22 situation.

23 JUDGE BRENNER: Mr. Bordenick, why don't you  
24 just tell us which sections, and then we will probably  
25 take a quick break to get the witnesses in place, and

1 that will make it easier for you to distribute it during  
2 the break.

3           Incidentally, we are aware, of course, as we  
4 discussed in a number of contexts, of the Staff review  
5 which is taking place at the plant regarding operating  
6 QA/QC. So by the designation of sections previously and  
7 again today we are certainly not precluding the Staff  
8 from coming in and modifying some of that as a result of  
9 its review.

10           MR. BORDENICK: Yes, that is certainly a  
11 potential.

12           JUDGE BRENNER: Up until the time the  
13 witnesses are sworn in and we start questioning them.

14           MR. BORDENICK: The sections that I'm going to  
15 hand out are from Supplement No. 1. It is pages 22-15  
16 and 16, which involve subsection 1.B, headed "Support  
17 Personnel." And then under I, and that is Roman numeral  
18 I, Arabic 1.2, "Independent Safety Engineering Group,"  
19 what is referred to as "ISEG." And then in that same  
20 section, on page 22-21, subsection Roman I.C, Arabic 5,  
21 the main heading is "Licensee Dissemination of Operating  
22 Experiences."

23           And then -- this is not in numerical order.  
24 Going back to Section 13, pages 13-39, 40 and 41. The  
25 subsections are 13.4.2, "Nuclear Review Board," 13.4.3,

1 "Site Independent Safety Engineering Group." And then  
2 under 13.5 on page 13-41, the main heading is "Plant  
3 Procedures." And I have a package stapled together.

4 JUDGE BRENNER: All right, thank you for your  
5 information. These are all sections we reviewed in  
6 preparing for LILCO's panel on these subjects.

7 MR. BORDENICK: That is not surprising, and I  
8 am anticipating that the Staff will probably be getting  
9 questions in those areas. So I am serving them ahead of  
10 time.

11 MR. LANPHER: Judge Brenner, one brief item.  
12 On Friday, on page 15,441 there was a reference by Mr.  
13 Hubbard to the Federal Register, relating to GDC  
14 adoption. And I passed out a copy to all of the parties  
15 and to the Board, and I apologize, it's an old Federal  
16 Register, part of the margins are hard to read. But  
17 this is the Federal Register that Mr. Hubbard was  
18 referring to.

19 JUDGE BRENNER: Let's go off the record.

20 (Discussion off the record.)

21 JUDGE BRENNER: Let's go back on the record.

22 JUDGE MORRIS: Just for the record, I think it  
23 is page 6600.

24 MR. LANPHER: You are right.

25 JUDGE BRENNER: All right, we are going to



1           JUDGE BRENNER: Portions of the proposed  
2 Appendix B are not legible from this copy. We're going  
3 to assume that Appendix B as it is presently enacted did  
4 not change from this proposal. If that is incorrect, we  
5 want to either get a more legible copy or see where the  
6 changes are, or both.

7           MR. BORDENICK: Judge Brenner, my  
8 understanding is there were two changes, in 1973 and  
9 1975. That is not of personal knowledge, so I can't be  
10 more specific.

11           JUDGE BRENNER: Maybe somebody could help us  
12 in an appropriate time frame and give us the changes,  
13 just so we can assure ourselves as to the extent, if  
14 any, of the effect of the changes on the statement of  
15 considerations at that time. And we won't set a time  
16 frame, but we would appreciate the help of any party on  
17 that, in cooperation with other parties. And if we  
18 could get it before the Christmas break that would be  
19 helpful, but we won't require it then.

20           Let's bind it in for convenience in addition  
21 at this point.

22           (The document referred to, previously marked  
23 for identification as Suffolk County Exhibit No. 90,  
24 follows:)

25

obligation of any handler to required to be paid under this order shall, except as paragraph (b) and (c) of terminate 2 years after of the calendar month dur- market administrator re- handler's utilization report on ed in such obligation, unless 2-year period the market notifies the handler in such money is due and pay- of such notice shall be on mailing to the handler's address, and it shall contain, be limited to, the following

amount of the obligation; month(s) during which the respect to which the obliga- was received or handled; and obligation is payable to producers or to an associa- tions, the name of such pro- association of producers, or tion is payable to the mar- ator, the account for which

handler fails or refuses, with any obligation under this part, able to the market admin- his representative all books required by this order to be able, the market administra- within the 2-year period pro- in paragraph (a) of this ify the handler in writing of or refusal. If the market or so notifies a handler, the period with respect to such shall not begin to run until of the calendar month fol- month during which all such records pertaining to such are made available to the imistrator or his representa-

withstanding the provisions of (a) and (b) of this section, obligation under this part shall not be terminated to any transaction involv- willful concealment of a al to the obligation, on the handler against whom the sought to be imposed.

obligation on the part of the administrator to pay a handler which such handler claims to under the terms of this part ate 2 years after the end ar month during which the ed in the claim was received payment is claimed, or 2 the end of the calendar ng which the payment (in- section or set-off by the mar- ator) was made by the han- fund on such payment is ese such handler within the eriod of time, files pursuant (15) (A) of the act, a peti- such money.

**EFFECTIVE TIME, SUSPENSION OR TERMINATION**  
Effective time.  
visions of this part, or any to this part, shall become

effective at such time as the Secretary may declare and shall continue in force until suspended or terminated.

**§ 1079.91 Suspension or termination.**

The Secretary shall suspend or terminate any or all of the provisions of this part, whenever he finds that it obstructs or does not tend to effectuate the declared policy of the act. The part shall, in any event, terminate whenever the provisions of the act authorizing it cease to be in effect.

**§ 1079.92 Continuing power and duty of the market administrator.**

(a) If, upon the suspension or termination of any or all of the provisions of this part, there are any obligations arising under this part, the final accrual or ascertainment of which requires further acts by any handler, by the market administrator, or by any other person, the power and duty to perform such further acts shall continue notwithstanding such suspension or termination; *Provided*, That any such acts required to be performed by the market administrator shall if the Secretary so directs, be performed by such other person, persons, or agency as the Secretary may designate.

(b) The market administrator, or such other person as the Secretary may designate shall (1) continue in such capacity until discharged by the Secretary; (2) from time to time account for all receipts and disbursements and deliver all funds or property on hand together with the books and records of the market administrator or such person, to such person as the Secretary shall direct; and (3) if so directed by the Secretary execute such assignment or other instruments necessary or appropriate to vest in such person full title to all funds, property, and claims vested in the market administrator or such person pursuant thereto.

**§ 1079.93 Liquidation after suspension or termination.**

Upon the suspension or termination of any or all provisions of this part the market administrator, or such person as the Secretary may designate, shall if so directed by the Secretary, liquidate the business of the market administrator's office and dispose of all funds and property then in his possession or under his control, together with claims for any funds which are unpaid or owing at the time of such suspension or termination. Any funds collected pursuant to the provisions of this part, over and above the amounts necessary to meet outstanding obligations and the expenses necessarily incurred by the market administrator or such person in liquidating such funds, shall be distributed to the contributing handlers and producers in an equitable manner.

**MISCELLANEOUS PROVISIONS**

**§ 1079.100 Separability of provisions.**

If any provision of this part, or its application to any person or circumstances, is held invalid, the application of such provision, and of the remaining

provisions of this part, to other persons or circumstances shall not be affected thereby.

**§ 1079.101 Agents.**

The Secretary may, by designation in writing, name any officer or employee of the United States to act as his agent or representative in connection with any of the provisions of this part.

Signed at Washington, D.C., on April 14, 1969.

JOHN C. BLUM,  
Deputy Administrator,  
Regulatory Programs.

[P.R. Doc. 69-4561, Filed, Apr. 16, 1969; 8:51 a.m.]

**ATOMIC ENERGY COMMISSION**

[ 10 CFR Part 50 ]

**LICENSING OF PRODUCTION AND UTILIZATION FACILITIES**

**Quality Assurance Criteria for Nuclear Powerplants**

The Atomic Energy Commission has under consideration an amendment to its regulation, 10 CFR Part 50, "Licensing of Production and Utilization Facilities," which would add an Appendix B, "Quality Assurance Criteria for Nuclear Power Plants." Nuclear powerplants include structures, systems, and components that prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public. The purpose of the proposed amendment is to provide quality assurance requirements for the design, construction, and operation of these structures, systems, and components. These requirements apply to all activities during the design, construction, and operating phases of nuclear powerplants which affect the safety-related functions of such structures, systems, and components.

The development of these criteria has taken into account cooperative Atomic Energy Commission-industry efforts on quality assurance requirements, the experience accumulated in designing, constructing, and operating licensed nuclear power plants and Commission-owned reactors, and the quality assurance programs required for work under the cognizance of the Department of Defense and the National Aeronautics and Space Administration.

The quality assurance requirements established by these criteria are intended to assure that:

(a) Applicable regulatory requirements and the design bases, as defined in § 50.2 and as specified in the license application, for structures, systems, and components are correctly translated into specifications, drawings, procedures, and instructions.

(b) Systems and components fabricated and tested in manufacturers' facilities conform to these specifications, drawings, procedures, and instructions.

(c) Structures, systems, and components constructed and tested at the nuclear powerplant site conform to these specifications, drawings, procedures, and instructions.

(d) Succeeding activities, such as operating, testing, refueling, repairing, maintaining, and modifying nuclear powerplants, are conducted in accordance with quality assurance practices consistent with those employed during design and construction. In addition to the requirement that operating activities be conducted in accordance with these quality assurance practices, there are other requirements which must be suitably developed and observed to assure safe operation; for example, technical specifications, schedules of maintenance and refueling, fuel management programs, and programs for operator training and qualification.

These quality assurance criteria would supplement Criterion 1 of the "General Design Criteria for Nuclear Power Plant Construction Permits."<sup>1</sup> They are intended to assist applicants (1) to comply with § 50.34(a) (7) which requires inclusion in the preliminary safety analysis report of a description and evaluation of the quality assurance program to be applied to the design, fabrication, construction, and testing of the structures, systems, and components of the facility, and (2) in the development of managerial and administrative controls to be used to assure safe operation, as required by § 50.34(b) (6) (ii). Specific references to the proposed Appendix B, "Quality Assurance Criteria for Nuclear Power Plants," would be added to § 50.34 (a) and (b).

These criteria will also be used for guidance in evaluating the adequacy of the quality assurance programs in use by holders of construction permits and operating licenses.

Pursuant to the Atomic Energy Act of 1954, as amended, and section 553 of title 5 of the United States Code, notice is hereby given that adoption of the following amendments to 10 CFR Part 50 is contemplated. All interested persons who wish to submit comments or suggestions in connection with the proposed amendments should send them to the Secretary, U.S. Atomic Energy Commission, Washington, D.C. 20545, Attention: Chief, Public Proceedings Branch, within 60 days after publication of this notice in the FEDERAL REGISTER. Copies of comments received may be examined in the Commission's Public Document Room at 1717 H Street NW., Washington, D.C.

1. In § 50.34, paragraphs (a) (7) and (b) (6) (ii) are amended to read as follows:

§ 50.34 Contents of applications: technical information.

(a) Preliminary safety analysis report. Each application for a construction permit shall include a preliminary safety analysis report. The minimum informa-

<sup>1</sup> The General Design Criteria were published for public comment as a proposed amendment to 10 CFR Part 50 in the FEDERAL REGISTER on July 11, 1967 (32 F.R. 10213).

tion<sup>2</sup> to be included shall consist of the following:

(7) A description and evaluation of the quality assurance program to be applied to the design, fabrication, construction, and testing of the structures, systems, and components of the facility. Appendix B, "Quality Assurance Criteria for Nuclear Power Plants," sets forth the requirements for quality assurance programs for nuclear power plants.

(b) Final safety analysis report. Each application for a license to operate a facility shall include a final safety analysis report. The final safety analysis report shall include information that describes the facility, presents the design bases, and the limits on its operation, and presents a safety analysis of the structures, systems, and components and of the facility as a whole, and shall include the following:

(6) The following information concerning facility operation:

(ii) Managerial and administrative controls to be used to assure safe operation. Appendix B, "Quality Assurance Criteria for Nuclear Power Plants," sets forth the requirements for such controls for nuclear powerplants.

2. A new Appendix B is added to read as follows:

#### APPENDIX B—QUALITY ASSURANCE CRITERIA FOR NUCLEAR POWERPLANTS

**Introduction.** Every applicant for a construction permit is required by the provisions of § 50.34 to include in its preliminary safety analysis report a description and evaluation of the quality assurance program to be applied to the design, fabrication, construction, and testing of the structures, systems, and components of the facility. Every applicant for an operating license is required to include, in its final safety analysis report, information pertaining to the managerial and administrative controls to be used to assure safe operation. Nuclear powerplants include structures, systems, and components that prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public. This appendix establishes quality assurance requirements for the design, construction, and operation of those structures, systems, and components. These requirements apply to all activities affecting the safety-related functions of those structures, systems, and components; these activities include designing, purchasing, fabricating, handling, shipping, storing, cleaning, erecting, installing, inspecting, testing, operating, maintaining, repairing, refueling, and modifying.

As used in this appendix, "quality assurance" comprises all those planned and systematic actions necessary to provide adequate confidence that a structure, system, or component will perform satisfactorily in service.

<sup>2</sup> The applicant may provide information required by this paragraph in the form of a discussion, with specific references, of similarities to and differences from, facilities of similar design for which applications have previously been filed with the Commission.

Quality assurance includes quality control, which comprises those quality assurance actions related to the physical characteristics of a material, structure, component, or system which provide a means to control the quality of the material, structure, component, or system to predetermined requirements.

#### I. ORGANIZATION

The applicant<sup>3</sup> shall be responsible for the development, implementation, and execution of the quality assurance program. The applicant may delegate to other organizations the establishment and execution of the quality assurance program, or any part thereof, but shall retain responsibility therefor. The authority and duties of persons and organizations performing quality assurance functions shall be clearly established and delineated in writing. Such persons and organizations shall have sufficient authority and organizational freedom to identify quality problems; to initiate, recommend, or provide solutions; and to verify implementation of solutions. In general, assurance of quality requires management measures which provide that the individual or group assigned the responsibility for checking, auditing, inspecting, or otherwise verifying that an activity has been correctly performed is independent of the individual or group directly responsible for performing the specific activity. The applicant shall regularly review the status and adequacy of the quality assurance program. Management of other organizations participating in the quality assurance program shall regularly review the status and adequacy of that part of the quality assurance program which they are executing.

#### II. QUALITY ASSURANCE PROGRAM

The applicant shall establish at the earliest practical time a quality assurance program which complies with the requirements of this appendix. This program shall be documented by written policies, procedures, and instructions and shall be carried out throughout plant life. The applicant shall identify the structures, systems, and components to be covered by the quality assurance program and the major organizations participating in the program, together with their designated functions. The quality assurance program shall provide control by means such as design review, verification, inspection, and documentation, over activities affecting the quality of the structures, systems, and components, to an extent consistent with their importance to safety. Activities affecting quality shall be accomplished under this program in accordance with instructions, procedures, or drawings of a type appropriate to the circumstances and under suitably controlled conditions. Controlled conditions include the use of appropriate equipment, suitable working environment, adequate cleanliness, and assurance that all prerequisites for the operation have been satisfied. The program shall take into account the need for special controls, processes, test equipment, and skills to attain the required quality; the need for verification of quality by inspection and test; and the need for indoctrination and training of personnel to execute the program.

<sup>3</sup> While the term "applicant" is used in these criteria, the requirements are, of course, applicable after such a person has received a license to construct and operate a nuclear powerplant. These criteria will also be used for guidance in evaluating the adequacy of quality assurance programs in use by holders of construction permits and operating licenses.

III. DESIGN CONTROL

Measures shall be established to assure compliance with applicable regulatory requirements and design bases, as defined in § 50.2 and as stated in the license application, for those systems, components, and assemblies to which this appendix applies are correctly defined into specifications, drawings, procedures, and instructions. These measures shall provide for the performance of design activities by individuals or groups other than those who performed the original design, but who may be from the same organization. In addition, verification of the design, the applicant shall be responsible for assuring that the design is correctly described in the license application and that the contents of the safety analysis reports are accurate. Design reviews shall cover items such as the following: reactor physics, stress, thermal, hydraulic, and accident analyses; compatibility of materials and of design interfaces; availability for in-service inspection, maintenance, and repair; and delineation of acceptance criteria for inspections and tests. Reports of in-process and final design reviews shall be reviewed by management of the responsible design organizations. Design changes, including field changes, shall be approved by the organization that performed the original design unless the applicant specifically designates another responsible organization. Procedures shall be established involving participating design organizations for review, approval, release, distribution, and revision of documents involving design interfaces.

IV. PROCUREMENT DOCUMENT CONTROL

Measures shall be established to assure that applicable regulatory requirements, design bases, and other requirements which are necessary to assure adequate quality are fully included or referenced in the documents for procurement of material, equipment, and services, whether purchased by the applicant or by its contractors or subcontractors. To the extent necessary, procurement documents shall require contractors or subcontractors to provide a quality assurance program consistent with the quality assurance requirements of this appendix.

V. INSTRUCTIONS, PROCEDURES, AND DRAWINGS

Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances. Instructions, procedures, and drawings shall include appropriate qualitative or quantitative means for determining that important operations have been satisfactorily accomplished.

VI. DOCUMENT CONTROL

Measures shall be established to control the issuance of documents, such as instructions, procedures, and drawings, including changes thereto, which prescribe all activities affecting quality. These measures shall assure that documents, including changes, are reviewed for adequacy and approved for release by authorized personnel and are distributed to and used at the location where the prescribed activity is performed. Changes in documents shall be reviewed and approved by the same organizations that performed the original review and approval unless the applicant specifically designates another responsible organization.

VII. CONTROL OF PURCHASED MATERIAL, EQUIPMENT, AND SERVICES

Measures shall be established to assure that purchased material, equipment, and services whether purchased directly or through contractors and subcontractors, conform to procurement documents. These measures shall include provisions, as appropriate, for

source evaluation and selection, objective evidence of quality furnished by the contractor or subcontractor, inspection at the contractor or subcontractor source, and examination of products upon delivery. The effectiveness of the control of quality by contractors and subcontractors shall be assessed by the applicant or designee at intervals consistent with the importance, complexity, and quantity of the product or services. Test reports, inspection records, audit reports, certificates, and other evidence of quality shall be used in this assessment, and corrective action shall be taken where indicated.

VIII. IDENTIFICATION AND CONTROL OF MATERIALS, PARTS, AND COMPONENTS

Measures shall be established for the identification and control of materials, parts, and components, including partially fabricated assemblies. These measures shall assure that identification is maintained, either on the item or on records traceable to the item, throughout fabrication, erection, installation, repair, or modification. The measures shall be designed to prevent the use of incorrect or defective items, and items which have not received the required inspections and tests.

IX. CONTROL OF SPECIAL PROCESSES

Measures shall be established to assure that special processes, including welding, heat treating, and nondestructive testing, are controlled in accordance with applicable codes, standards, specifications, criteria, and other special requirements, and are accomplished by qualified personnel using qualified procedures.

X. INSPECTION

A program for in-process and final inspection of activities affecting quality shall be established to assure conformance with documented instructions, procedures, and drawings. Examinations, measurements, or tests of material or products processed shall be performed for each work operation where necessary to assure quality. If inspection of processed material or products is impossible or disadvantageous, indirect control by monitoring processing methods, equipment, and personnel shall be provided. Both inspection and process monitoring shall be provided when control is inadequate without both. Mandatory inspection hold points, which require witnessing or inspecting by the applicant's designated representative and beyond which work shall not proceed without the consent of its designated representative, shall be indicated in appropriate documents.

XI. TEST CONTROL

A test program shall be established to assure that all required testing, including proof testing, acceptance testing, and operational testing, is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents. The test procedures shall include provisions for assuring that all prerequisites for the given test have been met, that adequate test instrumentation is available and used, and that the test is performed under suitable environmental conditions. Test results shall be documented and evaluated to assure that test requirements have been satisfied.

XII. CALIBRATION OF MEASUREMENT AND TEST EQUIPMENT

Measures shall be established to assure that tools, gages, instruments, and other measuring and testing devices used in activities affecting quality are calibrated and properly adjusted at specified periods to maintain accuracy within necessary limits. Calibration shall be against certified measurement stand-

ards which have known valid relationships to national standards.

XIII. HANDLING, STORAGE, SHIPPING, AND PRESERVATION

Measures shall be established to provide work and inspection instructions for handling, storage, shipping, and preservation of material and equipment to prevent damage or deterioration. When necessary for particular products, special protective environments, such as inert gas atmospheres, specific moisture content levels, and temperature levels, shall be provided and their existence verified.

XIV. INSPECTION, TEST, AND OPERATING STATUS

Measures shall be established to indicate, by the use of markings such as stamps, tags, labels, routing cards, or other suitable means, the status of inspections and tests performed upon individual items and the status of plant operating equipment. These measures shall provide for the identification of those items which conform to inspection and test requirements; nonconforming items shall be clearly marked for subsequent disposition. Procedures shall be provided for tagging equipment such as valves and switches when necessary to prevent inadvertent operation.

XV. NONCONFORMING MATERIAL, PARTS, OR COMPONENTS

Measures shall be established to control material, parts, or components which do not conform to requirements in order to prevent their inadvertent use or installation. These measures shall include procedures for identification, documentation, segregation, disposition, and notification to affected organizations. Nonconforming items shall be reviewed and accepted, rejected, repaired, or reworked in accordance with documented procedures. Ultimate disposition of nonconforming items shall be documented.

XVI. CORRECTIVE ACTION

Measures shall be established to assure that all conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances, are promptly identified and reported to appropriate levels of management. The measures shall also assure that the cause of the condition adverse to quality be determined and corrected to preclude repetition. The corrective action measures shall extend to the performance of all contractors and subcontractors as necessary. The identification of conditions adverse to quality, the cause of the condition, and the corrective action taken shall be documented.

XVII. QUALITY ASSURANCE RECORDS

Records shall be maintained sufficient to furnish documentary evidence of activities affecting quality for use in the management of the program. The records shall include, but not be limited to, construction and operating logs, and the results of reviews, inspections, tests, audits, monitoring of work performance, and materials analyses. The records shall also include closely-related data such as qualifications of personnel, procedures, and equipment. Inspection and test records shall, as a minimum, identify the inspector or data recorder, the type of observation, the results, the acceptability, and the action taken in connection with any deficiencies noted. Consistent with applicable regulatory requirements, the applicant shall establish requirements concerning record retention, such as duration, location, and assigned responsibility.

XVIII. AUDITS

A comprehensive system of planned and periodic audits shall be carried out to assure compliance with all aspects of the quality assurance program and to determine the

effectiveness of the program. The audits shall be performed in accordance with written procedures or check lists by appropriately qualified personnel not having direct responsibilities in the areas being audited. Audit results shall be documented and reviewed by management having responsibility in the area audited. Followup action, including re-audit of deficient areas, shall be taken where indicated.

(Sec. 161, 68 Stat. 948; 42 U.S.C. 2201)

Dated at Washington, D.C., this 14th day of April 1969.

For the Atomic Energy Commission.

W. B. McCool,  
Secretary.

[P.R. Doc. 69-4591; Filed, Apr. 16, 1969;  
8:52 a.m.]

## FEDERAL MARITIME COMMISSION

[46 CFR Part 527]

[Docket No. 69-15]

### SHIPPERS' REQUESTS AND COMPLAINTS

#### Proposed Reporting Requirements

Section 527.4 of General Order 14 (46 CFR Part 527) presently requires each conference and each other body with rate-fixing authority under an approved agreement to file with the Commission by January 31, April 30, July 31 and October 31 of each year a report covering all shippers' requests and complaints received during the preceding 3-month period or pending at the beginning of such period, such report to include certain detailed information further identified in paragraphs (a) to (f) of § 527.4 inclusive.

After a period of more than 3 years of receipts of these reports from parties to rate-making agreements, it has become well established that the continuation of the requirement of quarterly reports of shippers' requests and complaints insofar as two party rate-fixing agreements are concerned may be unnecessarily burdensome. The number of shippers' requests and complaints actually processed pursuant to these two party agreements over a 3-year period has been so minimal as to have little significant effect on the regulatory purposes to be served. To keep the Commission informed in those instances which do arise, it is proposed that the reporting requirement be changed from quarterly to annual.

Therefore, pursuant to section 5 of the Administrative Procedure Act (5 U.S.C. 553) and sections 15, 21, and 43 of the Shipping Act, 1916 (46 U.S.C. 814, 820, and 841(a)), notice is hereby given that the Commission proposes to amend Part 527 of 46 CFR, to change the reporting requirements of General Order 14 from quarterly to annual, for all two party rate-fixing agreements. It is proposed that Part 527 be amended by adding at the end of § 527.4 thereof the following sentences:

#### § 527.4 Reports.

\* \* \* Any group with rate-fixing authority under an approved agreement

which has no more than two signatory parties to the agreement shall be required to file annual reports under this section in lieu of quarterly reports. Such annual reports shall be filed by January 31 of each year covering all shippers' requests and complaints received during the preceding calendar year or pending at the beginning of such calendar year.

Interested persons may participate in this rulemaking proceeding by filing with the Secretary Federal Maritime Commission, Washington, D.C. 20573, within ten (10) days of publication of this notice in the FEDERAL REGISTER, an original and fifteen (15) copies of their views or comments pertaining to the proposed rule. Any suggestions for changes in the proposed rule should be supported by statements relating the proposed change to the purposes of section 15 of the Shipping Act, 1916, and General Order 14, of the Commission's rules.

The Federal Maritime Commission, Office of Hearing Counsel, shall participate in the proceeding and shall file Reply to Comments within ten (10) days from the final date for filing comments by serving an original and 15 copies on the Federal Maritime Commission and one copy to each party who filed comments. Answers to Hearing Counsel's replies shall be submitted to the Federal Maritime Commission within 10 days of the final date for filing replies.

By the Commission.

[SEAL] THOMAS LIST,  
Secretary.

[P.R. Doc. 69-4549; Filed, Apr. 16, 1969;  
8:50 a.m.]

### [46 CFR Part 528]

[Docket No. 69-14]

### SELF-POLICING REQUIREMENTS

#### Proposed Exclusion of Two Party Rate-Fixing Agreements

Section 528.2 of General Order 7 (46 CFR Part 528) presently requires conference agreements and other rate-fixing agreements between common carriers by water in the foreign and domestic off-shore commerce of the United States, to contain a provision describing the method or system used by the parties in policing the obligations under the agreement, including the procedure for handling complaints and the functions and authority of every person having responsibility for administering the system. This section also requires the filing of amendments to all agreements previously approved so as to comply with these requirements.

Under § 528.3, all conferences and carriers subject to the self-policing rules are required to file semiannual reports with the Commission in January and July showing the nature of each complaint received during the preceding 6-month period, the action taken, the nature of the violations found and the penalties or other sanctions imposed.

The self-policing requirements of General Order 7 have been in effect for more

than 5 years and applies to all groups registered under the act. Staff has observed compliance by any, benefit so far as two concerned. In event, the moving of the resignation satisfied participation of the act.

Therefore, Administrative 553; and Section Shipping Act and 841(a) of the Commission 528 of 46 CFR rate-fixing requirements proposed the Part 528 re-

§ 528.4 T-ments.

Any group under an approved agreement no more than the agreement requirement.

Interested in this rulemaking the Secretary, Commission, Washington, D.C. ten (10) days of publication in the FEDERAL REGISTER, an original and fifteen (15) copies of their views or comments pertaining to the proposed rule. Any suggestions for proposed rule amendments should be supported by statements relating the proposed change to the purposes of section 15 of the Shipping Act, 1916, and General Order 14, of the Commission's rules.

The Federal Maritime Commission, Office of Hearing Counsel, shall participate in the proceeding and shall file Reply to Comments within ten (10) days from the final date for filing comments by serving an original and 15 copies on the Federal Maritime Commission and one copy to each party who filed comments. Answers to Hearing Counsel's replies shall be submitted to the Federal Maritime Commission within 10 days of the final date for filing replies.

By the Commission.

[SEAL]

[P.R. Doc. 69-4549; Filed, Apr. 16, 1969; 8:50 a.m.]

CONFERENCE  
SESSIONS  
AND  
ACTIVITIES

Proposed  
Rate

Section 528  
CFR Part 528

1           MR. ELLIS: Judge Brenner, what was the number  
2 assigned to that?

3           JUDGE BRENNER: Suffolk County No. 90. And I  
4 expect Exhibit 100 to be a good one, as is appropriate  
5 for the number.

6           We have no other preliminary matters. Let's  
7 take a 15-minute break now and then we will run until  
8 lunch, and we might break a little earlier for lunch.  
9 So we will come back at 10:20.

10           (Whereupon, at 10:05 a.m., the hearing in the  
11 above-entitled matter was recessed, to resume at 10:20  
12 a.m. the same day.)

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1 (10:20 a.m.)

2 JUDGE BRENNER: All right. On Friday we had  
3 received what was the acknowledged preliminary time  
4 estimate from Mr. Ellis as to his cross-examination of  
5 Mr. Hubbard. We will give you a chance, as we said we  
6 would, to update it at this time if you would like to.

7 MR. ELLIS: Yes, sir. I think that my  
8 estimate is still going to be three to four days. There  
9 are a number of variables that remain variable, but I do  
10 not think it will be any less than three days. And that  
11 is based on, we have been at it about a day now, half of  
12 Thursday and Friday being a half day.

13 JUDGE BRENNER: I see. You mean three to four  
14 days counting the day?

15 MR. ELLIS: No, sir.

16 JUDGE BRENNER: Three to four days from now?

17 MR. ELLIS: Yes, sir.

18 JUDGE BRENNER: That is a little longer than  
19 the previous estimate.

20 MR. ELLIS: Yes, sir, it is.

21 JUDGE BRENNER: So it may well go beyond noon  
22 on Thursday?

23 MR. ELLIS: It may, yes, sir. And I will  
24 update that as time goes by. We will also give you an  
25 updated cross plan as well, probably either noon or the

1 end of the day today. And I will update the Board and  
2 the parties on my estimates. It may well go down.

3 JUDGE BRENNER: All right.

4 Whereupon,

5 RICHARD B. HUBBARD,

6 the witness on the stand at the time of recess, resumed  
7 the stand and, having previously been duly sworn by the  
8 Chairman, was examined and testified further as follows:

9 CONTINUING CROSS-EXAMINATION

10 BY MR. ELLIS:

11 Q Good morning, Mr. Hubbard.

12 When we recessed on Friday, we were talking  
13 about the alleged breakdowns that you have listed on  
14 page 27 of your testimony, and I wanted to finish that  
15 if I may. At that time we had discussed and you  
16 testified with respect to your alleged breakdown a) on  
17 page 27 that you did not know what was seemingly  
18 contradictory about the label of breakdown a). It is  
19 true that you did not know what was incorrect about the  
20 mimics in the alleged breakdown b) and c) on page 27, do  
21 you?

22 A (WITNESS HUBBARD) That is correct.

23 Q And it is also correct, isn't it, for brevity,  
24 Mr. Hubbard, that you do not know, with respect to  
25 alleged breakdowns f), h) and i), what was either

1 confusing or not clear or not labeled as such with  
2 respect to any of those?

3 A (WITNESS HUBBARD) That is correct. I think,  
4 though, it is a little combination of various things.  
5 On f), the item is confusing. That is the word used by  
6 the Staff, and their criteria for confusing, I am not  
7 aware of what that is.

8 h), where controllers are not labeled, that  
9 seems to be a little clearer than "confusing." They are  
10 not labeled properly. And then i), are not clearly  
11 labeled as to function, that appears to be again more a  
12 matter of judgment. So some has to do with judgment, it  
13 appears, and some have to do with is the work done  
14 correctly.

15 An example is what you cited, Mr. Ellis.

16 Q Well, Mr. Hubbard, would it be fair, then, to  
17 say that with respect to your knowledge of these labels  
18 and mimics, it is limited to what you read in the CAT  
19 Report and put in your testimony on page 27?

20 A (WITNESS HUBBARD) For these particular items,  
21 yes.

22 Q All right. Now, you said that several of them  
23 were a matter of judgment. Would I be correct in saying  
24 that you would agree that a), f) -- a), f), and i) would  
25 in your view be matters of inspector judgment?

1           A       (WITNESS HUBBARD) Mr. Ellis, that is a hard  
2 question to answer yes or no, and the reason for that is  
3 that they look like they are primarily a matter of  
4 judgment, but then you get back to judgment based on  
5 what. And the judgment may be based upon his reading of  
6 either the FSAR or some design spec that implements the  
7 FSAR. And it also may be based on some other knowledge  
8 that the inspector has.

9           Q       Are you done, Mr. Hubbard?

10          A       (WITNESS HUBBARD) Yes, sir.

11          Q       Okay. I take it, then, it is fair to say that  
12 you do not know whether the inspector's judgment was  
13 based on an FSAR section or design specification or  
14 other knowledge, as you stated?

15          A       (WITNESS HUBBARD) That is correct, Mr.  
16 Ellis. And it is reflected in the first paragraph or  
17 the top of the testimony, where it says, "against  
18 applicable regulatory requirements, licensee  
19 commitments, good human factor practices, and inspector  
20 judgment." I am not aware of what weight each of those  
21 has for each of the items a) to i). That is to say that  
22 some item may be a combination of the four or it may be  
23 based upon just one of those particular criteria that I  
24 read.

25          Q       And that is true for items a) through i), is

1 that true, Mr. Hubbard?

2 A (WITNESS HUBBARD) Yes, sir, Mr. Ellis.

3 Q The CAT inspector did not cite any regulatory  
4 requirement or licensee commitment involved in any of  
5 these a) through i), did he?

6 A (WITNESS HUBBARD) He cited this as an open  
7 item or an unresolved item, and depending upon what the  
8 LILCO response is it will stay an unresolved item, which  
9 gets resolved, or somethings unresolved items then  
10 become licensing actions, depending on what the  
11 resolution would be.

12 For example, back to the annunciator. That  
13 looks like a seemingly minor problem, but when LILCO  
14 responds to that with their corrective action they may  
15 say, well, we've looked at 144 more annunciator points  
16 and 10 of them had to be modified, in which case then  
17 this might become an issue of higher priority.

18 So it is an open item at this point. When the  
19 inspector looks at the LILCO corrective action, which  
20 I'm not aware has been proposed yet, then it will either  
21 be closed out or it may become a higher level finding at  
22 that time.

23 Q Well, Mr. Hubbard, my question was, the CAT  
24 inspector did not say, did he, that any of these were  
25 violations of licensee commitments or regulatory

1 requirements, did he?

2 A (WITNESS HUBBARD) Yes, he did.

3 Q Where did he say that?

4 A (WITNESS HUBBARD) He said it in the opening  
5 paragraph, where he said that the -- well, let's go back  
6 and look at what exactly he said.

7 Q Doesn't it say, Mr. Hubbard, that the controls  
8 were reviewed against applicable regulatory  
9 requirements, licensee commitments, good human factor  
10 practices, and inspector judgment? And then he goes on  
11 to say -- and this is on page 14 of the CAT inspection,  
12 attachment 4-24, Judge Prenner.

13 And then he goes on to say, "With the  
14 exception of the items listed below, no discrepancies  
15 were identified." Now, do you interpret that to mean  
16 that the CAT inspector says those are regulatory  
17 violations and failures to meet licensee commitments?

18 A (WITNESS HUBBARD) Yes, that is how I  
19 interpret it, that the first sentence that says what the  
20 standards that the inspector used, and then listed below  
21 are the discrepancies to those standards.

22 Q But you just testified a moment ago, Mr.  
23 Hubbard, that you didn't know whether, of the four  
24 factors -- regulatory requirements, licensee  
25 commitments, good human factor practices, and inspector

1 judgment -- you did not know which of these and how many  
2 of these applied to each of the items a) through i). So  
3 isn't it fair to say that you don't know whether all or  
4 most of these items may have been simply good human  
5 factors practices and inspector judgment in the opinion  
6 of the CAT inspector?

7 A (WITNESS HUBBARD) That is possible. It's  
8 equally possible that most of them may have been  
9 licensee commitments or regulatory requirements.

10 Q Mr. Hubbard, if you would agree that it would  
11 be one or the other. Your testimony, though, on page 28  
12 does not say that it is possible that these may have  
13 been regulatory violations -- well, strike that.

14 Wouldn't it make your testimony more accurate  
15 on page 28 of your prefiled testimony, Mr. Hubbard, if  
16 instead of saying that these were failures to meet  
17 licensee commitments or regulatory violations, if you  
18 had said that it was possible that these were failures  
19 to meet licensee commitments or regulatory  
20 requirements? Wouldn't that have been more accurate in  
21 light of your testimony?

22 A (WITNESS HUBBARD) I don't believe so, Mr.  
23 Ellis. It is, as I said before, I grouped these nine  
24 items into one general comment and the general comment  
25 was that when you get this pattern of findings it

1 appeared to me that there was a lack of design control,  
2 and design control is criterion 3.

3 I mean, particularly when you look at items  
4 like b) and c), where you talk about mimic being  
5 incorrect. A good design review program would have seen  
6 that the mimic is in accordance with the flow diagrams  
7 of whatever is used. And that is why I didn't try to go  
8 back and separate each of these items a) to i), but  
9 listed it as one area that indicated to me a lack of  
10 design control.

11 Q It is true, though, isn't it, Mr. Hubbard,  
12 that the conclusion that there is a failure or lack of  
13 design control is your conclusion and not the CAT  
14 inspector's conclusion? He certainly makes no  
15 conclusion like that, does he?

16 A (WITNESS HUBBARD) He does not make that  
17 conclusion at this time. As I said before, these are  
18 unresolved issues. LILCO has to respond to those and an  
19 IE inspector has to have follow-up audits to close them  
20 out, and neither of the latter two events have occurred,  
21 to the best of my knowledge.

22 Q So you would need additional information,  
23 then, in order to permit you to make any confident  
conclusion concerning whether these were design control  
problems, isn't that correct?

1           A       (WITNESS HUBBARD) No, Mr. Ellis. It is clear  
2 to me they are design control problems. The seriousness  
3 of these design control problems, the depth and extent  
4 of it will become more obvious once the LILCO corrective  
5 action is reviewed and the IE inspector reviews the  
6 corrective action.

7                   (Counsel for LILCO conferring.)

8           Q       Look at b) on page 27, Mr. Hubbard. Did you  
9 examine the FSAR to find a specific commitment relating  
10 to the alleged breakdown b) on page 27?

11          A       (WITNESS HUBBARD) No, I did not.

12          Q       And the same would be true of a) through i),  
13 isn't that correct?

14          A       (WITNESS HUBBARD) That is correct, Mr.  
15 Ellis.

16          Q       And with respect to the alleged breakdowns in  
17 both b) and c), you've made -- since you do not know  
18 what was incorrect about those mimics, similarly you  
19 don't know whether a trained operator at Shoreham would  
20 be misled or confused by any of those deficiencies noted  
21 in alleged breakdowns b) and c), do you?

22          A       (WITNESS HUBBARD) No, I don't. But as a QA  
23 manager, I don't think that is the question. As a QA  
24 manager, you want the mimic to agree with what is really  
25 in the plant, what is on the drawings. Hopefully, what

1 is on the drawings and what's in the plant and what's in  
2 the mimic are all the same.

3 (Counsel for LILCO conferring.)

4 Q Is it your understanding that everything that  
5 is on the drawing appears on a mimic?

6 A (WITNESS HUBBARD) Absolutely not.

7 Q So you don't know whether b) and c) may be  
8 just a matter of judgment as to whether more information  
9 should have been put on the mimic than was on there?

10 A (WITNESS HUBBARD) As I said before, I think  
11 the words are pretty clear. The words are "incorrect."  
12 Now, I have found that sometimes the I&E inspectors do  
13 make mistakes. However, in general I have found, once  
14 they put something in one of their reports, it tends to  
15 hold up. So I think it is pretty clear it is  
16 incorrect.

17 Again, I'm waiting for the LILCO corrective  
18 action and then the NRC re-audit to see the extent of  
19 this problem.

20 Q I take it, then, your answer then is that you  
21 consider I&E inspectors and their reports fairly  
22 reliable?

23 A (WITNESS HUBBARD) Yes, Mr. Ellis, I do  
24 believe they are reliable. At the same time, I think  
25 one can find examples where later on it turns out with

1 additional information the I&E withdraws the particular  
2 statement. There are examples of that. But in my  
3 experience of being audited by I&E and then also in  
4 looking at their reports over the years, by and large I  
5 think what they've put in reports tends to hold up as  
6 being true.

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1 Q A moment ago you said that it was not  
2 important whether or not a trained operator at Shoreham  
3 would be misled by any of the discrepancies in b) and c)  
4 in terms of QA. I take it by that you mean that the  
5 factor of good human factors practices that's listed up  
6 at the top of page 27 is not a relevant factor in QA  
7 assessments.

8 A (WITNESS HUBBARD) I really don't agree with  
9 how you summarized my previous testimony, Mr. Ellis.  
10 First --

11 Q Correct me, then.

12 A (WITNESS HUBBARD) I didn't think we had to  
13 reach to the point of whether the operator was or was  
14 not confused to look at this in terms of quality  
15 assurance concerning the mimic. The first thing with a  
16 disciplined quality assurance process you expect the  
17 mimic to be accurate. You wouldn't want to design the  
18 plant to have inaccuracies and have to make up for  
19 inaccuracies with trained operators.

20 So then a second point would be assuming it is  
21 inaccurate, then how that might affect the operator. I  
22 haven't gone in to study that, but in general, my  
23 position would be that what the information provided to  
24 the operator should be something he can rely on.

25 Q Mr. Hubbard, with respect to the alleged

1 breakdown in e), since you indicated that you have not  
2 examined any of these, I take it you cannot tell the  
3 Board what identification did exist, if not easy  
4 identification between colors and numbers on the label  
5 there.

6 A (WITNESS HUBBARD) That is correct.

7 Q And, again, you don't know whether a trained  
8 operator would have adequate cross reference between  
9 colors and numbers, do you, at Shoreham?

10 A (WITNESS HUBBARD) No.

11 (Counsel for LILCO conferring.)

12 Q Mr. Hubbard, it's fair to say, isn't it, that  
13 you also cannot tell this Board whether the labeling  
14 with General Electric numbers rather than LILCO  
15 identifying numbers for the temperature points in  
16 alleged breakdown d) would be confusing to a trained  
17 operator at Shoreham?

18 A (WITNESS HUBBARD) No, I cannot.

19 Q And I think you already testified to this, and  
20 forgive me if I am repeating it, but I think you  
21 indicated that you do not know of any specific FSAR or  
22 specification requirement with respect to alleged  
23 breakdowns d) and e).

24 A (WITNESS HUBBARD) Mr. Ellis, I testified  
25 before, I believe, about FSAR commitments.

1 Q Yes, sir.

2 A (WITNESS HUBBARD) And now you added the word  
3 "specification requirements." I think my testimony  
4 before could be confusing. I cannot find a line in the  
5 FSAR that talks about annunciators having clear labels.  
6 There may be a statement of that. However, in the FSAR  
7 there is a commitment to having a design control program  
8 to implement the design specification requirements. And  
9 I know when I was working at GE, and I think that the  
10 people I had did some of the QA and some of the control  
11 room panels, that there were requirements that the  
12 design information that is presented to the operator be  
13 clear and unambiguous.

14 So when you use the word "design  
15 specifications," I don't have a copy of the GE design  
16 spec for the control room panels. Likewise, LILCO may  
17 have one and Stone and Webster; and I haven't reviewed  
18 those in depth to reach my conclusions on items a) to i).

19 Q Well, you say you haven't reviewed them in  
20 depth. Isn't it true that you haven't reviewed them at  
21 all in connection with your testimony on a) through i)  
22 on page 27?

23 A (WITNESS HUBBARD) That is correct.

24 (Counsel for LILCO conferring.)

25 Q Mr. Hubbard, you refer in your testimony to

1 earlier control room human factors reviews. Did you  
2 participate in any of those?

3 A (WITNESS HUBBARD) No, I did not directly.

4 Q Did MHB or any consultant of the County?

5 A (WITNESS HUBBARD) Yes. I believe MHB did and  
6 other consultants to the County. In fact, I think my  
7 partner, Mr. Minor, attended some of those meetings.

8 Q How many control room reviews have there been  
9 at Shoreham so far as you know?

10 A (WITNESS HUBBARD) My recollection is there  
11 was one, and then there might possibly have been a  
12 followup to that. I can't recall for sure whether there  
13 was a followup.

14 Q Was Mr. Minor's participation in that to  
15 ensure that it was an adequate and thorough job?

16 A (WITNESS HUBBARD) I wouldn't say that Mr.  
17 Minor was to make sure that it was adequate and  
18 thorough. Mr. Minor was allowed to be there as an  
19 observer, and Mr. Minor did observe, as I recall.

20 Q If he had thought it was inadequate was it not  
21 his responsibility or his duty to say something?

22 MR. LANPHER: I object to the question.

23 JUDGE BRENNER: Do you want to give me the  
24 grounds?

25 MR. LANPHER: What he thought his duty might

1 have been. We're getting into a very speculative area  
2 that is just not relevant to the QA testimony Mr.  
3 Hubbard is presenting.

4 JUDGE BRENNER: It is highly collateral even  
5 if marginally relevant, so I'm going to grant the  
6 objection.

7 (Counsel for LILCO conferring.)

8 BY MR. ELLIS: (Resuming)

9 Q Mr. Hubbard, with respect to alleged breakdown  
10 d), there is no regulatory requirement, is there, Mr.  
11 Hubbard, for LILCO to use LILCO identifying numbers  
12 rather than GE identifying numbers on temperature  
13 recorders for the RHR and HPCI temperature recorders?

14 A (WITNESS HUBBARD) I don't think I would agree  
15 with you necessarily, Mr. Ellis. My experience at  
16 General Electric was we had one set of numbers that we  
17 called things, and the utility might have another set,  
18 and that the utility did not have -- well, that the  
19 utility would eventually have to convert the GE  
20 nomenclature to the utility's nomenclature. And so  
21 whatever the utility nomenclature is, I think it should  
22 be consistently used.

23 Q But my question to you was for specific  
24 regulatory requirement. You don't know of any, do you?

25 A (WITNESS HUBBARD) Well, yes, Mr. Ellis. I

1 think in the broadest context. Again, that is what is  
2 covered by Criterion 3, that you have a design review  
3 process, and part of the design review is to see that  
4 you have consistent usage of terms, that the drawings  
5 are indeed correct, and things of that sort.

6 (Counsel for LILCO conferring.)

7 Q Well, let's look at Criterion 3, Mr. Hubbard.  
8 You say on page 28 of your prefiled testimony that they  
9 are contrary to the requirements of Criterion 3 because  
10 LILCO failed to establish measures for applicable  
11 regulatory requirements and design basis as specified in  
12 the license application are correctly translated into  
13 drawings.

14 You have already testified relating your lack of  
15 knowledge relating to the FSAR commitments in the  
16 license application. What regulatory requirements are  
17 referred to in Criterion 3 there with respect to alleged  
18 breakdown a) through i)?

19 MR. LANPHER: Judge Brenner, could I have the  
20 question read back, please?

21 MR. ELLIS: Do you want me to restate it?  
22 Would that be easier? Would that expedite manners?

23 JUDGE BRENNER: If you want to restate it, you  
24 can. Otherwise, I will have it read back.

25 MR. ELLIS: I will restate it to help expedite

1 matters.

2 BY MR. ELLIS: (Resuming)

3 Q Mr. Hubbard, you said that the regulatory  
4 requirement you referred to was Criterion 3 which on  
5 page 28 of your prefiled testimony you said, "Contrary  
6 to the requirements of Criterion 3, LILCO failed to  
7 establish measures to assure that applicable regulatory  
8 requirements and the design basis as specified in the  
9 license application are correctly translated into  
10 drawings."

11 You have already testified with respect to  
12 your lack of knowledge on FSAR commitments and design  
13 basis. Now, with respect to the regulatory requirement,  
14 what regulatory requirement, apart from Criterion 3, do  
15 you rely on in connection with any a) through i) of the  
16 alleged breakdowns?

17 A (WITNESS HUBBARD) Could I have that question  
18 back? I mean there was quite a bit in the front that I  
19 need to write down. You stated I agreed with you on two  
20 things, and I don't recall agreeing with you on the two  
21 things that predicated your question.

22 JUDGE BRENNER: All right. Let's get it read  
23 back this time by the Reporter.

24 MR. ELLIS: I will let the record speak for  
25 itself and ask the question one more time.

1 BY MR. ELLIS: (Resuming)

2 Q Apart from Criterion 3, Mr. Hubbard, is there  
3 any regulatory requirement, to your knowledge, that is  
4 specifically applicable to a) through i)?

5 A (WITNESS HUBBARD) Not to my knowledge at this  
6 time. I did not go back and look at the general design  
7 criteria of Appendix A to see if there are some general  
8 statements about control room panels that might be  
9 applicable. But when I was writing this testimony I was  
10 looking at it as a breakdown in the design review  
11 process, which is Criterion 3.

12 (Counsel for LILCO conferring.)

13 Q Apart from the statement that appears in the  
14 CAT inspection report that the items listed had not  
15 specifically been addressed and earlier control room  
16 factors reviewed, you have no knowledge of whether they  
17 were in fact considered or not, do you?

18 A (WITNESS HUBBARD) No, I do not, Mr. Ellis.

19 Q Now, you testified earlier that you were  
20 awaiting or you felt that it would be pertinent to see  
21 LILCO's response to these items, particularly you said  
22 with respect to a), that if they went out and found that  
23 out of 100 additional annunciators 10 also had a  
24 seemingly contradictory label, then that would be  
25 significant in your view.

1 I take it if the response is that annunciator  
2 1122 is the only one that has a seemingly contradictory  
3 label, you would agree that that was trivial?

4 A (WITNESS HUBBARD) We will have to reach some  
5 accord on the definition of the word "trivial."

6 Q Well, feel free to use another word in  
7 characterizing the seriousness of it if you like.

8 A (WITNESS HUBBARD) I think that in order to  
9 determine somewhat the significance of item a), one  
10 would need to look at the corrective action, and if the  
11 corrective action would talk about how many more  
12 annunciators were looked at, if it turned out that that  
13 was an isolated event on labeling, that would affect my  
14 judgment on significance. Then if it turned out that,  
15 again assuming there is only one, that there was a good  
16 justification for why the operator would not be confused  
17 by this contradictory label -- in other words, if one  
18 looked at emergency operating procedures and the  
19 operator didn't -- would not be confused or by this  
20 particular annunciator, then I would say this looks like  
21 an isolated event, and I would look at it in that level  
22 of significance as an isolated event.

23 But we don't have that corrective action or  
24 the NRC review of the corrective action at this time  
25 that I am aware of.

1 Q So at the present time there is simply not  
2 enough information really available with respect to a)  
3 through i) to permit you to make any judgment concerning  
4 whether there really is a failure of the design review  
5 or control system, isn't that correct?

6 A (WITNESS HUBBARD) No, Mr. Ellis. It is clear  
7 to me there is a breakdown. How broad that breakdown is  
8 and whether it impacts other systems other than what was  
9 looked at in the depth -- and the depth and extent of it  
10 is not clear to me yet at this point in time.

11 Q Your use of the term "breakdown" just now, you  
12 were using it as you defined it the other day, that is,  
13 a failure to meet a requirement, is that correct? Any  
14 audit finding or observation?

15 A (WITNESS HUBBARD) You used the word "audit  
16 finding or observation" as well as the definition of a  
17 breakdown. I defined a breakdown as a failure to meet a  
18 requirement, and then I said then an audit observation  
19 would have meant normally a couple of breakdowns had to  
20 occur in order to have an audit observation. And since  
21 this was the NRC review and CAT was that of a supposedly  
22 completed or fairly completed system, the CAT inspection  
23 says complete, but my judgment would be that there would  
24 be some work still going on on the RHR system. So if we  
25 start quibbling about the word "complete," it really

1 wasn't.

2           But my understanding was it was supposed to be  
3 a review of something that was nearly complete. And  
4 this, the CAT breakdowns that occurred after a number of  
5 the gates, by that, the gates had been looked at, so  
6 that to me would be a breakdown farther along in the  
7 chain. By that, more gates and more requirements had  
8 not been met.

9           Q     Did you, apart from --

10                   (Counsel for LILCO conferring.)

11           Q     Did you personally conduct any investigation  
12 or inquiry into the extent to which this system or  
13 portion of this system that was examined was complete  
14 and whether there were any additional tests, inspections  
15 for other gates to go through?

16           A     (WITNESS HUBBARD) Yes, I did, Mr. Ellis. On  
17 page 3 or page 4-13 of my testimony.

18                   JUDGE BRENNER: Do you mean Attachment 4?

19                   WITNESS HUBBARD: Yes, excuse me. Attachment  
20 4 to my testimony.

21                   JUDGE BRENNER: And page 13 of that attachment?

22                   WITNESS HUBBARD: When I read this the first  
23 time under "Purpose and Scope of Inspection" it said the  
24 word "completed," "a comparison of the completed  
25 construction with regulatory commitments and engineering

1 and design documents." And then the next sentence again  
2 it used the word "a completed ECCS system were selected  
3 for inspection."

4 And so I was interested in how complete  
5 complete might be. And through some work that MHB is  
6 doing on a LILCO rate case, I did a monthly progress  
7 report from LILCO on the status of various systems, and  
8 so I did look up to see where the RHR system stood in  
9 the pre-op and startup testing. And as I recall reading  
10 that, that the RHR system was still involved in some of  
11 the testing. It had been turned over to the pre-op  
12 group, but some of the testing was still going on at the  
13 time of this inspection in February of this year. So  
14 while the NRC uses the word "complete," it would be my  
15 testimony that LILCO had additional work yet to do on  
16 this system.

17 BY MR. ELLIS: (Resuming)

18 Q Do you know what the nature of the additional  
19 work and testing was to be done on the RHR system as of  
20 February 1982 at the time of the CAT inspection?

21 A (WITNESS HUBBARD) I don't recall, Mr. Ellis.

22 Q Well, wouldn't it be fair to say that you  
23 don't know what additional work and testing remained to  
24 be done on the RHR system in February of 1982?

25 A (WITNESS HUBBARD) No, not totally, Mr.

1 Ellis. I did go back and go through the monthly  
2 progress reports to see what LILCO's description of how  
3 much more testing had to be done and how many open items  
4 there were in the RHR testing. So I have gone beyond  
5 just the NRC's word "completed," so it was obvious to me  
6 that it was not completed.

7 (Counsel for LILCO conferring.)

8 Q Does this monthly report you received list all  
9 of the work and test and punch list items and other  
10 things that remain to be done on all of the various  
11 systems on which it reports?

12 A (WITNESS HUBBARD) I am sorry, Mr. Ellis. I  
13 didn't hear all the parts of your question again.

14 Q All right. Let me restate it for you. This  
15 status report that you testified you looked at does not  
16 show, does it, all of the punch list items, all of the  
17 tests and all of the work that is remaining to be done  
18 for each of the systems covered in it, does it?

19 A (WITNESS HUBBARD) Yes, it does, in a broad  
20 context. It lists the status of the RHR testing. It  
21 has, as I recall, in brackets how many punch list items  
22 there are for the RHR system, and it says what was  
23 accomplished in testing that month and what is yet to be  
24 accomplished. But it is in the broad context.

25 (Counsel for LILCO conferring.)

1 Q It just lists the number of items and doesn't  
2 describe the items, isn't that correct, Mr. Hubbard?

3 A (WITNESS HUBBARD) That is correct, Mr.  
4 Ellis. Although in the writing sometimes it might talk  
5 about some of it, but in general your characterization  
6 is correct.

7 Q So in order to determine very specifically  
8 whether certain work had been completed as to whether a  
9 piece of equipment had been installed or not in the BHR  
10 system, it would not be possible to tell with that  
11 specificity whether that had been done from this monthly  
12 report you're referring to, isn't that correct?

13 A (WITNESS HUBBARD) That in general is correct,  
14 that it would say that a certain type release had  
15 occurred, and we have other specs that we discussed in  
16 this proceeding of what is a b) release and what is a c)  
17 release. So that would say the status of a system at  
18 the time it was released to the pre-op or startup  
19 people. So there is some indication of what activity  
20 had been completed.

21 (Counsel for LILCO conferring.)

22 Q But it is true, isn't it, Mr. Hubbard, that  
23 systems can be released to pre-operational testing with  
24 a substantial amount of work yet remaining to be done on  
25 it?

1           A       (WITNESS HUBBARD) That is possible, Mr. Ellis.  
2                   (Counsel for LILCO conferring.)

3           Q       Mr. Hubbard, did you personally conduct any  
4 investigation to determine, for example, how long  
5 annunciator 1122 in your alleged breakdown a) had in  
6 fact been installed, the label on it?

7           A       (WITNESS HUBBARD) No, I did not, Mr. Ellis.

8           Q       And would your answer be the same with respect  
9 to indeed all of the items that you have in your  
10 testimony as alleged breakdowns on pages 16 through 44?

11          A       (WITNESS HUBBARD) I did not make a study of  
12 how long each of the items on the CAT section, pages 16  
13 to 44, had been installed; and I think it would be  
14 various periods of time, so I do have a conclusion about  
15 some of these had existed for years. So I think in the  
16 broadest general sense that is true, but I have not gone  
17 through each item and tried to figure out how long that  
18 might have existed.

19          Q       Well, you are referring to your testimony on  
20 page 43 of your prefiled testimony where you say that  
21 the alleged breakdowns that you discuss -- and I'm  
22 referring now to the second full paragraph on page 43 --  
23 are particularly significant because they went  
24 undetected by LILCO and NRC staff inspectors for years.

25                   Now, you don't say there, do you, that some

1 are particularly significant because they were  
2 undetected for years, do you?

3 A (WITNESS HUBBARD) No, I did not, Mr. Ellis,  
4 but that would be the intent, that these have various  
5 time periods, and my overall judgment is that a number  
6 of these conditions had existed for years.

7 Q You do not know, do you, Mr. Hubbard, whether  
8 any of the items that are a) through i) on page 27 were  
9 even in place at the time of the previous human factors  
10 reviews, do you?

11 A (WITNESS HUBBARD) That is correct, Mr.  
12 Ellis. I don't know whether they were or they were not.

13 Q Mr. Hubbard, in your testimony on Friday, I  
14 believe --

15 (Counsel for LILCO conferring.)

16 Q Strike that.

17 Mr. Hubbard, turn to page 19 of your  
18 testimony. Let's consider the first seven items that  
19 you have there that you labeled QA/QC breakdowns 1  
20 through 7. The NRC did not label these as violations of  
21 regulatory requirements or design bases, did they?

22 A (WITNESS HUBBARD) That is correct. The NRC  
23 cited LILCO for a deviation for these items.

24 Q All right, Mr. Hubbard. With respect to item  
25 A on page 19, have you made any engineering or technical

1 assessment to determine whether the dry well spray  
2 nozzles observed to have been blocked constituted any  
3 violation or deviation with the design basis?

4 A (WITNESS HUBBARD) Yes, I have subsequent to  
5 my testimony.

6 Q All right. Do you know whether the blockage  
7 by ventilation ductwork referred to -- did you ever  
8 actually see it, by the way?

9 A (WITNESS HUBBARD) No, I did not.

10 Q So your knowledge as to what is involved is  
11 limited to what is stated in the paragraph a) on page 19  
12 with respect to that item?

13 A (WITNESS HUBBARD) At the time I wrote the  
14 testimony that was the case, yes.

15 Q All right. And I take it then you cannot tell  
16 the Board whether the flow for the nozzles was actually  
17 blocked or whether it was merely that the flow pattern  
18 was not in the clear air space

19 A (WITNESS HUBBARD) Well, the word "blocked" is  
20 what LILCO used in their letter SNRC-743 at page 13 of  
21 that. The statement is, "LILCO has determined that  
22 approximately 5 percent of the dry well spray nozzles  
23 are blocked by ductwork." And then "A conservative  
24 assumption is that the spray flow rate," and then in  
25 parentheses "effectiveness," "is dropped by 5 percent."

1           This is some of the information I obtained  
2 subsequent to writing the testimony.

3           Q     Well, apart from -- well, let me just ask you  
4 first of all the question again, do you know whether the  
5 nozzles are blocked in the sense that flow does not come  
6 out of them, or is the reference to blocked simply a  
7 reference to the fact that the flow pattern sprays on to  
8 a piece of equipment rather than to clear air space?

9           A     (WITNESS HUBBARD) I am confused by your  
10 question, Mr. Ellis. Could you try it again?

11          Q     Sure. I would be glad to.

12                 You do not know, do you, whether the nozzles  
13 that are referred to in your alleged breakdown a) on  
14 page 19 -- strike that. Let me start again.

15                 You do not know, do you, with respect to  
16 breakdowns, the alleged breakdown a) on page 19, whether  
17 the blockage referred to there meant that the nozzles  
18 were completely stopped up, something light built right  
19 up and abutted against something, or whether the  
20 reference there is that the flow pattern was not in too  
21 clear air space but hit the equipment at some distance.

22                 Do you see the difference?

23          A     (WITNESS HUBBARD) Yes.

24          Q     You don't know the difference, which one it  
25 was, do you?

1           A       (WITNESS HUBBARD) No, I do not. Again, LILCO  
2 used the word "blocked," and then it said, LILCO goes on  
3 to say, "This reduction does not have a significant  
4 effect on DBA steam bypass or environmental  
5 qualification analyses."

6                   So I would assume that if you were looking at  
7 a particular area that it was not getting as much spray  
8 as what might have originally been intended so that  
9 there might be maybe this five percent reduction that  
10 LILCO has calculated for particular equipment piece at a  
11 particular location.

12           Q       So your assumption then is that the nozzle  
13 head itself was not blocked; that the flow came out but  
14 that the flow hit equipment after it came out rather  
15 than going into clear air space, is that right?

16           A       (WITNESS HUBBARD) No, Mr. Ellis. I did not  
17 make an assumption. I was looking at it, if you were  
18 going to spray where you're spraying for a purpose, and  
19 then when I saw the LILCO letter it -- the question you  
20 are asking is one that came to my mind, like if it is  
21 being blocked it might be we're still getting 95 percent  
22 of the flow, but there might be a particular piece of  
23 the pie or of the plant that was getting zero percent  
24 and some other part that was getting the full 100  
25 percent.

1           But what I judged from the LILCO response here  
2 is that if I looked at equipment pieces, that they are  
3 looking at like a five percent reduction in  
4 effectiveness for various equipment items.

5           Q     Is the purpose of the containment spray to  
6 spray equipment?

7           A     (WITNESS HUBBARD) No. But indirectly it has  
8 an impact on what the environment is in which the  
9 equipment lives.

10          Q     Do you know what LILCO meant or what basis it  
11 had for saying that it was a conservative assumption in  
12 the response to the CAT report, which is Suffolk County  
13 Exhibit No. 7 and was referring --

14                   MR. LANPHER: Seventy.

15                   MR. ELLIS: Yes, I'm sorry. Seventy. Thank  
16 you.

17                   BY MR. ELLIS: (Resuming)

18          Q     And is referring to page 13.

19          A     (WITNESS HUBBARD) I don't know how they came  
20 up with that being conservative, but I assume -- well, I  
21 won't assume. I would give them the benefit of the  
22 doubt on the word "conservative."

23          Q     Do you know how many dry well spray nozzles  
24 there are?

25          A     (WITNESS HUBBARD) I don't recollect that

- 1 number, no.
- 2
- 3
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1           As stated up above, it is set forth in the  
2 FSAR.

3           Q     Well, given that you do not know the basis for  
4 the LILCO analysis, I take it that you can neither agree  
5 nor disagree with the LILCO analysis that based on the  
6 number of nozzles affected, there was no significant  
7 reduction of spray flow effectiveness, and does not have  
8 a significant effect on design basis analysis, steam  
9 bypass or environmental qualification analyses.

10          A     (WITNESS HUBBARD) Well, I have no reason to  
11 disagree with LILCO's conclusion that it reduced it by  
12 about 5 percent. And then again, it also -- they  
13 acknowledged that it did have an effect on DBA, steam  
14 bypass and environmental qualification. They said it  
15 wasn't significant. I assume LILCO is meaning that a 5  
16 percent change is not significant.

17           So there is an effect by this blockage, but it  
18 is an effect on the order of 5 percent.

19           (Counsel for LILCO conferring.)

20          Q     Well, Mr. Hubbard, I take it, then, you can  
21 neither agree nor disagree with the conclusion that the  
22 design basis has not been violated?

23          A     (WITNESS HUBBARD) I don't think the conclusion  
24 is that the design basis hasn't been violated. The  
25 LILCO reponse does make the point that the peak pressure

1 is reached before spray actuation comes on in terms of  
2 what the peak pressure might be inside containment. I  
3 mean, it is, therefore, a reason; that is why you have a  
4 containment spray. And the spray is not providing as  
5 much spray as one might have thought. It has been  
6 reduced by about 5 percent.

7 Q Well, that is what I thought we had discussed  
8 earlier, and let's try again because I'm not sure. You  
9 say that the spray had been reduced 5 percent. Is it  
10 your understanding that actually 5 percent of the  
11 nozzles were blocked so that flow didn't come out of  
12 them at all? I thought your testimony was that you  
13 didn't know one way or the other.

14 A (WITNESS HUBBARD) Mr. Ellis, I know what the  
15 words are both in the CAT report and in the LILCO  
16 response. The CAT report says permanently blocked.  
17 Then, the LILCO response says 5 percent are blocked.  
18 Now, I don't know how close you have to be to be  
19 blocked, but the word "blocked" is used both places.  
20 And then the LILCO response goes on to say that the  
21 spray flow rate has dropped by 5 percent. So there is  
22 blockage and there is less spray. Both the NRC and  
23 LILCO used the word "blocked."

24 Q But what I'm asking you is your understanding  
25 of the use of that word "blocked" in this context, and I

1 think your testimony confirmed for me now whether it's  
2 true or not; that you don't know whether by "blocked" it  
3 means that the nozzles are actually stopped up, no flow  
4 coming out of them, or whether it simply means that the  
5 flow coming out of them -- the spray coming out of them  
6 hits some equipment.

7           JUDGE BRENNER: I'm going to jump in on my own  
8 on that. I think it has been asked and answered. We've  
9 got enough on it. We're starting to go around in  
10 circles. However, you can come back to the last  
11 question before you diverted now that you've established  
12 what assumption Mr. Hubbard is working on. Mr. Hubbard  
13 is working on the assumption as contained in the LILCO  
14 response. That is that spray flow rates (effectiveness)  
15 has dropped by 5 percent. You've got the record on  
16 whether he knows, or what he doesn't know, as to how  
17 LILCO got to that conclusion.

18           But keyed off of that conclusion, he was  
19 starting to answer your question, I believe, as to  
20 whether he thought that affected the design basis. Or I  
21 think the words of your question was: was that a  
22 violation of the design basis, and you never got a  
23 direct answer to that question, I don't believe. Or you  
24 started to get an answer and then you, yourself,  
25 diverted. One or the other.

1           MR. ELLIS: That is because I thought there  
2 had been a shift in the previous testimony.

3           JUDGE BRENNER: Well, I think we've got the  
4 picture on this one, and we've had it for the last five  
5 minutes. You can ask him the design basis question  
6 again. I suggest if you want to, you had better  
7 establish whether you're talking about design basis of a  
8 particular subsystem or a design basis of an entire  
9 system or the design basis of the entire plant, if you  
10 want to ask it again. You don't have to ask it for my  
11 benefit.

12           (Counsel for LILCO conferring.)

13           BY MR. ELLIS (Resuming):

14           Q     Mr. Hubbard, -- and I am going to come back to  
15 that, Judge Brenner, but let me lead up to it. Mr.  
16 Hubbard, the LILCO response to the CAT inspection  
17 indicates, "A conservative assumption is that the spray  
18 flow rate effectiveness has dropped by 5 percent." Now,  
19 you testified that you didn't know what the basis of the  
20 assumption was and couldn't agree or disagree with it.  
21 But that doesn't say, does it, that either the flow rate  
22 or the effectiveness was actually reduced by 5 percent,  
23 does it?

24           A     (WITNESS HUBBARD) No, Mr. Ellis. It says what  
25 it says.

1 Q Do you know whether the spray flow  
2 effectiveness can be enhanced if it impinges on some  
3 surface or object after it leaves the nozzle in terms of  
4 removal of heat?

5 A (WITNESS HUBBARD) No, I don't.

6 Q Mr. Hubbard, it is a fact, isn't it, that --  
7 well, what is the design basis, as you understand it,  
8 for containment spray?

9 A (WITNESS HUBBARD) Well, the containment spray  
10 is coming on as part of reducing temperature and  
11 pressure within the containment. However, I understand  
12 that the containment spray system is not relied upon for  
13 that in the short term.

14 Q Well, can you show me precisely where in the  
15 FSAR there is any design basis that is not met or  
16 violated by the condition you state as a breakdown, (a)  
17 on page 19?

18 A (WITNESS HUBBARD) There are two design bases  
19 that we are talking about here. We are talking about  
20 the design basis accident, DBA. And in criterion 3  
21 we're talking about design bases are correctly  
22 translated into drawings, specs and instructions. So my  
23 finding is that the design review process should have  
24 identified that some of the spray nozzles were, in fact,  
25 blocked.

1 (Counsel for LILCO conferring.)

2 Q Well, my question to you, though, Mr. Hubbard,  
3 is where in the FSAR do you find a specific statement  
4 concerning design basis which is violated by the  
5 condition that you cite as a breakdown in subparagraph  
6 (a) on page 19 of your pre-filed testimony?

7 A (WITNESS HUBBARD) We will have to go back to  
8 use design basis as I believe it is referred to in  
9 criterion 3; that in the FSAR, there is a description of  
10 the primary containment spray and the number of nozzles.

11 Now, the design review process, as part of  
12 that, one would review the FSAR against the actual  
13 design to see that they are consistent, and such a  
14 review would have shown that there is this matter of  
15 blockage. So therefore, a criterion 3 design review  
16 program, if it had been properly implemented, then the  
17 FSAR would have been revised to reflect what was  
18 actually there, if it was acceptable.

19 Q Well, is it your testimony that the FSAR shows  
20 anything about the relationship of the nozzles to the  
21 ventilation ductwork, specifically?

22 A (WITNESS HUBBARD) As I recall looking at that,  
23 no, it didn't. But that is the sort of an interface  
24 thing that one would check during a design review. I  
25 mean, I still have concern about that when I read

1 LILCO's response to prevent recurrence. They say that  
2 is not applicable.

3           It seemed to me, as a QA manager, that when  
4 you found an interface here where you had sprays and  
5 then something interfered with it, as a corrective  
6 action one would want to go look and see if there were  
7 any other sprays that one might have that was somehow  
8 being blocked in some way.

9           Q     To make that judgment, wouldn't you want to  
10 know the nature of the blockage and whether or not it,  
11 in fact, affected any design basis as stated in the FSAR?

12           A     (WITNESS HUBBARD) What I would want to do is  
13 to go -- the answer is no, and then what I would want to  
14 do is I would want to go to the design review package  
15 and see if the design reviewers had taken that into  
16 account in their design review of this particular system.

17           Q     So it wouldn't make any difference to you,  
18 then, whether or not the design basis, as it is stated  
19 in the FSAR, in fact is affected by the condition that  
20 is described in alleged breakdown a) on page 19?

21           A     (WITNESS HUBBARD) I will have to listen to  
22 your words very carefully because I have been  
23 concerned. We have design basis accident and we have  
24 design bases that are used as part of criterion 3.

25           Q     I think I said design basis and not design

1 basis accident.

2 A (WITNESS HUBBARD) Could I have the question,  
3 then, again?

4 MR. ELLIS: Yes. Would you reread it, please?

5 (The reporter read the record as requested.)

6 WITNESS HUBBARD: Yes, it would make a  
7 difference to me. I think the design basis is if you  
8 have nozzles and you calculate that 100 percent of them  
9 are going to be effective, then that is what you've done  
10 in the design review process; that is what you have in  
11 your drawings.

12 And what I see here is that there is a  
13 potential interface problem and you had that number of  
14 nozzles in the design but then there was an interference  
15 or an interface that reduced the effectiveness of that.  
16 And that is something that I feel should have been  
17 caught by the criteria 3 design review process.

18 BY MR. ELLIS (Resuming):

19 Q So you would want to go and look at what is  
20 stated to be the design basis in the FSAR to see whether  
21 that is, in any way, violated by the condition you have  
22 stated as a breakdown a) on page 19?

23 A (WITNESS HUBBARD) There are design bases, Mr.  
24 Ellis, that aren't in the FSAR. So in answer to your  
25 question, yes, I would go and look through the design to

1 see that what the design is to be based on is, in fact,  
2 correctly translated into drawings.

3 Q But you did not go and look at the FSAR for  
4 the design basis to see whether it was violated by the  
5 paragraph a) on page 19, did you?

6 A (WITNESS HUBBARD) No, I did not at the time  
7 because I was aware that there were a number of examples  
8 where the FSAR didn't reflect the as-built plant; that  
9 this had been a recurring problem, and so I didn't go  
10 check every one of them.

11 Q You didn't check any of them, did you?

12 A (WITNESS HUBBARD) At the time I wrote the  
13 testimony, no, I didn't check any of them, but there was  
14 a reason why I didn't. In having worked on this plant  
15 for the last couple of years, it didn't come as any  
16 surprise to me that what was there was different from  
17 what was in the FSAR. I was aware that that had been a  
18 continuing problem.

19 Q Even today you cannot cite to this Board, can  
20 you, a specific reference in the FSAR where the  
21 condition that you have in paragraph a) on 19 violates  
22 the design basis?

23 A (WITNESS HUBBARD) I think I would just end up  
24 giving the same answer I gave before, Mr. Ellis.

25 Q Well, could you make it a yes or a no and we

1 will go on?

2 A (WITNESS HUBBARD) I think yes, in the broadest  
3 sense, that this interference shows that what the flow  
4 system was designed for was somehow being interfered  
5 with. It turned out that it was a small reduction, and  
6 so, it appears that it did not have a significant effect.

7 Q But you don't know one way or the other  
8 whether the design basis -- well, strike that.

9 Would you read my last question and his  
10 answer, please?

11 (The reporter read the record as requested.)

12 BY MR. ELLIS (Resuming):

13 Q I am not sure that we got that answer, Mr.  
14 Hubbard. I may share some of the responsibility for  
15 that. If it was insignificant, doesn't that mean that  
16 the insignificant effect meant that the system still met  
17 its design basis? Isn't that right?

18 A (WITNESS HUBBARD) Mr. Ellis, I would have  
19 thought the design basis assumed 100 percent of the  
20 nozzles doing 100 percent spraying. I have no reason to  
21 believe other than that. So what we have here is, as  
22 stated by LILCO, 5 percent blockage and a 5 percent  
23 reduction in effectiveness. And then, the LILCO  
24 conclusion that this doesn't have a significant effect  
25 on certain analyses.

1           I have no reason to disagree with the LILCO  
2 analysis, but it turns out -- you know, it could have  
3 had a 15 percent effect, maybe. But as a QA manager,  
4 the thing I am interested in is how was this looked at  
5 as part of the design review process to see if the  
6 interference had been considered as part of the design  
7 review.

8           And then secondly, that if all of the nozzles  
9 were not to be relied upon, then the FSAR should have  
10 indicated that. That we have 110 percent of the nozzles  
11 is really needed, or something of that sort. I mean,  
12 there may be extra nozzles; I wouldn't doubt that. But  
13 that is not stated anywhere in the FSAR.

14         Q     Are you done?

15         A     (WITNESS HUBBARD) Yes, sir.

16         Q     You stated at the beginning of your answer  
17 that you would have thought that 100 percent of the  
18 nozzles with 100 percent spray effectiveness was  
19 required, but isn't it true, sir, that you cannot point  
20 to any specific requirement in the FSAR in the design  
21 basis of this system that is violated by the condition  
22 that is in subparagraph a) of page 19 of your prefiled  
23 testimony?

24                 (Pause.)

25         A     (WITNESS HUBBARD) I think the testimony says

1 already what I have looked at, and I don't want to be  
2 repeating. That I would expect what is in the FSAR to  
3 actually be there, and that what was stated in the FSAR  
4 is being reduced.

5 MR. ELLIS: Judge Brenner, I would like to  
6 request an answer to my question.

7 JUDGE BRENNER: You can answer the question  
8 more directly, Mr. Hubbard.

9 WITNESS HUBBARD: I would like to know what  
10 the question is, and I think I've answered it.

11 JUDGE BRENNER: Well look, as to the last  
12 part, that is not your concern. You're going to have a  
13 tough enough time answering the questions. As long as  
14 there is a pending question, it is your obligation to  
15 try to answer it to the best of your ability. If you  
16 have trouble answering it because you can't understand  
17 it, that is something that you should certainly raise,  
18 but that is different from your other concern that maybe  
19 you've answered it already.

20 All right, let's have it read back.

21 (The reporter read the record as requested.)

22 WITNESS HUBBARD: No, I cannot, Mr. Ellis.  
23 But I don't think we want to take the time right now to  
24 read FSAR Chapter 6.2 in detail. There may be something  
25 in there that says that, but I am not aware of whether

1 that is true or not.

2 JUDGE BRENNER: Let me turn the question  
3 around, Mr. Hubbard. Are you aware of any prior review,  
4 either in the FSAR or elsewhere, by LILCO prior to the  
5 CAT finding identifying the fact that the drywell spray  
6 nozzles were blocked to some extent, or inhibited to  
7 some extent, and an analysis finding that that was  
8 acceptable, or any analysis?

9 WITNESS HUBBARD: No, I am not aware that they  
10 conducted such analysis, and that is exactly what I was  
11 concerned about, Judge Brenner.

12 JUDGE BRENNER: In addition, when asked about  
13 the design bases and whether that was violated, you  
14 answered in such a way that surprised me, at one point.  
15 What if LILCO's design assessment -- and this is  
16 hypothetical -- of the drywell spray nozzles assumed  
17 only a 90 percent effectiveness? Or to state it another  
18 way, a 10 percent reduction, for reasons not connected  
19 to possible blockage by the insulation ductwork? For  
20 example, some sort of internal clogging to the spray  
21 system?

22 Assuming that, and then assuming the condition  
23 that there was some blockage by the insulation ductwork  
24 -- I'm sorry, the ventilation ductwork, could that be  
25 found acceptable simply because it was within the 10

1 percent already assumed, or would that be something that  
2 should be looked at for broader implications from a  
3 QA/QC point of view?

4           WITNESS HUBBARD: Judge, really, there's two  
5 points. One, is it acceptable, and the answer is it  
6 might well be acceptable. And two is, from a QA  
7 standpoint, you would want to have had some sort of a  
8 review that said it was acceptable, that it was an  
9 interference that had been looked at and had been  
10 assessed.

11           So I'm looking at it from the QA standpoint --  
12 have interferences been looked at.

13           JUDGE BRENNER: Even if acceptable for the  
14 system, would you also want to look at whether or not it  
15 was an anticipated interference? Or rather,  
16 unanticipated and therefore should be looked at for the  
17 potential beyond the particular system here.

18           WITNESS HUBBARD: I would have wanted to  
19 answer your question, Judge Brenner. You say one, was  
20 it an anticipated interference and how that would have  
21 been looked at. And then -- that is why I got into  
22 talking about steps to prevent recurrence that LILCO has  
23 at page 13 of Exhibit 70. That if it turned out that  
24 this was an interference that had not been looked at as  
25 part of the design review process, I would want to go

1 back and say might there be other interferences that  
2 might be more significant that had not been looked at as  
3 part of the design review process.

4 JUDGE BRENNER: And that assumes that this  
5 type of interference had not previously been looked at  
6 for this system?

7 WITNESS HUBBARD: That is the assumption that  
8 I made, and when I talked about the corrective action.  
9 Yes, sir.

10 JUDGE BRENNER: Since I've interrupted you so  
11 close to noon, Mr. Ellis, perhaps this would be a good  
12 time to break. I think you're going to have to stay  
13 focused on the fact that this is a QA/QC contention and  
14 not a contention to find out everything there is to find  
15 out about these over 40 items in the CAT inspection.

16 I recognize that those two points are not  
17 readily severable and are, in fact, inextricably  
18 intertwined in part, but not 100 percent intertwined.  
19 And if we learn everything about the design basis or the  
20 design review for each of these over 40 items, we're  
21 going to be here a long time. And I would add an  
22 unnecessarily long time.

23 I think we can focus on the QA implications.  
24 I recognize there is substantial overlap, but I don't  
25 think the overlap is a 100 percent overlap.

1           MR. ELLIS: Well, I understand your comments,  
2 and I will heed them, of course, Judge Brenner. But I  
3 think that the prefatory remarks to what he alleges are  
4 QA/QC breakdowns certainly engage such matters as design  
5 basis and other things.

6           JUDGE BRENNER: But I asked my questions now  
7 to show you possible remaining implications, no matter  
8 how well it is nailed down, that as it turns out the  
9 system is okay notwithstanding the circumstance. To  
10 this moment with all of these questions I don't know,  
11 and I guess we will never know through this witness --  
12 and that's another thing that concerns me -- that we  
13 will be going through all of this again with the staff  
14 witnesses to see what they now think in reflection with  
15 the report. And for all I know, further testimony from  
16 LILCO witnesses after.

17           And as of this moment, I still don't know  
18 whether this ductwork problem is a QA problem because it  
19 wasn't anticipated and should have been, notwithstanding  
20 the fact that it may or may not be no/never mind in the  
21 end due to the analysis of this particular system. And  
22 those are two severable things in my mind when it comes  
23 down to the finding. And I recognize you have to  
24 intetwine the two when you explore them.

25           That is, if you can have a QA problem, and it

1 could end up happily that for the particular item there  
2 was no problem. But nevertheless, it might have  
3 implications of QA/QC in terms of the program.

4           On the other hand, you can have an item that  
5 had some implication for the particular system, but  
6 given the nature and the cause of it, really has little  
7 implication for QA/QC. I haven't been helped on this  
8 item in that regard, notwithstanding all the time we  
9 have spent on it in terms of the oral testimony, and I  
10 recognize there is written testimony in the record that  
11 bears on this.

12           All right, let's break for an hour and a half  
13 until 1:30.

14           (Whereupon, at 12:00 p.m., the hearing in the  
15 above-entitled matter was recessed for lunch, to  
16 reconvene at 1:30 p.m. the same day.)

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## 1 AFTERNOON SESSION

2 (1:45 p.m.)

3 JUDGE BRENNER: We are prepared to resume at  
4 this point.

5 Whereupon,

6 RICHARD B. HUBBARD,  
7 the witness on the stand at the time of recess, resumed  
8 the stand and, having been previously duly sworn, was  
9 examined and testified further as follows:

10 CROSS EXAMINATION -- Resumed

11 BY MR. ELLIS:

12 Q Mr. Hubbard, item a) on page 19 of your  
13 prefiled testimony has been referred to NRR for review.  
14 Would you still be certain that item a) was a QA/QC  
15 breakdown if NRR concurs in LILCO's resolution?

16 A (WITNESS HUBBARD) No. I think I would have to  
17 see the NRR concurrence also to see whether it goes into  
18 the corrective action. But I think I discussed this  
19 with the NRR personnel that are reviewing it last week,  
20 and my understanding of their review is it only went to  
21 how the containment spray system was used for accident  
22 conditions.

23 Q Are you done? I'm sorry.

24 A (WITNESS HUBBARD) Yes, sir.

25 (Counsel for LILCO conferring.)

1 Q Mr. Hubbard, look at b) on page 19, your  
2 alleged breakdown, QA/QC breakdown number 2. To shorten  
3 things, would you agree with me that b) is an instance  
4 where there was no change to hardware, no design change,  
5 no change to any drawings or design documents, and that  
6 the design was implemented as intended but that there  
7 was a clarification to the FSAR description?

8 MR. LANPHER: Judge Brenner, could we have  
9 that read back? It has a lot of parts.

10 JUDGE BRENNER: All right.

11 MR. ELLIS: I could restate it, if it would be  
12 simpler.

13 JUDGE BRENNER: Whatever you want. If you  
14 want to restate it, or we can have it read back.

15 MR. ELLIS: Well, I will restate it because I  
16 do want to try to save time.

17 JUDGE BRENNER: I will always give you that  
18 option but we will have it read back if you want to,  
19 also.

20 BY MR. ELLIS (Resuming):

21 Q Mr. Hubbard, to expedite matters, would you  
22 agree with me that the alleged breakdown number 2, or b)  
23 on page 19 of your prefiled testimony is an instance  
24 where there was no change to the design, there was no  
25 change to hardware, there was no change to any design

1 documents, and that the design was implemented as  
2 intended. And that all it involved was a clarification  
3 to the FSAR description?

4 A (WITNESS HUBBARD) No. To the extent that your  
5 question assumes that the FSAR is not a design  
6 document. My belief is that the FSAR is part of the  
7 design control process, so with the exception of that, I  
8 would agree with your statement.

9 Q Am I correct, then, that -- well, strike that.  
10 Have you compared the FSAR descriptions before  
11 and after to make any assessment of the clarification  
12 that was made?

13 A (WITNESS HUBBARD) I have not, Mr. Ellis. In  
14 the corrective action portion of LILCO's response,  
15 Suffolk County Exhibit 70, at page 14, the corrective  
16 action is that the FSAR will be revised to indicate that  
17 "all valves required to insure LPCI flow are positioned  
18 automatically whenever LPCI is required to be  
19 available." So that was the stated corrective action.

20 Q So given your testimony that there was no  
21 hardware change, there was no change to any design  
22 documents except in your definition of the design  
23 document as the FSAR, the design was implemented as  
24 intended, would't you agree with me that the design  
25 basis of this particular aspect of the system was

1 correctly translated into specifications, drawings,  
2 procedures and instructions?

3 A (WITNESS HUBBARD) No. I would agree with the  
4 NRR staff that this is a deviation from an FSAR  
5 commitment. It turns out it is a small amount of water.

6 Q Let me turn it around. Does the NRC staff  
7 agree with you that it is a violation of criterion 3?

8 A (WITNESS HUBBARD) Apparently not. They cited  
9 this as part of the notice of deviation. But my  
10 judgment is that when you put all of these together, and  
11 knowing that the E&DCR form has a place that says is the  
12 FSAR affected when you have E&DCRs, and knowing the  
13 design review process, as part of that one compares the  
14 design to the FSAR that I look at it as a QA system  
15 breakdown.

16 Q Wouldn't you draw a distinction, Mr. Hubbard,  
17 between a change and a clarification to the FSAR?

18 A (WITNESS HUBBARD) I think yes, but what I  
19 think what is called here a clarification is, indeed, a  
20 change.

21 Q Well, isn't your testimony -- you already  
22 testified that you have not compared the previous  
23 description with the current description, so isn't it  
24 fair to say that you don't have any basis for  
25 disagreeing with LILCO's conclusion that there is no

1 deviation from FSAR requirements, and this is just a  
2 clarification rather than a change in substance?

3 (Pause.)

4 A (WITNESS HUBBARD) The NRC did accept this  
5 response from LILCO, but I look at it more as a  
6 correction than a clarification. So for the sake of  
7 clarity, the FSAR was revised to make it correct.

8 Q You've already testified you didn't look at  
9 the previous description. Now, wouldn't you want to  
10 examine that and compare it in order to make the  
11 conclusion you stated? Wouldn't that be the fair way to  
12 do it?

13 A (WITNESS HUBBARD) No.

14 Q Mr. Hubbard, --

15 A (WITNESS HUBBARD) Because, Mr. Ellis, the FSAR  
16 clarification or correction doesn't go into how it got  
17 that way originally. The real issue is not how it was  
18 corrected, but how did the system allow a design to get  
19 implemented in the plant that was different from what is  
20 in the FSAR. That is the issue.

21 Q Well, Mr. Hubbard, you just said that it was  
22 different from the FSAR. Isn't it a fact that LILCO's  
23 response says that it is a clarification; not that it is  
24 different?

25 A (WITNESS HUBBARD) LILCO's response says what

1 LILCO's response says.

2 JUDGE BRENNER: I guess Mr. Ellis's question,  
3 Mr. Hubbard, is how do you know that this -- what LILCO  
4 has termed a clarification -- in fact represents  
5 something different from that previously in the FSAR,  
6 unless you took a look at what previously was in the  
7 FSAR?

8 WITNESS HUBBARD: I am basing that, Judge  
9 Brenner, on the LILCO position that the paragraph above  
10 it where they explain that these -- where it had  
11 originally said that these valves are automatically  
12 positioned, that they would go through and explain why  
13 that isn't the case and why the flow is small. And then  
14 why automatic closure of the valves is not required.

15 So then, their clarification or correction has  
16 to do with the valves for LPCI flow.

17 JUDGE BRENNER: I don't think you've answered  
18 my question. At least if you have, I don't understand  
19 your answer in the context of my question. It still  
20 comes back to the question how do you know that this  
21 explanation is more accurately characterized as a change  
22 in approach or analysis by LILCO as distinguished from a  
23 clarification of a reasonable reading of what was in the  
24 FSAR, if you know what was previously in the FSAR?

25 WITNESS HUBBARD: Well in that sense, Judge

1 Brenner, I rely on the staff because they referred to a  
2 particular page. They state that valves are  
3 automatically positioned, and then they go on to say  
4 that contrary to this, some are not automatically  
5 positioned.

6 I read LILCO's clarification as it says that  
7 this is really a small flow, and for the LPCI mode of  
8 operation, it isn't required. The LPCI mode of the RHR.

9 JUDGE BRENNER: But what the staff has  
10 contained in its filing is a brief excerpt from the  
11 FSAR, and I put to you the proposition that in my own  
12 mind, I sure need to see the context in the FSAR in  
13 order to apply some judgment as to whether this is truly  
14 a change or merely a clarification of something already  
15 implicit in the FSAR, which perhaps the inspector did  
16 not fully appreciate. And those are two different  
17 things, and that is why I asked you the question. So in  
18 that context, I will give you another opportunity.

19 WITNESS HUBBARD: Well, within that context,  
20 if it turned out that there were maybe one place where  
21 the FSAR had to be clarified, then I would agree with  
22 you. But what I felt we saw in the CAT inspection was  
23 repeated instances where the plant and the FSAR, if one  
24 were just reading the FSAR, disagreed. That was further  
25 confirmed by the LILCO configuration control.

1           The seven reports that we looked at, which was  
2 also part of an ongoing I&E problem that I was aware  
3 of. There had been an I&E citation back to the FSAR at  
4 an earlier time, and then there were meetings held in I  
5 believe November of 1981. The commitment was made to do  
6 this. The FSAR commitment task.

7           So therefore, in my judgment of time, I did  
8 not go back and look at each one of these. I mean, I  
9 have looked at some of them since then. But as QA  
10 manager what I am looking at there seems to me to be a  
11 pattern of the plant as built is different than what is  
12 in the FSAR. When we looked at like the E&DCR, there's  
13 a place there where you check off is the FSAR changed or  
14 not, yes or no. So it is part of the design control  
15 process to keep those two in agreement.

16           And then finally, I guess in answer to your  
17 question, I don't think this is the major one. It may  
18 very well be a clarification, but that wouldn't change  
19 my overall opinion about how it influenced criterion 3  
20 or design control.

21           JUDGE BRENNER: So for now, counsel, as is  
22 counsel's right, LILCO's counsel is only requiring as to  
23 this item. What you want to argue later in findings or  
24 as to other items and then add them all up, you are free  
25 to do. But Mr. Ellis was asking only about this item,

1 and I was following up because I didn't think he got an  
2 answer that I fully understood. At least I wanted to  
3 give you the benefit of the chance of further  
4 clarification, given my confusion as to this one item.

5           Now it sounds to me as if you're testifying  
6 that given your view based on the things you stated,  
7 that there has been a pattern of not having the as-built  
8 plant match the FSAR commitments, you therefore assume  
9 that any individual items about which there is an  
10 allegation that it might not match the FSAR is a valid  
11 allegation. And that seems to me to be kind of  
12 circular. You're assuming that all of these are valid  
13 from the pattern, and yet, the only way you find out if  
14 there's a pattern is to see whether each of these are  
15 valid.

16           WITNESS HUBBARD: Well, without arguing with  
17 you, I think even LILCO acknowledged it was valid. They  
18 corrected the FSAR. Now, one can get into semantics of  
19 whether it was a correction or a clarification and that  
20 is what we went through before.

21           I used to do that in bidding where you  
22 couldn't take exceptions to a bid, so we wouldn't take  
23 exceptions; we would clarify. Well, that was just  
24 another way of saying to take an exception. I'm  
25 familiar with how people use the word "clarify."

1           JUDGE BRENNER: I am not accepting their use  
2 of the word "clarify" and I'm not asking you to accept  
3 that. I'm trying to ascertain what inquiry would be  
4 reasonable to determine whether their use of the word  
5 "clarify" is accurate. But we have done enough on that  
6 for now. Back to you, Mr. Ellis.

7           MR. ELLIS: Thank you, Judge Brenner.

8           BY MR. ELLIS (Resuming):

9           Q     Mr. Hubbard, you quoted a portion of criterion  
10 3 that you rely on in order to term (b) on page 19 a  
11 violation. And you say up there that measures shall be  
12 established to insure that applicable regulatory  
13 requirements and design basis as specified in the  
14 license application are correctly translated in the  
15 specifications, drawings and procedures and  
16 instructions. There is no regulatory requirement that  
17 was not translated into specifications, drawings and  
18 procedures with respect to number (b) or number (2) on  
19 page 19, is there?

20          A     (WITNESS HUBBARD) In the broad context, yes, I  
21 believe so.

22          Q     Which regulatory requirement, in your opinion,  
23 was not translated into specifications, drawings,  
24 procedures and instructions with respect to (b) on page  
25 19?

1 (Pause.)

2 A (WITNESS HUBBARD) Just a moment, Mr. Ellis.

3 Q Take all the time you need.

4 (Pause.)

5 A (WITNESS HUBBARD) Could I have a copy of the  
6 regulations, please.

7 (Counsel handing document to witness.)

8 (Pause.)

9 Q Mr. Hubbard, would it help if I suggested to  
10 you, that since there was no design change, as you  
11 acknowledged, and since the NRC accepted the resolution  
12 that there were no regulatory requirements that were  
13 violated by the situation in (b) of page 19 --

14 A (WITNESS HUBBARD) Mr. Ellis, I was looking  
15 back to the section of the regulations that requires  
16 that the license application be accurate. That is in  
17 50.55(d), as I recall. And so the key word that I have  
18 there was that as specified in the license application,  
19 one thing you do in a design review is to review what is  
20 in the license application or the FSAR versus the design  
21 documents. And so that is the part that I was looking  
22 into as far as the regulations that I would expect the  
23 regulatory requirements that the license application be  
24 accurate and up to date.

25 Q Are you referring to 50.55 what? Which

1 section?

2 A (WITNESS HUBBARD) Well, one of them is (d)

3 Q Is there any other?

4 A (WITNESS HUBBARD) I think there is. But for  
5 the moment I can't find it.

6 (Counsel for LILCO conferring.)

7 Q Well, is 50.55(d) the regulatory requirement  
8 you are contending that was not correctly translated  
9 into specifications, drawings, procedures and  
10 instructions as stated in Appendix 3 as you've quoted it  
11 on page 19?

12 A (WITNESS HUBBARD) You have to take, Mr. Ellis,  
13 the entire sentence and that is that the regulatory  
14 requirements and design basis, as specified in the  
15 license application -- that is, as in the FSAR -- are  
16 correctly translated into drawings, procedures and  
17 instructions. So I looked at the licensing application  
18 on the FSAR as the commitment to the regulatory  
19 requirements and design basis; that those are then to be  
20 correctly translated into drawings. And that is the  
21 purpose of criterion 3.

22 Q Well, is it not true that the regulatory  
23 requirements that are referred to in criterion 3 -- it  
24 refers to the regulatory requirements for the  
25 structures, systems and components to which this

1 appendix applies? Now, 50.55(d) doesn't apply to the  
2 structures, systems and components that Appendix B is  
3 referring to, does it?

4 A (WITNESS HUBBARD) Could I have that question  
5 back again so I can decide whether it's yes or no, and  
6 then I was going to explain.

7 Q All right. On page 19, -- I will re-ask it,  
8 Mr. Hubbard, and see if this helps you. On page 19 of  
9 your testimony you have an elipsis after "design basis"  
10 in your quoting of language from criterion 3, and the  
11 language which you omitted provides a design basis as  
12 defined in 50.2 and specified in the license application  
13 for those structures, systems and components to which  
14 this appendix applies.

15 Doesn't that mean that the regulatory  
16 requirements and design basis, as referred to in  
17 criterion 3, are those relating to those structures,  
18 systems and components to which Appendix B applies?

19 A (WITNESS HUBBARD) Yes.

20 Q Well, 50.55(d) is an administrative  
21 regulation; it is not a regulation that establishes  
22 regulatory requirements for the design of the system;  
23 isn't that right?

24 A (WITNESS HUBBARD) 50.55(d) has to do with the  
25 license application. That is part of criterion 3. And I

1 think what I have done is totally consistent with what  
2 the NRC has done, because in the deviation the NRC says  
3 that the FSAR deviates from the FSAR commitments. And  
4 to me, the FSAR commitment is what is in the license  
5 application. So I think it is totally consistent.

6 Q Let's clarify that and make sure that's clear  
7 right now, Mr. Hubbard. Isn't it true that the  
8 inspector in the CAT report didn't say, merely as you  
9 did, that there were deviations from commitments? He  
10 said more specifically that these were several areas  
11 which apparently deviated from the FSAR description and  
12 commitments of the licensee; isn't that right?

13 A (WITNESS HUBBARD) Mr. Ellis, you may be  
14 reading from a different page than I have. On the page  
15 that I have it does have the word "appears" and it says  
16 "It appears that several of your activities were not  
17 conducted in accordance with the FSAR commitments. The  
18 following examples have been identified as deviations  
19 from the FSAR." That is at page 4-6 of my attachment.

20 Q Look at page 4-16, which is, I think, you will  
21 find where you actually quoted all of these things that  
22 appear as breakdowns 1 through 7 on page 19. Do you  
23 have that in front of you? 4-16 of your attachment 4?  
24 Do you see that, Mr. Hubbard?

25 Now, the first paragraph says, does it not,

1 that the inspector determined that the as-built  
2 configuration of the RHR system piping and appurtenances  
3 generally conform to the approved specifications,  
4 drawings and system descriptions required by the  
5 design. Do you see that, sir?

6 A (WITNESS HUBBARD) Yes, sir.

7 Q And then it goes on to say, "The inspector,  
8 however, identified several areas which apparently  
9 deviated from the FSAR description and commitments of  
10 the licensee." Do you see that?

11 A (WITNESS HUBBARD) Yes.

12 Q And then follows what you have extracted for  
13 what you call breakdowns 1 through -- QA/QC breakdowns 1  
14 through 7; is that right?

15 A (WITNESS HUBBARD) Yes, sir.

16 Q Now, there is nothing in that discussion at  
17 all that refers to criterion 3 or 50.55(d), is there?

18 A (WITNESS HUBBARD) No. However, it is my  
19 judgment that a proper design control system would have  
20 in the context of criterion 3 of Appendix B, would have  
21 caught these. And by "these" I mean the seven examples  
22 that are given.

23 Q Well, couldn't reasonable differ about a  
24 clarification, Mr. Hubbard, as to whether one was  
25 required?

1           A       (WITNESS HUBBARD) I think so, Mr. Ellis.

2           Q       So do you really a fault a program or system  
3 for not catching, as you put it, a clarification when  
4 reasonable people could disagree as to whether it's even  
5 needed?

6           MR. LANPHER: I object to that question. He  
7 didn't put it as a clarification; that was Mr. Ellis's  
8 words, and he implied that Mr. Hubbard used the word  
9 "clarification."

10          JUDGE BRENNER: I'm going to allow him to ask  
11 the question as stated. The witness can explain it  
12 wasn't keyed off of one of Mr. Hubbard's quotes, and it  
13 follows reasonably from the line in the areas of  
14 difference or potential difference recognized by the  
15 witness and that is what we are exploring now, not any  
16 particular item as to whether it is a change or a  
17 clarification. So I will allow the question as asked.

18          WITNESS HUBBARD: Mr. Ellis, I would agree  
19 with you that reasonable people can differ, and this is  
20 an item that is right probably on the border of whether  
21 it is a clarification or a correction. But I think it  
22 would be technically correct to call it a correction.

23          BY MR. ELLIS (Resuming):

24          Q       Well, would you agree with me that the  
25 regulatory requirements that are referred to in

1 criterion 3 as being those that should be correctly  
2 translated into specifications, drawings, procedures and  
3 instructions are regulatory requirements relating to  
4 design features, requirements and bases?

5 A (WITNESS HUBBARD) Could I have that read back  
6 again? I didn't listen well.

7 Q That's all right. I will repeat it for you to  
8 save time. Wouldn't you agree with me that the  
9 regulatory requirements that are stated on page 19 and  
10 quoted from criterion 3 are regulatory requirements that  
11 relate to design criteria or requirements or features of  
12 the structures, systems and components to which Appendix  
13 B relates?

14 A (WITNESS HUBBARD) Yes.

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1 Q And there is no regulatory requirement of that  
2 nature that has not been correctly translated into  
3 specifications, drawings, procedures, and instructions  
4 with regard to your breakdown b) on Page 19 of your  
5 testimony. Is that correct?

6 A (WITNESS HUBBARD) I think the answer is yes,  
7 that it is right. It would be a judgment call, because  
8 there is some water that had not been accounted or could  
9 possibly not be accounted for in the original analysis  
10 the way the FSAR was written. It turned out it wasn't a  
11 significant amount of water.

12 Q Mr. Hubbard, the -- you also quote on the top  
13 of Page 19 from Criterion 3 that the design basis as  
14 specified in the license application is correctly  
15 translated into specifications, drawings, procedures,  
16 and instructions. Now, the ellipsis that you have  
17 omitted there is a reference to the design basis as  
18 defined in Section 50.2, which contains, does it not, a  
19 definition at 50.2 of what a design basis is. Are you  
20 familiar with that definition?

21 A (WITNESS HUBBARD) Yes.

22 Q And that definition states, doesn't it, that  
23 design basis means that information which identifies the  
24 specific functions to be performed by a structure,  
25 system, or component of a facility, and the specific

1 values or ranges of values chosen for controlling  
2 parameters as reference bounds for design?

3 A (WITNESS HUBBARD) That is correct.

4 (Whereupon, counsel for LILCO conferred.)

5 Q There was no specific function that was not  
6 correctly translated into specifications, drawings,  
7 procedures, or instructions, was there?

8 Do you understand my question?

9 A (WITNESS HUBBARD) Say it again, please.

10 Q Let me repeat it. I don't think it was a very  
11 clear question.

12 Mr. Hubbard, given the definition of design  
13 basis in in 50.2(u), would you agree with me that given  
14 that you have testified that there was no design change,  
15 and no hardware change, that the specific functions to  
16 be performed by the structures, systems, and components  
17 and the specific values or ranges of values chosen for  
18 controlling parameters were in fact correctly translated  
19 into specifications, drawings, procedures, and  
20 instructions?

21 A (WITNESS HUBBARD) No.

22 Q And is your opinion that they were not? You  
23 don't think that it is necessary to examine the previous  
24 description in the FSAR to reach that conclusion. Isn't  
25 that correct?

1           A       (WITNESS HUBBARD) I don't feel -- The answer  
2 is yes. I don't feel one has to go back to look at what  
3 was in the FSAR. The staff I&E inspector found the  
4 actual performance of valves was different than he read  
5 the FSAR, and LILCO as far as corrective action has  
6 agreed to reword the FSAR.

7           Q       But, Mr. Hubbard, do you know what mode of the  
8 RHR is referred to with respect to Item B on Page 19?

9           A       (WITNESS HUBBARD) Would you like to give me  
10 FSAR Page 7.322, and I will take a look?

11          Q       Without referring to the FSAR, I take it you  
12 don't know.

13          A       (WITNESS HUBBARD) I do not. The corrective  
14 action of LILCO implies it is the LPCI mode of the RHR,  
15 but I would have to -- I would be glad to take a look.

16                   (Pause.)

17                 JUDGE BRENNER: Mr. Hubbard, while we have a  
18 pause, I don't see necessarily why we need to get  
19 diverted to look at it, but in this enticing tour  
20 through the regulations, before you were looking for a  
21 section which in your paraphrase you thought required  
22 that the application be accurate. I don't know of any  
23 section that states it quite so simply, fortunately or  
24 unfortunately. I will let other heads decide that.

25                 But I want to ask you if 50.34(b) is the one

1 you had in mind as possibly being more directly in the  
2 context than 50.55. 50.34, if you see it.

3 WITNESS HUBBARD: Number 2 does talk that the  
4 description shall be sufficient to permit understanding  
5 of system designs and the relationship to safe  
6 evaluations, and 50.34(b) is what we have cited, Part 6  
7 of that, in the contention. What I thought of 50.55,  
8 because I was aware of -- well, I will just leave it  
9 there.

10 JUDGE BRENNER: I wasn't suggesting it  
11 independently. I just wanted to see if that is what you  
12 were looking for, and I did have (b)(2) in mind  
13 primarily.

14 BY MR. ELLIS: (Resuming)

15 Q Mr. Hubbard, since you have made no safety  
16 evaluation, I take it you couldn't tell us whether, and  
17 you have not examined the previous description, you  
18 could not tell us whether the description that appeared  
19 in FSAR was sufficient to show that the safety functions  
20 would be accomplished.

21 A (WITNESS HUBBARD) I really apologize, Mr.  
22 Ellis. Could I try one more time on that?

23 Q Certainly. No need to apologize.

24 Since you have not done any technical or  
25 engineering analysis of the safety of this item, and

1 have not examined the previous FSAR description, I take  
2 it you could not tell us whether that description was  
3 adequate to show the safety functions would be  
4 accomplished?

5 A (WITNESS HUBBARD) No.

6 (Whereupon, counsel for LILCO conferred.)

7 A (WITNESS HUBBARD) I think the I&E finding was  
8 a valid finding.

9 Q But you haven't reviewed the FSAR to make any  
10 independent determination of whether the description was  
11 adequate to show that the safety functions would be  
12 accomplished as stated in 50.34(b)(2)?

13 A (WITNESS HUBBARD) No, I have not. However,  
14 based upon the answer at Page 13 and 14 of Suffolk  
15 County Exhibit 70, I don't think it is necessary.

16 Q That is, you say, based upon the LILCO  
17 response, it is not necessary, and you accept what is  
18 stated in the LILCO response then as accurate?

19 A (WITNESS HUBBARD) I have no reason to believe  
20 the LILCO response is not correct, and the NRC then did  
21 find the response acceptable. Now, I&E still hasn't  
22 gone out and closed out this item yet in a follow-up  
23 inspection, but it would appear that they would be able  
24 to.

25 Q Mr. Hubbard, now, if you would, please, on

1 Page 20, at what you have termed, I think, both the  
2 third and c), alleged QA/QC breakdown relating to LPCI  
3 loop selection logic, would you agree with me that this  
4 is merely an instance where there was no change to  
5 hardware, there was no change to design of the plant,  
6 and the design was implemented as intended, and that  
7 this situation involved simply a need to provide new  
8 figures for the FSAR relating to a subject that the  
9 Commission had long been advised of?

10 A (WITNESS HUBBARD) No.

11 Q Okay. Can you tell me what parts of that --  
12 Well, would you agree with me, first of all, that the  
13 Commission had long known that the LPCI loop selection  
14 logic had been deleted?

15 A (WITNESS HUBBARD) I don't have direct  
16 knowledge of that, Mr. Ellis, but based upon a number of  
17 plants that this was going on, I would think that they  
18 had some notification, yes.

19 Q Did you go back and look at the FSAR to see  
20 whether in fact the FSAR stated that the LPCI loop  
21 selection logic had been deleted?

22 A (WITNESS HUBBARD) I was here when there was  
23 testimony that this was covered in the question and  
24 answers in the FSAR, and that appeared to be true.

25 Q Did you actually check the questions?

1 A (WITNESS HUBBARD) Yes.

2 Q I take it, though, you hadn't checked it  
3 before you wrote this testimony.

4 A (WITNESS HUBBARD) That is correct.

5 Q So you would also agree with me, wouldn't you,  
6 Mr. Hubbard, that the system as it was built conformed  
7 to the design as intended with the LPCI loop selection  
8 logic deleted?

9 A (WITNESS HUBBARD) The answer is yes, that the  
10 LPCI loop logic or the LPCI logic was to be deleted.  
11 However, I think it is still a breakdown, because that  
12 FSAR figure was not updated for a long period of time to  
13 reflect what was really there, so if the E&DCR and FSAR  
14 changed system had been working that part of the QA  
15 system, this revision would have been made. That is why  
16 you check off on an E&DCR that an FSAR revision is  
17 required.

18 Q Wasn't the question and answer that made clear  
19 many years ago that the LPCI loop selection logic was  
20 deleted a part of the FSAR?

21 A (WITNESS HUBBARD) Yes, Mr. Ellis. It is part  
22 of the FSAR, but an engineer at the Commission who might  
23 go in and look at that, or anybody else, the first place  
24 they would look is the section that has the block  
25 diagram, the loop diagrams, and so the fact that it is

1 correct in one place and incorrect someplace else  
2 doesn't keep it from being a QA breakdown. It is  
3 supposed to be correct in all cases.

4 Q But I thought you testified earlier that the  
5 reason that -- or one reason why these matters were  
6 breakdowns is that they had made it through gates. Now,  
7 did you determine whether or not LILCO was aware that  
8 revised drawings had to be submitted and indicated that  
9 they would be submitted?

10 A (WITNESS HUBBARD) I am not aware that there  
11 is any commitment that LILCO was aware that this logic  
12 diagram was out of date. The corrective action and the  
13 steps to prevent recurrence that LILCO says that it  
14 should be revised to delete this logic, and an FSAR  
15 table should be corrected to delete equipment, and then  
16 the preventive action was that the Shoreham plant  
17 configuration review is going to look and see if there  
18 are other areas that have this, but if the design  
19 control system had been working, these would have been  
20 picked up in a more timely manner, and the two  
21 corrections that were required for corrective action  
22 would have already taken place.

23 Q Well, would you agree that it would have been  
24 timely picked up if the answers to the questions in the  
25 FSAR indicated that LILCO was aware that the drawings

1 had to be updated and indicated that it would provide  
2 those drawings?

3 A (WITNESS HUBBARD) No, because the FSAR should  
4 be kept up to date. I mean, that is the whole intent of  
5 those diagrams. People look at the diagrams more than  
6 they do question and answers. At least that has been my  
7 experience.

8 Q Well, this is not a violation then of  
9 Criterion 3. This is just a situation where you contend  
10 that the FSAR should have been updated on a more timely  
11 basis. Isn't that right?

12 A (WITNESS HUBBARD) No. This is a violation of  
13 Criterion 3. The design control system wasn't working,  
14 Mr. Ellis. The figure and the table would have been  
15 revised. For example, if I had done -- had come in to  
16 do an as built review of your plants, starting with the  
17 FSAR, I would have picked up this figure and I would  
18 have gone out to verify that that equipment was there,  
19 and I would have found it wasn't.

20 Q Mr. Hubbard, do you consider the FSAR a design  
21 document?

22 A (WITNESS HUBBARD) Yes, I do, Mr. Ellis.

23 Q Mr. Hubbard, you will agree with me, won't  
24 you, that the system without the LPCI loop selection  
25 logic was the design basis of the system? Isn't that

1 right?

2 A (WITNESS HUBBARD) I don't know what you mean  
3 by the design basis, Mr. Ellis. Without the logic is  
4 the way the plant was built.

5 Q Well, was that the design basis without the  
6 logic?

7 A (WITNESS HUBBARD) I can't answer that yes or  
8 no, because the design basis in the FSAR in two places  
9 said that that logic was there, like the old BWR's, and  
10 in the third place it said, no, it wasn't there, which  
11 is like the newer BWR's.

12 Q Is it your testimony, Mr. Hubbard, that LPCI  
13 loop selection logic, the presence or absence of it is  
14 part of the design basis as that term is defined in  
15 Section 50.2(u) of the regulations?

16 (Pause.)

17 A (WITNESS HUBBARD) Yes, Mr. Ellis.

18 Q All right. If as you contend the LPCI loop  
19 selection logic is part of the design basis and the  
20 deletion of it was reflected in the questions and  
21 answers in the FSAR, and the system was built with the  
22 logic deleted, isn't it true that the only thing that  
23 you are complaining about is that the other portion of  
24 the FSAR was not changed in as timely a fashion as you  
25 think it should have been?

1           A       (WITNESS HUBBARD) I am not complaining. The  
2 point I was trying to make is that the design control  
3 process is there to be sure that the drawings and the  
4 description in the FSAR reflects the as built condition  
5 of the plant, and this is an area having to do with the  
6 LPCI logic where it -- the instrumentation was deleted,  
7 and that deletion was not shown in the FSAR.

8           Q       Well, it wasn't shown in one part of the  
9 FSAR. Isn't that right? It was shown in another part?

10          A       (WITNESS HUBBARD) It was not correctly shown  
11 in two parts, a figure and a table.

12          Q       But it was correctly shown in another part?

13          A       (WITNESS HUBBARD) It was correctly described  
14 in another part.

15          Q       You indicated that you considered the FSAR to  
16 be a design document. It is true, isn't it, that the  
17 NRC doesn't consider the FSAR to be a design document  
18 unless the utility uses it as such? Isn't that right?

19          A       (WITNESS HUBBARD) I don't know how the NRC  
20 looks upon it. It seems to me that, for example, in the  
21 QA program there is, for example, operating QA, there is  
22 reference made there to that table and the FSAR 3.2.1-1,  
23 so there are places where LILCO relies upon what is in  
24 the FSAR. Also, when we looked at the exhibit in the  
25 LILCO prefiled testimony on E&DCR's that are changed to

1 a design document also related in some sort of a change  
2 into the FSAR, and we also had forms that showed how an  
3 FSAR gets reviewed, that whole cycle. I think that is  
4 all part of the design process.

5 Q In terms of the interpretation of Criterion 3,  
6 though, you would agree that how the NRC construes  
7 whether the FSAR is a design document would be important  
8 in construing Criterion 3? You would agree with that,  
9 wouldn't you?

10 A (WITNESS HUBBARD) I think it would be  
11 relevant, but I think once again in LILCO prefiled  
12 testimony where LILCO described the design review  
13 process, one of the things we started with is what is in  
14 the FSAR when you do a design review. I don't think you  
15 can get away from the fact that the intent is that the  
16 FSAR reflect what is really there in the plant.

17 Q Mr. Hubbard, would it be important for you to  
18 know -- well, strike that.

19 Mr. Hubbard, let's go -- I take it in making  
20 this list of breakdowns, alleged breakdowns 1 through 7,  
21 you did not include any that you thought were trivial or  
22 not worthy of mention.

23 (Pause.)

24 A (WITNESS HUBBARD) That is correct.

25 Q All right, Mr. Hubbard. Look, if you would,

1 please, at Item e), and let me see if we can pick one  
2 out here. Look, if you would, please, at the item that  
3 says cooling water to RHR pumps is RBCLCW, not the  
4 emergency equipment cooling water. Do you see that, sir?

5 A (WITNESS HUBBARD) Yes.

6 Q Mr. Hubbard, isn't that simply a case of the  
7 situation where the term "emergency equipment cooling  
8 water" is a generic term for what at Shoreham is RBCLCW?

9 A (WITNESS HUBBARD) That is the testimony that  
10 Mr. Museler made, and that I believe to be correct.

11 Q There is no change in any hardware or design  
12 drawings or any design basis for the system, is there,  
13 in connection with that matter?

14 A (WITNESS HUBBARD) I don't believe so. The  
15 LILCO corrective action was to revise Figure 7.3.1-10(a)  
16 and (b), and when LILCO gave their response in SC 70 on  
17 July 28th, there was no mention that these terms were  
18 synonymous. So, there was -- In other words, the staff  
19 wasn't informed at that time that you felt the terms  
20 were synonymous. The corrective action was that LILCO  
21 would just revise the figure to agree with the as  
22 constructed plant.

23 Q Well, did you look at the figure before you  
24 wrote this testimony to determine whether the cooling  
25 water to the RHR pumps in fact came from the RBCLCW term

1 there, the emergency equipment cooling water?

2 A (WITNESS HUBBARD) No, I did not.

3 Q If you had looked, you could certainly tell  
4 that what was labeled emergency equipment cooling water  
5 was in fact the RBCLCW as that term is used at  
6 Shoreham. Isn't that right?

7 A (WITNESS HUBBARD) Since I haven't looked, I  
8 can't really make that statement.

9 Q I take it you would agree with me that the  
10 item that we have been discussing which is the  
11 penultimate bullet in under e) is indeed a trivial  
12 matter and not a violation of Criterion 3 of Appendix  
13 B?

14 A (WITNESS HUBBARD) I think it turned out to be  
15 a not significant matter.

16 Q And certainly not a matter where the design  
17 basis or regulatory requirement was not translated into  
18 drawings, procedures, or instructions. Isn't that  
19 right?

20 A (WITNESS HUBBARD) I don't think I could agree  
21 with you on that, Mr. Ellis. At least the inspector  
22 looking at the plant had some confusion on the way  
23 language was being used, at least in his mind, and we  
24 saw that before on OQA how sometimes terms aren't as  
25 well defined as they might be.

1 Q Are you finished, Mr. Hubbard?

2 A (WITNESS HUBBARD) Yes.

3 Q Well, Mr. Hubbard, is it part of the design  
4 basis that the cooling water to the RHR pumps is RBCLCW?  
5 Is that the design basis?

6 (Pause.)

7 A (WITNESS HUBBARD) I am having trouble with  
8 the word "design basis" again, that the inspector went  
9 in and compared the as built plant to the diagrams that  
10 are in the FSAR, and these are examples that the NRC  
11 inspector found where in his opinion the as built plant  
12 did not agree with the description in the FSAR which  
13 forms the licensing basis.

14 Q Are you done, Mr. Hubbard?

15 A (WITNESS HUBBARD) Yes, sir.

16 Q Well, is it your testimony that the cooling  
17 water to RHR pumps being RBCLCW, that is part of the  
18 detail of what is generally understood to be the design  
19 basis for a system?

20 A (WITNESS HUBBARD) That is why I had trouble  
21 with the last question. No, it wouldn't be that.  
22 However, you would expect that the drawings that are in  
23 the FSAR to accurately reflect what is actually  
24 installed in the plant.

25 Q I understand your testimony on that point, but

1 given the fact that that sort of detail is not part of  
2 the design basis, and given the fact that there is no  
3 regulation that requires cooling water to RHR pumps  
4 being RBCLCW, wouldn't you agree with me that there is  
5 no violation of Criterion 3?

6 A (WITNESS HUBBARD) No.

7 Q All right. Tell me what design basis was not  
8 correctly translated into specifications, drawings,  
9 procedures, and instructions with respect to the cooling  
10 water to RHR pumps as referred to in your alleged QA/QC  
11 breakdown e) on Page 20 of your testimony.

12 A (WITNESS HUBBARD) I think there is a  
13 difference between design basis and design bases,  
14 b-a-s-e-s. That is in 50.2. Fifty point two talks  
15 about design bases, b-a-s-e-s. And Criteria 3 talks  
16 about design basis as specified by 50.2 and as specified  
17 in the license application. And it looks to me like  
18 what is in the license application that sets that  
19 figure, FSAR 7.3.1-10(a) and (b) set out the license  
20 application for that particular system, the description  
21 of it, and the as built is different than that.

22 Q Mr. Hubbard, first of all, the only difference  
23 between basis and bases is singular and plural, isn't  
24 it?

25 A (WITNESS HUBBARD) I would have to get a

1 dictionary to look at some of that.

2 Q You don't know, then?

3 A (WITNESS HUBBARD) No.

4 Q Now, the design basis that is referred to in  
5 Criterion 3 specifically refers to 50.2. Now, isn't it  
6 fair that what they are referring to is the design bases  
7 as that is defined in 50.2?

8 A (WITNESS HUBBARD) No, I don't think so.  
9 Because I think that you also have an as specified in  
10 the license application. There are a lot of things that  
11 go beyond what I would call the design base accident as  
12 specified in design documents.

13 Q Well, I am sorry, Mr. Hubbard. Am I about to  
14 interrupt you?

15 A (WITNESS HUBBARD) No.

16 Q Well, given that you have testified that the  
17 cooling water to the RHR pumps being RBCLCW is not a  
18 part of the design basis of the RHR system, isn't it  
19 fair to say that whatever the status of the drawings,  
20 there has been no failure to translate the design basis  
21 into the specifications, drawings, procedures, and  
22 instructions, and indeed into the designed plant?

23 A (WITNESS HUBBARD) No, I don't think so, Mr.  
24 Ellis.

25 Q All right. You did testify, did you not, that

1 the design basis of the RHR system did not include the  
2 kind of detail, that is, the cooling water to the RHR  
3 pumps being RBCLCW, that is correct, isn't it?

4 A (WITNESS HUBBARD) Yes, and I did that in  
5 terms of the accident analysis order of description.

6 Q You mean you didn't understand my use of the  
7 term "design basis" there to be the same that is in  
8 Criterion 3 and in 50.2(u)?

9 A (WITNESS HUBBARD) I have had some trouble  
10 with that, because I read it, the Criteria 3, to say  
11 design basis as defined in 50.2 and as specified in the  
12 license application, so it is 50.2, the design bases,  
13 and then also the other material that is in the license  
14 application.

15 Q Well, Mr. Hubbard, doesn't Criterion 3 say  
16 that the design bases is as defined in 50.2 and  
17 specified in the license application? Isn't that right?

18 A (WITNESS HUBBARD) That is correct.

19 Q Now, if it is defined in 50.2, and if, as you  
20 have testified, the cooling water to the RHR pumps being  
21 RBCLCW is not part of that design basis, then it  
22 wouldn't have to be specified in the design application  
23 as a design basis, would it?

24 A (WITNESS HUBBARD) Well, I can see your  
25 point. I think one could arguably make the

1 interpretation that you are making, Mr. Ellis. However,  
2 my interpretation would continue to be that when you  
3 have a figure that describes a system in the FSAR, a  
4 good design control system as required by Criterion 3  
5 would say that it is indeed -- accurately reflects the  
6 as built condition.

7 Q Yes, I understand that view of yours, Mr.  
8 Hubbard. What I am trying to do is to focus on the  
9 precise words of Criterion 3, which states that the  
10 design basis which requires that measures be established  
11 to assure that applicable regulatory requirements in the  
12 design basis are correctly translated into  
13 specifications, drawings, procedures, and instructions.  
14 Assuming my interpretation is correct, wouldn't you  
15 agree with me that that item is not a violation of  
16 Appendix B, Criterion 3? And I am referring to the item  
17 that we have been discussing on Page 20 of your prefilled  
18 testimony.

19 A (WITNESS HUBBARD) I could see how one could  
20 arguably say that, yes.

21 Q Let's turn now, Mr. Hubbard, to the second  
22 item under e) that says relief valves F030A-D go to  
23 floor drains, not CRW. Isn't that an instance, Mr.  
24 Hubbard, where there was no hardware change, no change  
25 in the plant as constructed, no change to any design

1 document, and indeed the relief valves do go to CRW  
2 ultimately?

3 A (WITNESS HUBBARD) They do ultimately go to  
4 the Controlled Rad Waste, but they do it through the  
5 floor drains rather than directly.

6 Q And where did you come upon that information  
7 that the floor drains go to the Controlled Rad Waste?

8 A (WITNESS HUBBARD) This again was the  
9 testimony of Mr. Museler, and as I recall, that he said  
10 that, well, yes, this was in part a valid observation  
11 and no, the other part wasn't a valid observation, and  
12 his explanation was that the floor drains go to the Rad  
13 Waste.

14 Q Did you ever make any effort to determine from  
15 the FSAR whether you can see that the floor drains go to  
16 the Controlled Rad Waste?

17 A (WITNESS HUBBARD) Would you like to have me  
18 look at the figure?

19 Q No, my question was, did you ever make any  
20 effort to do that?

21 A (WITNESS HUBBARD) I have not looked at that  
22 figure, but I would be glad to.

23 Q If the FSAR -- well, strike that.

24 You would agree with me, wouldn't you, Mr.  
25 Hubbard, that whether the relief valves go to floor

1 drains and not CRW is not part of the design basis of  
2 the RHR system as defined in 50.2(u)?

3 (Pause.)

4 A (WITNESS HUBBARD) In the sense that 50.2(u)  
5 talks about design basis, the specific function that one  
6 defines functions as how various parts of the systems  
7 are related to each other, then where the relief valves  
8 go would be part of the design basis.

9 (Whereupon, counsel for LILCO conferred.)

10 Q Well, assuming, as you say, that whether the  
11 relief valves go to the Controlled Rad Waste as part of  
12 the design basis of the RHR system, assume further, if  
13 you will, that the FSAR in fact shows that the floor  
14 drains go to the Controlled Rad Waste, wouldn't you  
15 agree with me that there has been no failure to  
16 translate design basis into drawings, procedures, and  
17 instructions?

18 A (WITNESS HUBBARD) Well, you made two  
19 assumptions, and I don't think I can agree with those  
20 assumptions.

21 Q Well, I thought one of them was directly from  
22 your testimony. Shall I restate them for you?

23 A (WITNESS HUBBARD) Yes, please.

24 Q I thought you testified that as you construed  
25 50.2(u), the relief valves going to the floor drains or

1 to the CRW was part of the design basis as you construed  
2 that term of the RHR system. Isn't that what you  
3 testified?

4 A (WITNESS HUBBARD) Yes, sir.

5 Q All right. And that reflects your opinion  
6 that that level of detail is included in a design  
7 basis. Isn't that right?

8 A (WITNESS HUBBARD) Yes, sir.

9 Q All right. Now, assuming that is right, and  
10 assuming further that the FSAR shows that the floor  
11 drains do go to the Controlled Rad Waste, isn't it fair  
12 to say that there has been no failure to translate  
13 design basis into specifications, drawings, and  
14 procedures, and instructions, as required by Criterion 3  
15 of Appendix B?

16 A (WITNESS HUBBARD) That is true, except my  
17 understanding of the NRC deviation here was that the  
18 FSAR showed it going to a floor drain, and didn't show  
19 it going to Controlled Rad Waste.

20 Q Well, assuming it does go to the floor drain,  
21 I ask you further to assume that the FSAR contains  
22 information or a drawing which shows that the floor  
23 drains go to Controlled Rad Waste. You don't know one  
24 way or another whether that is so, do you?

25 A (WITNESS HUBBARD) It is correct that I don't

1 know if this particular figure did show the floor drains  
2 going to Controlled Rad Waste.

3 Q How about any other figure?

4 A (WITNESS HUBBARD) I have looked at a number  
5 of these figures as part of the FSAR configuration  
6 control reports where the plant was built different than  
7 the FSAR figures, but this is not an isolated sort of  
8 finding. There are literally tens of these. I mean, we  
9 saw those when Mr. Museler testified.

10 Q Well, my question, though, Mr. Hubbard, is,  
11 and I think you already indicated that you don't know  
12 whether there is a figure in the FSAR that shows that  
13 the floor drains go to the Controlled Rad Waste, do  
14 you?

15 A (WITNESS HUBBARD) That is correct.

16 JUDGE BRENNER: Are you finished with that  
17 item, Mr. Ellis?

18 MR. ELLIS: This might be a good time to take  
19 a break.

20 JUDGE BRENNER: Is this about where you  
21 expected to be today?

22 MR. ELLIS: That is rhetorical. No, sir. But  
23 I am going to make some adjustments this evening,  
24 because I --

25 JUDGE BRENNER: I was asking you seriously.

1 That wasn't rhetorical on my part.

2 MR. ELLIS: No, sir, it is not. Put we  
3 expected to be beyond this, and I don't mean that in  
4 terms of criticism of Mr. Hubbard, either.

5 JUDGE BRENNER: I am not interested in  
6 criticism of anybody. I am interested in figuring out  
7 how this is going to go faster, because we are going to  
8 be here next week questioning Mr. Hubbard at this rate.

9 MR. ELLIS: Well, that is why I indicated to  
10 you, Judge Brenner, that I intend to review this matter  
11 fairly closely this evening.

12 JUDGE BRENNER: Judge Morris has a question  
13 before the break.

14 JUDGE MORRIS: Mr. Hubbard, I am trying to  
15 understand your understanding of Criterion 3. If we  
16 read the cold words, I don't see any implication of, in  
17 effect, verifying as built hardware with approved  
18 designs. What I see is Controlled Design, which is the  
19 title of the criterion. And in fact it does, as you  
20 imply, then, I think correctly, concern itself with  
21 interfaces. To be sure, it is through the design  
22 process that different disciplines are coordinated to be  
23 sure that there aren't unanalyzed interfaces which could  
24 have some kind of impact on the functioning of the  
25 proposed design, but I don't see a clear implication of

1 verification of the as built versus design, and maybe it  
2 is not in Criterion 3 and it is somewhere else, but if  
3 you have time during the break, maybe you could think  
4 about that one a little.

5 WITNESS HUBBARD: Dr. Morris, would you like  
6 me to answer it? I can give you my answer now.

7 JUDGE MORRIS: Well, I would rather take the  
8 break.

9 (General laughter.)

10 JUDGE BRENNER: Give me one minute.

11 (Whereupon, the board conferred.)

12 JUDGE BRENNER: All right. We will come back  
13 at 3:35.

14 (Whereupon, a brief recess was taken.)

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1 JUDGE BRENNER: All right. I guess we should  
2 give Mr. Hubbard an opportunity to respond now.

3 WITNESS HUBBARD: Yes. Dr. Morris, like  
4 everything else in quality assurance, what is involved  
5 in design control is a process and in my view the  
6 process begins with a license application. This is the  
7 commitment. So in Criterion 3 you correctly said that  
8 the reason you have this control process is because of  
9 the numerous interfaces, and that is really the second  
10 paragraph of Criteria 3, and acknowledges that there are  
11 these numerous interfaces so that you want to control  
12 the review release approval drawings throughout those  
13 numerous interfaces.

14 And then it goes into the output of the  
15 design, which really is where Criteria 3 ends. You have  
16 some design documents, and if you go to Criteria 9 and  
17 10 -- excuse me, Criteria 10 and 11, Criteria 10 starts  
18 with the design documents and talks about inspection,  
19 that you shall have a program for inspection of  
20 activities affecting quality to verify conformance with  
21 the documented drawings for accomplishing the activity  
22 so that the as-built part of verification that I was  
23 talking about had to do with Criteria 10.

24 And then Criteria 11 in the first sentence  
25 talks about you could also do testing to see that it

1 meets the requirements of the acceptance limits and  
2 applicable design documents. So what I have been  
3 addressing in the broad context of Criteria 3 is how you  
4 control the design process from what is in the FSAR to  
5 the drawings, the outputs that come out that the field  
6 uses for construction.

7           Now the whole matter of Criteria 3 and how it  
8 is to be implemented is covered in Reg Guide 1.64, which  
9 refers to an ANSI standard, N45-2.11, 1974, which I  
10 don't think is in evidence anywhere. In any case, in  
11 that ANSI standard it goes into the sorts of things that  
12 are looked at as design inputs, and it lists some 28  
13 sorts of things that have to be controlled as inputs to  
14 design categories, which is much broader than what we  
15 have been talking about about the Criteria 3 is only  
16 addressing what might be called some of the narrow bases  
17 that go into the design basis accident.

18           JUDGE MORRIS: One of my reasons for asking  
19 the question is I'm searching for a way to accelerate  
20 the dialogue and it seems to me part of the reason for  
21 delay -- can you hear me?

22           MR. LANPHER: I can now, thank you.

23           JUDGE MORRIS: It seems to me that part of the  
24 reason for the extensive dialogue is confusion of terms  
25 and I won't point a finger at anyone. But I think all

1 of us recognize that quality assurance is a very broad  
2 thing and it goes beyond simple definitions of the  
3 individual criteria and it involves a concept.

4           Appendix B is a tool to achieve quality  
5 assurance, namely quality of the product, and there are  
6 many things involved in that, not just Appendix B. And  
7 it seems that we are all invoking some of those other  
8 things. Yet in the narrow confines of your testimony  
9 you have invoked only Criterion 3. And where we try to  
10 get you to explain why a particular CAT finding was  
11 really a violation of a deficiency with respect to  
12 Criterion 3, it sometimes is difficult because it  
13 involves those other things.

14           Do you agree with me in that?

15           WITNESS HUBBARD: Yes, I do. And that is why  
16 I mentioned the ANSI standard. I know in an operating  
17 QA program with all of the ANSI standards the complete  
18 coverage you have to have to have a design control  
19 program, and that is what my testimony was more directed  
20 towards in this whole aspect of interface control.

21           JUDGE MORRIS: I'm afraid that we are kind of  
22 bogged down in the black and white words that you have  
23 written in your testimony, on the one hand, as  
24 deficiencies with respect to only Criterion 3.

25           WITNESS HUBBARD: Well, I understand that, and

1 also through work I have done on Diablo Canyon and in  
2 meetings with Harold Denton that there has been a lot of  
3 discussion on is the plant designed in accordance with  
4 the FSAR and then, secondly, is it built in accordance  
5 with the FSAR or built in accordance, excuse me, with  
6 the design documents.

7           And that we have had meetings on Diablo Canyon  
8 where we have talked about, and then there have been  
9 general meetings with Commissioners where there has been  
10 discussion about having the applicant make a commitment  
11 that the plant is designed in accordance with the FSAR  
12 and built in accordance with the design documents and  
13 having a basis to support that commitment.

14           And so in those discussions always the FSAR  
15 was an important document. It said what the commitments  
16 were.

17           JUDGE MORRIS: Well, this subject bothers me a  
18 little bit too in that I think you will agree that given  
19 the FSAR you wouldn't have enough to construct the  
20 plant. You would need other design documents, right?

21           WITNESS HUBBARD: That is correct, yes.

22           JUDGE MORRIS: And that the real purpose of  
23 the FSAR, as stated in 50.34, is not design documents to  
24 the extent that you use them to build the plant, but you  
25 provide the description that shall be sufficient to

1 permit the understanding of the system designs and their  
2 relationship to safety evaluations.

3 I think the Staff probably finds that what is  
4 in the FSAR isn't enough for that, which is why they  
5 asked several thousand questions and why they informally  
6 review one line diagrams of electrical systems, for  
7 example. But I thought, and I wonder if you agree, that  
8 perhaps you overstated the case when you said that the  
9 FSAR itself is a design document.

10 WITNESS HUBBARD: Well, I thought a lot about  
11 that, Dr. Morris, that I could see how we could have a  
12 difference of opinion on that.

13 JUDGE MORRIS: Well, it gets into semantics.

14 WITNESS HUBBARD: Yes, but it seems to me that  
15 when LILCO was describing their design control program  
16 right there on the E&DCR it said is the FSAR impacted or  
17 not, and then, secondly, we looked at some charts where  
18 we were talking about reviews and approvals of changing  
19 the FSAR, which makes it, to me, a design document. It  
20 is part of the design control process.

21 The other part, Dr. Morris, is that -- I was  
22 very focused on is that this FSAR is going to be around  
23 for the 40-year life of the plant and I worked where we  
24 had to take over our operating plants and it was very  
25 difficult to start with a plant that hadn't been well

1 defined in some sort of document at turnover time. And  
2 that is where, I guess, I got the point that I wanted  
3 the FSAR to be as accurate as possible at the time of  
4 turnover to operations.

5 JUDGE MORRIS: Yes, I think accuracy is one  
6 concept. I think the function of the FSAR, as opposed  
7 to all design documents, is perhaps another. I think we  
8 can agree on the functions. You certainly need a  
9 description in the FSAR that permits you to make safety  
10 evaluations. You certainly have to understand the  
11 design concepts and to do a safety analysis certain  
12 parameters have to be defined.

13 But the FSAR by itself is not enough, which is  
14 one of the reasons for technical specifications which  
15 are incorporated in the license. All of those things  
16 together and, pardon the expression that has been used  
17 around here quite a bit today, the hierarchy, that they  
18 all fit together. None of them stand alone and the only  
19 thing that I was looking for was an agreement that the  
20 FSAR by itself was not a complete design document.

21 WITNESS HUBBARD: I would be in accord with  
22 that.

23 JUDGE MORRIS: Then I think we previously  
24 agreed that Criterion 3 by itself doesn't guarantee  
25 as-built hardware, even with a controlled design.

1           WITNESS HUBBARD: I think you have to have  
2 Criteria 3, along with, for example, 10 and 11.

3           JUDGE MORRIS: For example, let me continue on  
4 3. For example, you might have a perfectly controlled  
5 design process, but the workmen could install the wrong  
6 nameplate. That wouldn't be a design control  
7 malfunction.

8           WITNESS HUBBARD: The reason I picked Criteria  
9 10 and 11 is that say you are in a machine shop. The  
10 first thing you with an inspector is have him inspect  
11 dimensions against the drawing.

12          JUDGE MORRIS: I don't quarrel with you on any  
13 of the other criteria, but you didn't mention them. On  
14 page 19 you mentioned only Criterion 3, which has  
15 gotten, I think, us into a problem of communication.

16          WITNESS HUBBARD: Well, I had the problem the  
17 other way, where the NRC would have one criteria, like  
18 they would say it is Criterion 5 on, oh, an example  
19 might be there was debris found and they would site  
20 Criterion 5. And I would look at it and I would say,  
21 well, that's really a Criterion 13 problem which talks  
22 about housekeeping and cleanliness.

23          JUDGE MORRIS: Well, in your testimony what  
24 did you do? Did you use the criterion that you thought  
25 fit, or did you use the conclusion of the Staff in its

1 CAT inspection?

2 WITNESS HUBBARD: I used the one that I felt  
3 closest represented the criteria that was violated. So  
4 when we were talking about things like how the FSAR is  
5 controlled I picked 3 for that because I thought that 3  
6 and then, as implemented by Reg Guide 1.64 and the ANSI  
7 standard talks about the design control process and the  
8 control of interfaces.

9 But obviously 10 and 11 are also part of it  
10 because you go out and inspect. You expect to inspect  
11 to ensure that the as-built plant agrees with the  
12 as-built drawing. But some of the problem we have had  
13 here is that the as-built drawing is different than the  
14 one that is referred to in the FSAR, so you can have a  
15 breakdown at various points in the process.

16 JUDGE MORRIS: Right, and it seems to me that  
17 in the dialogue we ought to focus more narrowly on  
18 exactly what we are talking about in these things. And  
19 I admit that in terms of the final product the design  
20 control process itself as described in Criterion 3 is  
21 not the most direct.

22 I won't take any more of your time, Mr.  
23 Ellis.

24 JUDGE BRENNER: Okay. Let's continue the  
25 examination.

1 BY MR. ELLIS: (Resuming)

2 Q Mr. Hubbard, let me follow up on just a couple  
3 of matters. You indicated to Judge Morris that you  
4 selected the criterion you felt was right, and I'm not  
5 sure that I asked you this before, but let me confirm  
6 it, that with respect to the alleged breakdowns that you  
7 have cited on 19 and 20, the NRC didn't cite any  
8 Appendix B criterion with relation to those, did it?

9 A (WITNESS HUBBARD) No, they did not. They  
10 said it was a deviation from FSAR commitments.

11 Q All right. Mr. Hubbard, let me clear one  
12 other thing up for the record. Would you look, if you  
13 would, please, at figures 9.3.3-1 (a) through (d) of the  
14 FSAR and confirm for me, if you would, please, that  
15 those figures indicate that the floor drains go to the  
16 controlled rad waste? Do you have that volume of the  
17 FSAR?

18 A (WITNESS HUBBARD) I don't have any of the  
19 FSAR here.

20 (Counsel handing document to witness.)

21 A (WITNESS HUBBARD) Excuse me, Mr. Ellis. That  
22 was 9.3.1, then --

23 Q -1.

24 A (WITNESS HUBBARD) -1.

25 Q A through D.

1 A (WITNESS HUBBARD) (a) through (d).

2 (Pause.)

3 Q Mr. Hubbard, let me save time. Look, if you  
4 would, please, look at 9.3.3-1(d). Do you see the line  
5 there over on the left showing coming from the reactor  
6 drains to the waste collector tanks and floor-draining  
7 collector tanks, of which are controlled rad waste?

8 A (WITNESS HUBBARD) Are you all the way at the  
9 far right, the 4-inch CRW line?

10 Q Right, the far left, all the way over to the  
11 right.

12 A (WITNESS HUBBARD) I'm sorry. You said far  
13 left, all the way to the right?

14 Q Well, why don't you just look at and see  
15 whether you can determine --

16 (Counsel for LILCO conferring.)

17 MR. LANPHER: Judge Brenner, if it would help  
18 move things along, I would offer that Mr. Hubbard could  
19 do this after hours and then come back and answer the  
20 question in the morning.

21 MR. ELLIS: May I try just to expedite it just  
22 so that we can get it done at this point? I will try  
23 once more.

24 JUDGE BRENNER: I'm not sure I need his  
25 testimony at all as to that fact, given all of the other

1 potential sources of testimony on that point. I will  
2 give you one more chance. This is beginning to get more  
3 and more like a deposition and less and less like a  
4 hearing.

5           One problem is we haven't had enough  
6 depositions rather than that there have been too many  
7 depositions ordered, and this testimony has been in for  
8 a long time, and that goes for the cross by the County  
9 of LIILCO witnesses too. That would have cured a lot of  
10 problems. But go ahead. See if you can direct him more  
11 directly to it.

12           MR. ELLIS: Thank you.

13           JUDGE BRENNER: And if this next attempt  
14 fails, then we will do it over a longer period of time,  
15 that is, give him an opportunity.

16           BY MR. ELLIS: (Resuming)

17           Q     All right, Mr. Hubbard, look over on the right  
18 of Figur 9.3.3-1(d). Do you see it over on the right  
19 where it says "floor drain collector tanks, 1G-11 TK061A  
20 and 061B? Over on the right?

21           A     (WITNESS HUBBARD) Yes.

22           Q     That is the controlled rad waste system, isn't  
23 it -- G-11 -- the G-11 system?

24           A     (WITNESS HUBBARD) It is the G-11 system, yes.

25           Q     Do you know that to be the rad waste system?

1           A       (WITNESS HUBBARD) That is the rad waste  
2 system.

3           Q       All right. If you will follow those lines,  
4 they go back over to the left where it says "continued  
5 on Figure -- continued on Figure 9.3.3-1(b)." Do you  
6 see that?

7           A       (WITNESS HUBBARD) Yes.

8           Q       Now let's go to (b), and do you see on the  
9 left it shows the line coming in from the left, the  
10 reactor building, and that goes down to the floor drains  
11 at the bottom left, where it shows floor drains, sump  
12 and pumps? Do you see that?

13          A       (WITNESS HUBBARD) Yes, I see that there are  
14 three areas here that are floor drains, sumps and  
15 pumps.

16                   (Counsel for LILCO conferring.)

17          Q       And they are G-11 as well, aren't they, Mr.  
18 Hubbard?

19          A       (WITNESS HUBBARD) That is right. They are  
20 all part of the G-11 system.

21          Q       So the floor drains are part of the same  
22 system?

23          A       (WITNESS HUBBARD) Yes.

24          Q       Mr. Hubbard, let's --

25                   JUDGE BRENNER: Does that figure have a date

1 or a revision number, or both?

2 MR. ELLIS: Yes, it does, Judge Brenner. I  
3 believe it was December of '81, but let me get it out  
4 again and I will look at it.

5 WITNESS HUBBARD: The ones I looked at were  
6 revision 24, December 1981, and that is (b) and (c).

7 JUDGE BRENNER: All right.

8 BY MR. ELLIS: (Resuming)

9 Q All right, Mr. Hubbard, let's turn next to the  
10 item that is referred to on the bottom bullet on (e) on  
11 page 20, drains from RHR pump suction and discharge do  
12 not tie together. It is fair to say, isn't it, that  
13 that matter did not involve any hardware change, no  
14 change to any of the design documents, excluding from  
15 that definition the FSAR and that the design was  
16 implemented as intended and the plant constructed as  
17 such, and that all that is is a situation where the FSAh  
18 schematically showed two lines tied together, and then  
19 go to drains rather than to separate lines going to the  
20 same place?

21 A (WITNESS HUBBARD) That is correct.

22 Q Is it your testimony that whether or not two  
23 lines tie together before they go to the same place or  
24 go to the same place at the same time part of the design  
25 basis of a system, as defined in 50.2(u) and used in

1 Criterion 3?

2 A (WITNESS HUBBARD) Could I have that question  
3 again? I started to come up with an answer before I  
4 listened to it all.

5 JUDGE BRENNER: It's the same question he's  
6 asked you about everything else. The question is:  
7 Given that is the nature of that item, so what?

8 WITNESS HUBBARD: I was thinking of the answer  
9 and again I would like to have it reflect what is really  
10 there because a person could be looking at the FSAR and  
11 doing some troubleshooting and trying to figure out a  
12 path through which leakage might be coming or something  
13 of that sort, and he would have one idea of how the  
14 system was configured and it was actually configured  
15 quite different.

16 And I particularly was interested in these  
17 little lines because at San Onofre I was doing some work  
18 there and there was some drainage that nobody could  
19 find, and it was because some drain lines weren't shown,  
20 and so I think attention to detail on this little piping  
21 can have some importance.

22 JUDGE BRENNER: And, therefore, do you think  
23 it is, in fairness to Mr. Ellis' original question, that  
24 it is part of the design basis, as defined in Criterion  
25 3 and 50.2(u)?

1           WITNESS HUBBARD: I think it is part of the  
2 design basis in the broadest sense of keeping the  
3 application correct to reflect the as-built plant, yes.

4           JUDGE BRENNER: Okay.

5           MR. ELLIS: Well, Judge Brenner, I don't think  
6 that is the answer.

7           BY MR. ELLIS: (Resuming)

8           Q     You said it was the design basis in the  
9 broader sense. Is it the design basis -- is it included  
10 in the design basis as that term is defined in 50.2(u)  
11 and Criterion 3? And when I say "is it included in the  
12 design basis" I am talking about whether or not you have  
13 two lines tied together before they go to the same place  
14 or two lines go separately to the same place.

15          A     (WITNESS HUBBARD) I think how a system is  
16 configured, Mr. Ellis, is part of the design base.

17          Q     I'm talking about this particular system. Is  
18 your answer yes or no? It is part of the design basis?  
19 Let me restate the question for you, Mr. Hubbard.

20                 With respect to the drains of the RHR pump  
21 suction and discharge, with respect to the RHR system,  
22 is it your testimony that it is part of the design  
23 basis, as that term is defined in 50.2(u) and used in  
24 Criterion 3, that the design basis includes whether or  
25 not the lines go tied together to one place or go to the

1 same place separately?

2 A (WITNESS HUBBARD) I think yes, Mr. Ellis, in  
3 a broad rating. And I think obviously the Staff thought  
4 these were important or they wouldn't have put these in  
5 as deviations. I haven't had an opportunity to ask the  
6 Staff why they picked these particular ones, you know,  
7 what they thought the significance was. But I know that  
8 they don't write these up lightly, so they must have had  
9 some reason also, that this was of some importance.

10 (Counsel for LILCO conferring.)

11 Q Have you looked at the RHB design basis  
12 discussion to determine whether that -- that is referred  
13 to on the drains, the last bullet on (e) -- is indeed  
14 part of the design basis as stated in the FSAR?

15 A (WITNESS HUBBARD) No, I have not. However,  
16 you and I have a semantic problem that I believe the  
17 FSAR figure is part of the LILCO license commitment and,  
18 therefore, I would expect the FSAR figure to accurately  
19 reflect the as-built plant.

20 Q I take it you do not know whether the matter  
21 referred to in the last bullet on (e) has any  
22 significance with respect to the safety analysis  
23 conducted by either the Staff or LILCO.

24 A (WITNESS HUBBARD) No.

25 Q Mr. Hubbard, let's look at --

1 (Counsel for LILCO conferring.)

2 Q Oh, you indicated that the figure is a license  
3 commitment. Is it your testimony that every detail in  
4 the FSAR constitutes a legally binding commitment on the  
5 applicant or licensee?

6 A (WITNESS HUBBARD) I would have to give the  
7 interpretation as a QA manager. As a QA manager I would  
8 expect every detail in the FSAR to be accurate. Now --  
9 and I would do that under the broad confines of Criteria  
10 3. Likewise, when I looked at the LILCO E&DCR form  
11 where it said does this make into an FSAR change, yes or  
12 no, I heard the testimony of Mr. Museler where he talks  
13 about three types of FSAR changes. But when you look at  
14 an E&DCR form, it just says do you change the FSAR or  
15 not. It doesn't go into some of these things on whether  
16 it is a regulatory requirement or commitment or  
17 descriptive material or whatever.

18 The E&DCR form just says yes, the FSAR needs  
19 to be changed, or no, it doesn't.

20 Q But you heard Mr. Museler testify, though,  
21 didn't you, that LILCO would attempt to change all three  
22 kinds -- that is, the commitments, the descriptive  
23 detail and the significant detail -- and that it is  
24 really a matter of time and significance. Isn't that  
25 right?

1           A       (WITNESS HUBBARD) I heard that, and I also --  
2 that was the first time I had ever heard it because the  
3 E&DCR procedure and the E&DCR form don't talk about what  
4 Mr. Museler testified about.

5                   (Counsel for LILCO conferring.)

6           Q       There would be no change to E&DCR with respect  
7 to any of the bullets on (e), isn't that right, Mr.  
8 Hubbard? There would be no reason to change any E&DCR  
9 with respect to those. Isn't that correct?

10          A       (WITNESS HUBBARD) I don't believe that is  
11 correct.

12          Q       Well, Mr. Hubbard, in the field if the design  
13 document conforms to or if the as-built or what they are  
14 doing conforms to the design document, the construction  
15 drawing, there is no need, then, is there, for the  
16 generation of any E&DCR?

17          A       (WITNESS HUBBARD) I would completely agree  
18 with you on that, Mr. Ellis. However, if you generate a  
19 field drawing that disagrees with the FSAR, then I would  
20 have expected the design review process to pick that  
21 up. So this is a breakdown of the design review process  
22 which gets back to Criteria 3, that the interfaces  
23 weren't controlled.

24          Q       So it is your testimony, then, that there  
25 should have been an E&DCR for all of these matters that

1 are referred to in your breakdowns 1 through 7, pages 19  
2 and 20?

3 (Pause)

4 A (WITNESS HUBBARD) Yes. When people were  
5 making the construction drawings they made construction  
6 drawings that were in violation of what is in or in  
7 disagreement, in disagreement with what is in the FSAR.  
8 And the PNIDs were the drawings that, therefore, needed  
9 to be changed if they wanted to go ahead and build it  
10 the way they built it.

11 So there should have been a change made to the  
12 PNIDs which then turn out to be the FSAR documents.

13 JUDGE BRENNER: Mr. Hubbard, in your answer it  
14 appeared to me that you assumed that the drawings used  
15 for the actual construction differ from the FSAR  
16 drawings with respect to these six items under (e) on  
17 page 20 of your testimony. Was that a correct inference  
18 on my part?

19 WITNESS HUBBARD: Let me explain it and if I  
20 don't address your question, I apologize.

21 I think that the construction was done in  
22 accordance with the construction drawings.

23 JUDGE BRENNER: Let me stop you right there  
24 for a moment, if you will forgive me, because that was  
25 my point. How do you know that, as distinguished from

1 the possibility that the construction was done  
2 differently than the construction drawings and that in  
3 fact the construction drawings are the same as the  
4 FSAR?

5 WITNESS HUBBARD: I don't for sure, but there  
6 is another category in here where the inspector cited  
7 LILCO for building a plant other than to the drawings  
8 and so I assumed for this that the construction people  
9 had in fact built them to the drawings, but that the  
10 construction drawings disagreed with the FSAR  
11 commitments.

12 So I wanted to give them the benefit of the  
13 doubt. I have no reason to believe they didn't build in  
14 complete accord with the construction drawings.

15 JUDGE BRENNER: But you are assuming that from  
16 the category in which the Staff placed these findings?

17 WITNESS HUBBARD: Yes, because on the next  
18 page, 4-17, of m Attachment 4, on 4-17 and 4-18, they,  
19 the Staff, lists what I thought were discrepancies  
20 between the construction drawings and the as-built  
21 plant. So that was my basis for assuming they had done  
22 it correctly in the ones listed in the FSAR category.

23 JUDGE BRENNER: All right. You have answered  
24 my question. You have answered my question as to your  
25 thinking. If there is something in black and white here

1 that states that, I have missed it. Maybe I will find  
2 it again someday.

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1           WITNESS HUBBARD: Well, there also, Judge  
2 Brenner -- well, on page 4-16 there is the words  
3 "generally conform to the approved specs, drawings and  
4 system descriptions as required by the design." But  
5 then they go on to say that it was different in the FSAR  
6 description and commitments.

7           MR. ELLIS: That portion, Judge Brenner, I  
8 read earlier in connection with one of my questions.

9           JUDGE BRENNER: Okay.

10          WITNESS HUBBARD: And this is all, well, one  
11 section having to do with inspection findings. And the  
12 first seven or so go to the FSAR. Then there is a brief  
13 paragraph, and then they start the ones that are listed  
14 on 4-17 and 4-18, which I took to be a different  
15 category. And I won't say any more.

16          JUDGE BRENNER: Okay.

17          BY MR. ELLIS: (Resuming)

18          Q     Mr. Hubbard, with respect to the bullet that  
19 refers to relief valves, F025, is not thermal relief  
20 contrary to note 12, have you ever read note 12?

21          A     (WITNESS HUBBARD) No, I have not.

22          Q     Isn't it true that this is an instance, again,  
23 where there has been no hardware change, no change to a  
24 design document or a construction document, other than  
25 in your definition you use FSAR, and that the design was

1 implemented as intended, and that all this is is a  
2 matter of terminology over what constitutes a thermal  
3 relief valve?

4 A (WITNESS HUBBARD) Well, I think the NRC's  
5 interpretation was that it should have been called a  
6 pressure relief valve.

7 Q But would you agree with my characterization  
8 of the other matters?

9 A (WITNESS HUBBARD) Well, no, in the sense --  
10 the word like, "only terminology." I think terminology  
11 is important.

12 Q Well, given that you think it is important,  
13 though, isn't it true that --

14 (Counsel for LILCO conferring.)

15 Q Isn't it true, though, given that you say the  
16 terminology is important, isn't it true, though, that  
17 there was no hardware change, no change in any design  
18 drawings or design documents as those terms are defined  
19 except in the FSAR as you define it, and that the design  
20 was implemented as intended, and that what we're talking  
21 about here is terminology, which you consider  
22 important?

23 A (WITNESS HUBBARD) Yes, sir.

24 Q All right, now. In your experience it is  
25 true, isn't it -- well, strike that.

1           It is fair to say that the term "thermal  
2 relief" is sometimes applied to valves that are designed  
3 to relief pressure or temperature due to a pressure  
4 buildup? Let me switch that around. I had that exactly  
5 reversed, Mr. Hubbard, and perhaps you caught that.

6           It is fair to say, isn't it, that the term  
7 "thermal relief valve" is sometimes applied to valves  
8 designed to relieve temperature due to pressure  
9 buildup? I did it again.

10           JUDGE BRENNER: If it's any consolation, Mr.  
11 Ellis, it sounds perfectly okay to me.

12           (Laughter.)

13           MR. ELLIS: Let me try again, Mr. Hubbard.  
14 I'm sorry. I apologize to you.

15           BY MR. ELLIS: (Resuming)

16           Q     It is fair to say, isn't it, that the term  
17 "thermal relief valve" is sometimes applied to valves  
18 designed to relief pressure due to temperature buildup?

19           A     (WITNESS HUBBARD) Yes.

20           Q     So really, what we are talking about here is  
21 an ambiguity in note 12, aren't we?

22           (Pause.)

23           A     (WITNESS HUBBARD) I think it gets -- no, I  
24 think it more gets into what the function of that  
25 particular valve is. So rather than call it an

1 ambiguity, I would call it having to do with the  
2 function.

3 Q Well, you have made no investigation as to  
4 what kind of valve F025 really is, do you, or did you?

5 A (WITNESS HUBBARD) No, I did not.

6 Q Was relief protection needed in connection  
7 with that particular portion of the RHR system?

8 A (WITNESS HUBBARD) Well, it is a relief valve,  
9 Mr. Ellis.

10 Q What was the relief needed from, if you know?

11 A (WITNESS HUBBARD) I do not know, Mr. Ellis.

12 My understanding is the NRC believed it should have been  
13 more properly called a pressure relief rather than a  
14 thermal relief.

15 (Counsel for LILCO conferring.)

16 Q Well, given that you've already testified that  
17 there was no change in hardware or design construction  
18 documents, it is true, isn't it, that the design basis  
19 of the RHR system as far as that is concerned was  
20 correctly translated into specifications, drawings,  
21 procedures and instructions?

22 A (WITNESS HUBBARD) Is that the question?

23 Q Yes.

24 A (WITNESS HUBBARD) No, in the sense that the  
25 FSAR figure didn't show the system as configured.

1 Q All right, let me get simplistic about it, Mr.  
2 Hubbard. Do you know whether the right valve was put in  
3 there or not? Given that you've already testified there  
4 was no change in hardware and no change in any  
5 construction documents and no change to the construction  
6 of the plant, wasn't the right valve put in there?

7 A (WITNESS HUBBARD) To the best of my  
8 knowledge, yes.

9 Q All right. Therefore, wouldn't you agree with  
10 me that the design basis was correctly translated into  
11 specifications, drawings, procedures and instructions?

12 A (WITNESS HUBBARD) No, because I think that  
13 the FSAR figure described a function that could have  
14 been misleading.

15 (Counsel for LILCO conferring.)

16 Q Well, is it fair to say, then, that your  
17 conclusion that this is, this third bullet under alleged  
18 breakdown e) on page 20 of your prefiled testimony, is a  
19 violation of criterion 3, is based solely on the fact  
20 that there is in note 12 a reference to a thermal valve  
21 rather than a pressure relief valve, is that right?

22 A (WITNESS HUBBARD) No, not entirely. Again, I  
23 am familiar with the I&E people, and an inspector writes  
24 this down as a finding. Without having talked to him, I  
25 don't know why he thought this was important, but he

1 thought it was important enough to put down as a  
2 difference.

3 Q Well, don't you think it is a substantial leap  
4 from taking this, not having made any investigation in  
5 the FSAR and not having done any investigation other  
6 than what you've testified that you did, to jump from  
7 that fact to a violation of Appendix B, criterion 3, and  
8 a QA breakdown.

9 A (WITNESS HUBBARD) No. I guess I am surprised  
10 at the detail in which we are looking at this, when I  
11 look at LILCO's corrective action in Exhibit No. 70,  
12 because there there aren't any of these words about  
13 things not being important. It just says that the  
14 figures will be revised.

15 Q Have you ever heard the expression, "It is  
16 easier to switch than fight"? Did you hear that in the  
17 testimony?

18 A (WITNESS HUBBARD) As an expression I've heard  
19 that, yes.

20 Q Well, I understand what you are saying about  
21 being surprised. Do you know whether there is any  
22 functional difference between the thermal relief valve  
23 and pressure relief valve that is referred to in the  
24 third bullet on e) on page 20 of your prefiled  
25 testimony?

1           A       (WITNESS HUBBARD) I think we would have to  
2 get down to what your definition of "functional" is.

3           JUDGE BRENNER: Well, why don't you just  
4 state. If the answer is other than a simple, you don't  
5 know or no, then apparently you have some difference  
6 potentially in mind. So maybe it's simpler, Mr.  
7 Hubbard, if that is the case, if you just state what you  
8 think the difference is. And then we will worry about  
9 what label to put on that difference.

10           WITNESS HUBBARD: I think it is just what I  
11 went through with Mr. Ellis before, that the function is  
12 for this relief valve to do its relief, and it's going  
13 to relieve pressure. But it is the sorts of things that  
14 would lead up to that.

15           MR. ELLIS: Let me ask that question directly,  
16 Judge Brenner, if I may.

17           BY MR. ELLIS: (Resuming)

18           Q       Mr. Hubbard, what is the difference between a  
19 thermal relief valve and a pressure relief valve in this  
20 context?

21           A       (WITNESS HUBBARD) I'm not aware of a  
22 difference in the valve. It is more how the valve is  
23 applied.

24           JUDGE BRENNER: I'm sorry, I'm still confused,  
25 and maybe I am the only one, not having the background.

1 Given the other answer, what difference is there in how  
2 the valve is applied?

3 WITNESS HUBBARD: Well, let me acknowledge  
4 that I am not a valve expert, okay. But --

5 JUDGE BRENNER: I just didn't understand your  
6 use of the word "applied," given your previous  
7 statement.

8 WITNESS HUBBARD: I was looking into that you  
9 could use, well, the same sort of device to do certain  
10 applications. In one application the primary purpose is  
11 in response to temperature going up, and pressure would  
12 go up so you would open a valve. In the other case you  
13 are looking straight at a change in pressure, and it has  
14 to do with what purpose you have it there for and what  
15 might be involved in the actuation of it, which has to  
16 do with application and function.

17 JUDGE BRENNER: It would still be keyed to a  
18 pressure trigger, right?

19 WITNESS HUBBARD: I would have to look to see  
20 what is the trigger on it.

21 JUDGE BRENNER: I see.

22 WITNESS HUBBARD: That is the point I was  
23 getting at.

24 JUDGE BRENNER: Okay.

25 (Counsel for LILCO conferring.)

1 BY MR. ELLIS: (Resuming)

2 Q But you have not looked, Mr. Hubbard, have  
3 you, to determine to see what the trigger was?

4 A (WITNESS HUBBARD) No, I have not.

5 Q Mr. Hubbard, let's look now at f) on page 20.  
6 Again, you would agree with me, wouldn't you, that there  
7 is no change to any hardware in the plant and no change  
8 to construction and no change to construction drawings,  
9 and that what this involves is essentially the way  
10 someone chose how to describe what is on a figure and a  
11 typographical error between HPCI and RCIC? Isn't that  
12 all that involves?

13 A (WITNESS HUBBARD) I agree that the HPCI/RCIC  
14 is a typo. And on the second matter, it is that what  
15 was written down doesn't agree. In other words, the  
16 text does not agree with the actual configuration of the  
17 relief valves.

18 Q I beg your pardon. Are you done?

19 A (WITNESS HUBBARD) Yes.

20 Q And you didn't address yourself to the first  
21 part of my question. Let me repeat that. You will  
22 agree, won't you, that there is no change to hardware or  
23 design documents as I have been referring to them and  
24 construction drawings, and that the design was  
25 implemented as intended? You agree with that with

1 respect to f), wouldn't you?

2 A (WITNESS HUBBARD) Yes, I would.

3 Q It is true also, isn't it, Mr. Hubbard, that  
4 the exact location of the valves described in the text  
5 on page 5.5-22 is apparent from a review of the figure  
6 that is associated with it? Well, it is Figure  
7 5.5.7-3.

8 A (WITNESS HUBBARD) Could I have the figure to  
9 look at?

10 Q Yes, sir. But while I am getting that figure  
11 out, I take it that it is fair to say that you did not  
12 perform this function at the time that you prepared this  
13 testimony?

14 MR. LANPHER: Could we get a clarification  
15 what function he means?

16 MR. ELLIS: Yes, I would be glad to give you  
17 that.

18 BY MR. ELLIS: (Resuming)

19 Q You did not at the time you prepared this  
20 testimony, Mr. Hubbard, compare the discussion with any  
21 figures in the FSAR to see whether the valves, location  
22 of the valves, was apparent?

23 A (WITNESS HUBBARD) That is correct.

24 Q And indeed, you did not look at the FSAR  
25 discussion here to reach an independent conclusion

1 concerning whether the description was inaccurate?

2 A (WITNESS HUBBARD) No, I did not. And then  
3 after I got the July 28th letter, Suffolk County Exhibit  
4 70, I felt I didn't have a reason to. That just said,  
5 the FSAR will be corrected, and it goes into the valves  
6 and the HPCI rather than the RCIC. So I didn't feel a  
7 reason to, once again based on the LILCO response.

8 Q Do you know whether the change that, or  
9 amendment that LILCO indicated it would make was to a  
10 drawing or to the text, do you know?

11 A (WITNESS HUBBARD) I don't know, but my  
12 understanding was it would be to the text and not to the  
13 figure.

14 Q Your answer with respect to whether the design  
15 basis has been translated into the specifications,  
16 drawings, and procedures and instructions here, I take  
17 it would be the same with this alleged QA/QC breakdown  
18 as with the others; is that correct?

19 A (WITNESS HUBBARD) Yes, Mr. Ellis.

20 Q Okay. Mr. Hubbard, with respect to item g) on  
21 page 20 of your prefiled testimony, that too is an  
22 instance, is it not, where there was no hardware change  
23 to the plant, no change to construction, nor  
24 construction documents, and the design was implemented  
25 as intended; is that correct?

1 A (WITNESS HUBBARD) Yes.

2 Q And that was an instance, was it not, where  
3 there was merely a clarification to be added to the FSAR  
4 and not a change?

5 A (WITNESS HUBBARD) Mr. Ellis, I think it is  
6 more than a clarification.

7 (Pause.)

8 JUDGE BRENNER: Did you want to add to that,  
9 Mr. Hubbard?

10 WITNESS HUBBARD: No.

11 BY MR. ELLIS: (Resuming)

12 Q All right. Mr. Hubbard, did you examine the  
13 FSAR description on page 7.3-25?

14 A (WITNESS HUBBARD) No, I did not.

15 Q So again in connection with this, as with the  
16 others, your knowledge is limited to what is stated by  
17 the CAT inspector in this report, isn't that right?

18 A (WITNESS HUBBARD) No. My knowledge is based  
19 on the CAT inspection, the LILCO response to the CAT  
20 inspection, the testimony I heard during the LILCO panel  
21 on this contention, and also on the NRC review of the  
22 LILCO response.

23 Q Well, didn't you hear Mr. Museler indicate  
24 that with respect to item g) on page 20, that the  
25 meaning was clear from the context and that the only

1 change made, that was to be made, was a clarification;  
2 is that correct?

3 A (WITNESS HUBBARD) I would have to look at the  
4 transcript again, but my notes say Mr. Museler said yes  
5 and no on this one, where, yes, he partially agreed, and  
6 no, he didn't agree in its entirety.

7 (Counsel for LILCO conferring.)

8 JUDGE BRENNER: Mr. Hubbard, there is a  
9 pattern that is beginning to emerge and I want to ask  
10 you about it, so you can either confirm or correct my  
11 impression. And that is that for one reason or another,  
12 and this is not meant as a criticism, you have not  
13 applied your own independent analyses to these items,  
14 but you have used as the starting basis the CAT  
15 inspection findings and observations -- and I'm not  
16 using that in the technical sense but in the general  
17 sense, findings and observations by the Staff -- and  
18 applied them to the criteria that they most applied to;  
19 and also, subsequent to your testimony had an  
20 opportunity to take into account the later response by  
21 LILCO, that July 28th response, where they have in many  
22 instances indicated the changes that they would make to  
23 the FSAR or other places.

24 And you are applying that as a concession of  
25 some change or improvement perceived to be needed by

1 LILCO in response to the report. And you are also  
2 applying that Staff further response, to the extent it  
3 is available on these items, and kind of pulling this  
4 together, as I say, in the context of the quality  
5 assurance criteria for us in your testimony.

6           Beyond that, you are going on to some ultimate  
7 conclusions. But in terms of the factual presentation,  
8 have I correctly summarized things?

9           WITNESS HUBBARD: Yes, I believe so, that I  
10 accepted the I&E findings as being accurate. I did do  
11 it, though, Judge Brenner, in a broader context, that  
12 having been involved in this project for a couple of  
13 years I was aware of discussions that we had had in the  
14 past, that the FSAR was different than what was actually  
15 implemented. So I was aware that historically this had  
16 been a problem, at least from my point of view.

17           Secondly, as I related to you this morning, I  
18 was aware of the I&E concerns about the FSAR, which  
19 showed up both in I&E reports and also in the SALP  
20 report, I believe.

21           And third, I was aware of the configuration  
22 program that LILCO had embarked upon. At the time I  
23 wrote this testimony I didn't have the results for the  
24 first seven systems. So I had a context in which I was  
25 looking at this, and with that context and then applying

1 it to quality assurance, which I thought was an  
2 important point you made this morning, which is the one  
3 I was trying to make, which is that the question from a  
4 quality assurance standpoint is, how did this sort of  
5 thing happen within the design control program.

6 JUDGE BRENNER: But in order to get to that  
7 question we have to analyze to differing extents,  
8 depending upon the item, what was involved in the item.  
9 And the way we're going to get to the heart of that is  
10 through LILCO and Staff witnesses, rather than you,  
11 given the way -- given your basis for assembling these  
12 things as I understand it?

13 WITNESS HUBBARD: Yes, but I think the thing  
14 that I can bring to this and have is that in terms of a  
15 pattern this I do not believe was an isolated event,  
16 that when you go in and you do -- you take a thin slice  
17 of a plant and you look and you get seven indications or  
18 so like this, and based on the perspective I had of the  
19 others, it seemed to me that this was something that was  
20 worthy of discussing in testimony.

21 JUDGE BRENNER: I'm not criticizing you for  
22 putting it in your testimony. I'm trying to understand  
23 the perspective, and one concern I have is, do we need  
24 to ask the same exact question at least three times of  
25 the witnesses for each side or should we focus on

1 certain types of questions with you and different types  
2 of questions with the Staff coming up and with LILCO.  
3 Some questions already have been raised.

4           There is a difference between applying your  
5 conclusions to the facts, which we can ask you about or  
6 see for ourselves in the testimony and then applying our  
7 own judgment to the facts with the benefit of your  
8 conclusions and the conclusions of the other witnesses  
9 presented by the other parties.

10           But if we're going to also get at what was  
11 factually involved which led to those conclusions, then  
12 I don't think you are the right witness in terms of the  
13 CAT inspection findings, because a lot of your answers  
14 have understandably been in fact, the Staff has made  
15 those findings, has started you off as your basis. And  
16 you also added, I think not in these exact words but the  
17 consideration was, certainly if you had known of  
18 something that would have led you to doubt the Staff's  
19 findings you would have applied it, but you know of no  
20 such thing.

21           I guess I should ask you if my last statement  
22 is a fair one.

23           WITNESS HUBBARD: I think that is correct.  
24 And again, you have to take a context. That's one of  
25 the things that the County, and I in particular, have

1 long been interested in, was some sort of both a design  
2 review and a physical inspection of the plant. And this  
3 part, the CAT, was as close to that as anything that we  
4 had to rely on.

5           So the CAT went in and took a thin slice of  
6 one out of 30-some safety systems and came up with  
7 certain findings, and they didn't look at everything.  
8 So then the real question is, based on that would then  
9 one want to go look at some other places, and if one  
10 wanted to look where might they look. And then even  
11 more importantly, why did these things happen.

12           And I have had, as you well recognize, a hard  
13 time determining exactly why the events happened, though  
14 I have made some conclusions of why it might have  
15 happened.

16           JUDGE BRENNER: All right, I think I  
17 understand.

18           (Board conferring.)

19           JUDGE BRENNER: I didn't mean to interrupt you  
20 for that long, I'm sorry. We will get back to your  
21 questioning, Mr. Ellis.

22           MR. ELLIS: Yes, sir. I'm not sure that it  
23 requires an explanation, but there are conclusions here  
24 that there are violations of criterion 3. They are not  
25 tentative --

1           JUDGE BRENNER: I don't need an explanation  
2 from you. I had those thoughts in my mind and I wanted  
3 to either find out that my thoughts and my impressions  
4 were correct in Mr. Hubbard's view or be disabused of  
5 them, so I wouldn't be applying some incorrect  
6 thoughts. So don't read anything beyond that into the  
7 questions.

8           And as Mr. Hubbard confirmed for me, he took  
9 those and did reach some other conclusions, as we have  
10 also been discussing and as he has been asked about.  
11 And I recognize that and I recognize that they are  
12 conclusions in testimony and the cross-examiner has to  
13 cross-examine him on them. So I don't have any question  
14 on the principles.

15           The time involved is sometimes surprising, but  
16 I didn't interject for that other theme. Usually I'm  
17 not that subtle.

18           Let's go back to you.

19           BY MR. ELLIS: (Resuming)

20           Q     To expedite matters, Mr. Hubbard, with respect  
21 to item g) on page 20, it's fair to say, isn't it, that  
22 you, since you have not examined the FSAR section  
23 concerning these valves, would not be able to tell the  
24 Board what the context was and whether they were  
25 discussing only valves for environmental requirements;

1 isn't that right?

2 A (WITNESS HUBBARD) I would be glad to look at  
3 that, but I have not.

4 Q And did not for your testimony?

5 A (WITNESS HUBBARD) That is correct.

6 Q Let's turn to page 21 and 22. Did you omit  
7 anything significant with respect to the NRC's  
8 description of these items when you said that, "The  
9 following eight discrepancies between flow diagrams and  
10 existing piping and hardware were identified by the NRC  
11 team"?

12 A (WITNESS HUBBARD) Yes.

13 Q What did you omit that was significant?

14 A (WITNESS HUBBARD) I omitted something which I  
15 thought I did not agree with, and at page 4-17 of my  
16 attachment the NRC states that there were a number of  
17 minor discrepancies. And I changed the word "minor" to  
18 "eight", because as a QA manager it seemed to me the  
19 important thing was that they found eight discrepancies  
20 in this one system sampled.

21 Q So you didn't think any of these things were  
22 minor, did you, Mr. Hubbard, because you deliberately  
23 made that choice to exclude the word "minor" which the  
24 NRC had chosen to use as a description for these items?

25 A (WITNESS HUBBARD) I had a hard time tracking

1 how it was minor and an unresolved item, and so it  
2 seemed to me that the eight findings were what they  
3 found.

4 Q But you deliberately omitted the NRC's  
5 description of "minor," didn't you?

6 MR. LANPHER: I object. That has been asked  
7 and he answered it. He said he deleted it and he gave  
8 the reason. This is getting repetitive.

9 JUDGE BRENNER: I think we have already got  
10 the answer to that one, so I will grant the objection.

11 MR. ELLIS: I asked him the follow-up question  
12 and I'm not sure I got an answer. I think that is  
13 right, Judge, it was asked and answered whether he  
14 deliberately omitted it. He did testify that he  
15 deliberately omitted it, so let me ask a follow-up.

16 BY MR. ELLIS: (Resuming)

17 Q Mr. Hubbard, you testified that you  
18 deliberately omitted the NRC's characterization of these  
19 discrepancies as minor, and that is because you did not  
20 consider them minor?

21 A (WITNESS HUBBARD) That is correct, in the  
22 broad context of what CAT was doing. If you looked at a  
23 narrow slice and found eight of these discrepancies,  
24 then that would tell me that if I were to look at all 32  
25 systems I would be likely to find a fair number of

1 these, and that to me is not a minor problem.

2 Q All right. Before we go to whether it is  
3 minor or not, you referred a number of times to "narrow  
4 section." Aren't we really talking about a very  
5 substantial amount of hardware and drawings and piping  
6 and tubing and conduit and cable? Isn't there a very  
7 substantial amount of that stuff involved in what the  
8 NRC looked at in this CAT inspection?

9 A (WITNESS HUBBARD) I would agree with you  
10 partially. The RHR system is far and away the biggest  
11 system on the plant. 30 to 40 percent of the piping on  
12 the plant is RHR, so I would agree with you in that  
13 sense.

14 However, there are 30-some safety systems.  
15 This is a mechanical one. They looked at just some of  
16 the electrical and they only looked for about 400  
17 hours. So you know, you get 400 hours of the CAT versus  
18 what, 30,000 for Torrey Pines.

19 Q So you would be a lot more comforted by the  
20 conclusions of Torrey Pines, then?

21 A (WITNESS HUBBARD) I haven't reviewed the  
22 conclusions by Torrey Pines, but they put in a lot more  
23 effort.

24 Q But my point here with respect to the CAT  
25 inspection, Mr. Hubbard, is that here they have eight,

1 as the NRC termed them, minor discrepancies, but we are  
2 really talking about a population that is quite large,  
3 aren't we, in terms of attributes?

4 MR. LANPHER: I object to that question. He  
5 hasn't laid a basis as to what number of attributes. I  
6 don't know what he means by "attributes" in this  
7 context.

8 JUDGE BRENNER: Well, I think the witness can  
9 answer that and explain the context of his answer if he  
10 has any problem with it. Let's see what happens.

11 WITNESS HUBBARD: Mr. Ellis, I do have a  
12 problem with that, because it is assuming because the  
13 inspector looked at or the inspectors looked at the big  
14 system, therefore they have looked at a lot of the  
15 plant. And I don't share that view.

16 They had 300 or 400 hours to look at parts of  
17 the RHR system. So I think they found a lot of things  
18 in what I would look at as a rather short period of  
19 time.

20 BY MR. ELLIS: (Resuming)

21 Q Well, aren't you making the assumption that  
22 they didn't look at a very large population of  
23 attributes with respect to discrepancies between  
24 existing piping and hardware and flow diagrams?

25 A (WITNESS HUBBARD) We would get into what our

1 definition of "attributes" and "large" is. I am  
2 assuming that there is a larger population than what  
3 they looked at and that they had a limited time in which  
4 to do their review.

5 Q But you don't even know what population they  
6 looked at, do you?

7 A (WITNESS HUBBARD) No, I do not. However, I  
8 know that the RHR system, that the biggest is like 30 to  
9 40 percent of the piping in the plant, and that -- I  
10 know that they didn't have the time really to do a  
11 complete as-built of all 30 to 40 percent of that.

12 Q Well, as you've testified, you don't know the  
13 population of what they looked at. You don't have any  
14 basis, then, one way or the other for concluding whether  
15 these alleged QA/QC breakdowns 8 through 15 on page 21  
16 of your testimony is or is not a significant percentage  
17 of the total population, isn't that right?

18 A (WITNESS HUBBARD) No. And for example, you  
19 look at item g). It says, "Show capped vent and drain  
20 lines. Most vent and drain lines remain uncapped."  
21 That is more than one problem. And so you would look at  
22 that and you would say, oh, well maybe vent and drain  
23 lines is a problem.

24 And you go to the FSAR configuration report  
25 and you find, yes, the vent and drain lines in terms of

1 capping is a problem. So each one of these eight items  
2 may have multiple parts in terms of actual discrepant  
3 attributes. And then this is only part of looking. It  
4 is a slice of the plant.

5 Q All right, we will come back to this point in  
6 a minute, Mr. Hubbard. Let's go back to whether it's  
7 minor or not, and you've testified that you made the  
8 decision to omit that description because you didn't  
9 think they were minor.

10 Look at d) if you would, please, on page 21 of  
11 your prefiled testimony and confirm for me, if you  
12 would, please, that that does not involve any  
13 discrepancy between a flow diagram and existing piping  
14 and hardware, and in fact all that refers to is whether  
15 or not the grid coordinates on the drawing are correct.

16 A (WITNESS HUBBARD) Mr. Ellis, I don't have  
17 that drawing.

18 Q Well, I understand you don't have the  
19 drawing. Do you know from reading that, though, that  
20 that is what the situation is, that there is a  
21 reference, locations or grid coordinates on a drawing  
22 for a particular component, and all that is being  
23 referred to there is that the grid references are not  
24 correct?

25 A (WITNESS HUBBARD) Well, now that we have

1 agreed they are not correct, then the question would be  
2 the corrective action.

3 JUDGE BRENNER: Well, what's the answer to the  
4 question, unless you agreed so quickly I missed that as  
5 a yes answer? Because I'm not going to take his  
6 question as testimony. It is only the answers that  
7 count.

8 WITNESS HUBBARD: Well, he is asking me to --

9 JUDGE BRENNER: I know what he asked you.

10 WITNESS HUBBARD: -- to hypothesize on what  
11 the problem was that the NRC found. And I don't have  
12 the drawing.

13 JUDGE BRENNER: The question is do you know.  
14 The answer is no?

15 WITNESS HUBBARD: The answer is no.

16 JUDGE BRENNER: Okay.

17 BY MR. ELLIS: (Resuming)

18 Q So you don't have any basis, then, for having  
19 deleted that word "minor" up there if you don't know the  
20 meaning or significance of that particular finding,  
21 isn't that right?

22 A (WITNESS HUBBARD) No, that is not correct.

23 Q Okay. Let's try this, Mr. Hubbard. Isn't it  
24 true that what is referred to in d) is whether or not  
25 the grid locations, X and Y coordinates that describe

1 where on a particular flow diagram you will find the  
2 drains, in other words X-5 or G-4, whether they are  
3 right or not? Isn't that correct?

4 MR. LANPHER: I object. That has been asked  
5 and answered.

6 JUDGE BRENNER: Objection sustained. He  
7 doesn't know what is involved in the finding, and no  
8 matter how many times you ask him, unless he suddenly  
9 gets a flash or some recollection that he didn't  
10 previously have, he's still not going to know.

11 BY MR. ELLIS: (Resuming)

12 Q Do you know what reference locations on  
13 drawings are, Mr. Hubbard?

14 A (WITNESS HUBBARD) I understand that, Mr.  
15 Ellis. You would say, there would be a takeoff point  
16 that would say, go to location such and such and you go  
17 there, and that is not the right place from the  
18 takeoff.

19 (Counsel for LILCO conferring.)

20 JUDGE CARPENTER: Mr. Ellis, if I could  
21 interrupt you just a second.

22 MR. ELLIS: Yes, sir.

23 JUDGE CARPENTER: Mr. Hubbard, I think you  
24 testified maybe five minutes ago that you felt that the  
25 number of discrepancies was not minor. Does my memory

1 serve me accurately?

2 WITNESS HUBBARD: Yes, Dr. Carpenter. The NRC  
3 had said that there were a number of minor  
4 discrepancies.

5 JUDGE CARPENTER: Yes. As I read the NRC  
6 report, the adjective "minor" does not modify the noun  
7 "number" but modifies the noun "discrepancies." And I'm  
8 trying to, as Judge Morris did earlier, trying to get  
9 everybody to talk about the same thing. The NRC doesn't  
10 say the number was minor; it says that the discrepancies  
11 were minor.

12 And yet you say you omitted that  
13 characterization because you felt the number was  
14 significant and it was in error, and I think that is a  
15 very -- well, first of all I would ask whether my  
16 impression is correct.

17 WITNESS HUBBARD: Dr. Carpenter, I would agree  
18 with you that "minor" is an adjective in front of  
19 "discrepancies." There were a number of what were  
20 categorized as minor discrepancies. However, in my view  
21 of this as an audit finding, if I were the QA manager  
22 and they came in and they said, well, we found these  
23 eight, of which some of these had subparts, I would need  
24 a lot of convincing to put that adjective "minor" in  
25 front of it.

1           JUDGE CARPENTER: Because of the number or  
2 because of the character of each individual one?

3           WITNESS HUBBARD: Well, first of all because  
4 of the number, because as soon as I saw this many I  
5 would think, well, that tells me that, or it would give  
6 me a hint, if I looked further I would find more. And  
7 then I would want to know why these occurred.

8           You inspect to a drawing, and so where a case  
9 where something is different than what a drawing says,  
10 then I would ask my inspectors, well, how could this  
11 have happened.

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1                   JUDGE CARPENTER: I guess where I need some  
2 help in the quality assurance profession, in the  
3 professional practices, is there such a thing as a minor  
4 deficiency? Is anything ever minor in a professional  
5 sense?

6                   WITNESS HUBBARD: When I would talk to my  
7 inspectors that would be the last word I would ever want  
8 them to use, to be out there making judgments of whether  
9 something is major or minor. An inspector is told that  
10 the plant is to be built to the drawing. He isn't to be  
11 making judgments, and if the drawings and the plant  
12 disagree or the drawing and the instruments or the  
13 drawing and the pipe, then he is to write that up.

14                   And then a decision is made to revise the  
15 drawing or revise the construction. But it is a  
16 disciplined process and you expect the inspector to  
17 write up the deviations and not be making judgments.

18                   Now what turns out to be major or minor may  
19 have to do with the corrective action. You get somebody  
20 comes to you and, like you say, well, there is a capped  
21 vent and drain lines is uncapped, and then the question  
22 is well, is that an isolated event or not. So you go  
23 out and sample some more, and then you draw a  
24 conclusion. And then you might also look at what are  
25 the consequences of that.

1           So there are people in management that would  
2 be making some decision about the significance of a  
3 discrepancy, but it is -- any time you find something  
4 like this it would indicate to me that there is  
5 something wrong with the quality assurance program, that  
6 the quality assurance inspector is intended to find  
7 these sorts of variations and write them up and get them  
8 resolved.

9           JUDGE BRENNER: Mr. Hubbard, I'm sorry. Are  
10 you finished?

11           WITNESS HUBBARD: Yes. I apologize for that  
12 being a long answer.

13           JUDGE CARPENTER: No, I invited it, sir. I  
14 was just trying to get some perspective on the  
15 professional view of whether there were graded audit  
16 findings, whether they were useful or not, and I think I  
17 listened to extensive testimony that you didn't think  
18 graded findings were useful.

19           WITNESS HUBBARD: Well, I do have, as part of  
20 my own testimony, what I call critical major and minor  
21 characteristics or defects. If in advance you classify  
22 things as critical, major and minor, that is something  
23 that in the QA world you might do for inspection  
24 attributes when you are trying to come up with your  
25 sampling frequency, that, say, you are building 100

1 widgets and there might be a certain dimension of  
2 critical.

3           On that you might want to be very sure that  
4 that dimension is correct and you would call that a  
5 critical and have a sampling frequency to get very high  
6 assurance. There might be another part about smoothness  
7 which in this particular application was a minor thing.  
8 You know, you weren't as concerned about that, and so  
9 you would have a lower sampling frequency on that.

10           But once you had programmatically decided what  
11 was critical, major and minor in advance of doing the  
12 inspection, then you expected to see that it is indeed  
13 implemented.

14           JUDGE BRENNER: One thing you said, Mr.  
15 Hubbard, you said from the QA point of view you would be  
16 interested in how this could have happened, that these  
17 drawings are different than the as-built situation, as  
18 to these what you call eight discrepancies and what the  
19 NRC CAT report calls a number of minor discrepancies  
20 between the flow diagrams and the existing piping and  
21 hardware.

22           Are these drawings flow diagrams that had  
23 received an okay within LILCO's or its agents' system as  
24 to being fully accurate, or are these diagrams that had  
25 outstanding E&DCRs or other indications of changes and

1 had yet to be updated? I am asking that in the  
2 context --

3 WITNESS HUBBARD: I would really like to know  
4 the answer to that because these --

5 JUDGE BRENNER: Well, do you know?

6 WITNESS HUBBARD: No, I don't. The one I do  
7 know is like the bird screens, that one example, that  
8 later on the I&E reports that the bird screens were  
9 installed and we can look at -- we can track that one  
10 because that is being closed out. These other open  
11 items, (a) through (h), are still open and there is  
12 nothing in the record between I&E and LILCO to describe  
13 what corrective action has been taken.

14 But that is also why when the CAT people said  
15 they wanted to look at a completed system they had in  
16 mind just what you brought up. They don't want the  
17 explanation of everything to be well, we were going to  
18 get that later on, because then -- and that is my belief  
19 of why they picked the system which was, in their words,  
20 "complete."

21 JUDGE BRENNER: But one could infer from your  
22 comment before that the QA manager, at least you, would  
23 want to know how this could have happened, that we have  
24 a system different than the drawings. One could infer  
25 that the drawings had gone through all of these gates,

1 to use the term you have used, and were okayed as  
2 as-built, as distinguished from a possible situation  
3 where the drawings had outstanding changes, perhaps in  
4 the form of E&DCRs, against them and had not been  
5 updated.

6           WITNESS HUBBARD: If I had been LILCO and  
7 working with the auditors and I have had a lot of  
8 experience with that, if there was a prompt explanation  
9 of why this happened, if they said, well, this disagrees  
10 with the drawing and I say, well, you don't have the  
11 E&DCR, the engineering change notice that goes with it,  
12 I would have whipped that out in no time at all. And I  
13 think the Staff would have then written it up  
14 differently, which doesn't mean that there may not be an  
15 explanation for some of these.

16           But let me tell you, when I was being audited  
17 I made sure I had my explanations ready pretty fast, if  
18 there was a good one, because it took a lot longer time  
19 closing out something like this once it got written up.  
20 So there was a powerful incentive to respond promptly.

21           JUDGE BRENNER: We are certainly proving your  
22 point there.

23           (Laughter)

24           JUDGE BRENNER: Incidentally, I thought we  
25 only manufactured widgets in law school, so I am glad to

1 hear that other people deal with widgets.

2 are ready to break for the day. I don't  
3 know whether to keep the record open in anticipation of  
4 receiving the Torrey Pines testimony.

5 MR. ELLIS: Yes, it is here.

6 JUDGE BRENNER: This is the Torrey Pines  
7 testimony filing by LILCO.

8 All right. If there is nothing else, Mr.  
9 Irwin has something else.

10 MR. IRWIN: Judge Brenner, you had asked for a  
11 status report on ICC matters, if possible, by the end of  
12 the day, and Mr. Miller and I have talked several times  
13 during the day and I think it is fair to say that we  
14 both expect to reach a comprehensive agreement on ICC.  
15 This is subject to about half a dozen small items, all  
16 of which I expect to be able to work out, and obviously  
17 it is subject to final client review, but on our level  
18 we think we can reach an agreement as soon as possible.

19 JUDGE BRENNER: As to all matters?

20 MR. IRWIN: Yes, sir.

21 JUDGE BRENNER: That is a surprise. That  
22 shows you I should never try to guess what might be  
23 resolved and what might not be, because I have been  
24 wrong many times.

25 MR. IRWIN: We surprise ourselves occasionally.

1           JUDGE BRENNER: When do you want to either  
2 give us something or explain better what the situation  
3 is -- tomorrow or the next day?

4           MR. IRWIN: I think it will be about another  
5 day or so.

6           JUDGE BRENNER: We will wait for you to get  
7 back to us at whatever point this week you think  
8 appropriate. Since we now know we will be here Friday,  
9 that would be all right also.

10           I take it all parties agree that agreement is  
11 so close at hand that we should suspend the testimony  
12 filing date. Is that right?

13           MR. IRWIN: Yes.

14           JUDGE BRENNER: All right. We will be back at  
15 9:00 tomorrow morning.

16           (Whereupon, at 5:10 o'clock p.m., the hearing  
17 recessed, to reconvene at 9:00 o'clock a.m., Wednesday,  
18 December 8, 1982.)

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NUCLEAR REGULATORY COMMISSION

This is to certify that the attached proceedings before the

BEFORE THE ATOMIC SAFETY & LICENSING BOARD

In the matter of: Long Island Lighting Company (Shoreham Nuclear Power Station)

Date of Proceeding: December 7, 1982

Docket Number: 50-322 OL

Place of Proceeding: Bethesda, Maryland

were held as herein appears, and that this is the original transcript thereof for the file of the Commission.

Ray Heer

Official Reporter (Typed)

Ray Heer

Official Reporter (Signature)