

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 20, 1982

PAGES 17,007 - 17,193

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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 Monday, December 20, 1982

11 The hearing in the above-entitled matter
12 convened, pursuant to notice, at 9:00 a.m.

13 BEFORE:

14 LAWRENCE BRENNER, Chairman
15 Administrative Judge

16
17 JAMES CARPENTER, Member
18 Administrative Judge

19
20 PETER A. MORRIS, Member
21 Administrative Judge

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23
24
25

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C O N T E N T S

<u>WITNESSES:</u>	<u>DIRECT</u>	<u>CROSS</u>	<u>REDIRECT</u>	<u>RECROSS</u>	<u>BOARD</u>
Lewis Narrow, Robert Gallo, and James Higgins (Resumed)					
By Mr. Lanpher	17,010				
By Judge Carpenter					17,055
By Judge Brenner					17,056
By Mr. Ellis	17,066				
(Afternoon Session...17,106)					
Lewis Narrow, Robert Gallo, and James Higgins (Resumed)					
By Judge Carpenter					17,108
By Mr. Ellis	17,113				

E X H I B I T S

<u>NUMBER</u>	<u>IDENTIFIED</u>	<u>RECEIVED</u>
Board #2	17,108	
LILCO #52	17,182	

RECESSES:

Morning - 17,054

Noon - 17,105

Afternoon - 17,158

P R O C E E D I N G S

1 JUDGE BRENNER: Good morning.

2 The Board has no preliminary matters. I don't
3 know if any of the parties do.

4 (No response.)

5 JUDGE BRENNER: Good. We will be glad to
6 finish the cross examination by the County of the
7 Staff's witnesses.

8 MR. ELLIS: Maybe one thing, Judge.

9 (A discussion was held off the record.)

10 JUDGE BRENNER: Let's go back on the record.
11 We are prepared to pick up the questioning.

12 Whereupon,

13 LEWIS NARROW,

14 ROBERT GALLO,

15 and JAMES HIGGINS

16 the witnesses on the stand at the time of recess, having
17 been previously duly sworn, resumed the stand and were
18 further examined and testified as follows:

19 CROSS EXAMINATION -- Continued

20 BY MR. LANPHER:

21 Q Good morning, gentlemen. When we adjourned on
22 Friday we were talking about some of the items on page
23 14 of the CAT inspection and I would like to continue at
24 that location.
25

1 In that inspection report -- do you have that
2 available?

3 A (WITNESS GALLO) Yes, Mr. Lanpher, we have it.

4 Q We had talked about the first three items
5 under 3.2.2, the Annunciator and two mimics. With
6 respect to the Annunciator, do you know whether the
7 seemingly contradictory label has been corrected since
8 the time of the CAT inspection?

9 A (WITNESS HIGGINS) No, I don't know.

10 Q With respect to the mimics, do you know
11 whether those correct mimics have been corrected since
12 the CAT inspection?

13 A (WITNESS HIGGINS) Mr. Lanpher, the licensee
14 generally follows a procedure where when an item has
15 been corrected he notifies me that it has been corrected
16 and that it is ready for review. He has not notified me
17 that any of these items under the labeling are ready for
18 review. So to my knowledge none are corrected.

19 Q That answer went to the whole list of items in
20 3.2.2?

21 A (WITNESS HIGGINS) That is correct.

22 Q Gentlemen, I would like to direct your
23 attention to the fourth item under that labeling section
24 related to the fact that General Electric numbers, not
25 LILCO identifying numbers, were on the temperature

1 recorders.

2 A (WITNESS HIGGINS) Yes.

3 Q What was the Staff concern in noting this
4 item?

5 (Witnesses conferring.)

6 A (WITNESS HIGGINS) In general, the drawings
7 and procedures use the LILCO numbers, although in some
8 cases you do have dual identification with both General
9 Electric and LILCO numbers.

10 These recorder temperature points only had the
11 GE numbers, which we felt could possibly, perhaps, some
12 confusion or, if not that, perhaps some delay in getting
13 the necessary information requiring the operators to use
14 a cross reference, and we felt that by having the LILCO
15 numbers, which is generally the standards that are used
16 in procedures and drawings, that it would expedite
17 things from an operator standpoint.

18 Q The last sentence of that bullet, it says,
19 "This is also true for other recorders." Do you know
20 how many recorders were involved that had the GE numbers
21 as opposed to the LILCO numbers?

22 A (WITNESS HIGGINS) Not exactly. There weren't
23 too many. There might have been a couple of other ones.

24 Q Do you know whether LILCO intended to have
25 LILCO identifying numbers or whether this was one of

1 those instances where they intended to have the GE
2 numbers only?

3 A (WITNESS HIGGINS) They didn't indicate that
4 to us at the time of the inspection.

5 Q And you have no subsequent information on
6 that?

7 A (WITNESS HIGGINS) No.

8 Q Do you know whether this item had LILCO QA
9 inspection?

10 (Witnesses conferring.)

11 A (WITNESS HIGGINS) To my knowledge, there was
12 no specific QA inspection on this.

13 Q Mr. Higgins, I would like to direct your
14 attention not to the next bullet but the following one,
15 which reads: "The label on the shutdown cooling
16 isolation reset button for a motor operator valve is
17 confusing." And I left out some of the numbers in
18 there.

19 In what way was the label confusing?

20 A (WITNESS HIGGINS) Again, here I don't have
21 the exact wording, "the button", but in my recollection
22 it had both the words "suction" and "discharge" in the
23 same button, and it wasn't clear what their usage was.
24 That is, the descriptive label on it, from the
25 descriptive label, you couldn't clearly tell what it was

1 to be used for from the label itself.

2 Q Now what is the shutdown cooling isolation
3 reset button used for, sir?

4 A (WITNESS HIGGINS) I haven't reviewed that
5 recently. I don't recall the exact function, but it was
6 used for a reset of an isolation function. I believe
7 that occurs when you are in a shutdown cooling mode
8 which affects the indicated valve there.

9 Q And is it fair to state that the Staff's
10 concern was, or I&E's concern was, that the label in the
11 form that you saw it during the CAT inspection could
12 lead to confusion among the operators?

13 A (WITNESS HIGGINS) Yes.

14 Q Looking at the last item on this list of items
15 on page 14 of the CAT inspection, it says, "Local
16 instruments are not clearly labeled as to function."
17 What local instruments are being referred to?

18 A (WITNESS HIGGINS) RHR and supporting system.

19 Q Well, was it all of the local instruments?

20 A (WITNESS HIGGINS) There were some that were
21 labeled, but I would say the majority were not.

22 Q Do you believe that at the time of the CAT
23 inspection such labels should have been present?

24 A (WITNESS HIGGINS) We believe that there
25 should have either been labels present or a clear

1 program to put the labels in, and we didn't find
2 either.

3 Q Do you know why there were no labels or no
4 program? In other words, do you know the cause of this
5 problem?

6 A (WITNESS HIGGINS) It is true that there is no
7 clear regulatory requirement that LILCO instruments be
8 labeled.

9 Q Well, then, why did you write this up if there
10 was no regulatory requirement?

11 A (WITNESS HIGGINS) Because we were concerned
12 that in light of things that have come out since the
13 Three Mile Island accident that human factors needs to
14 be taken into account in a greater degree and there have
15 been human factors reviews done of the plant, and we
16 felt that by providing clear labeling it would assist
17 operators and maintenance personnel to perform their
18 tasks in a more efficient and perhaps safer manner.

19 JUDGE BRENNER: Mr. Higgins, could you explain
20 by example, if you would like, or otherwise what you
21 mean by "local instruments"?

22 WITNESS HIGGINS: Yes. By "local" we meant
23 not the control room but actually out in the reactor
24 building, for example, where the instrument itself would
25 be located -- for example, like a pressure switch on a

1 level transmitter, this type of thing.

2 Also, there are local gauges that can be
3 read. For example, there might be flow meters or
4 temperature indicators, this type of thing, actually out
5 in the plant that don't have remote indication in the
6 control room. So the control room typically would be
7 referred to as remote indicator, but actually in the
8 plant, where the transmitter or where the actual
9 instrument is located at the pipe, it would be called a
10 local instrument.

11 MR. LANPHER: Judge Brenner, I am going to
12 leave the items on page 14 of the CAT inspection and go
13 to another area.

14 JUDGE CARPENTER: Mr. Higgins, going back to
15 the numbering system on the recorder printing, did you
16 get any feeling why LILCO had different numbers than GE
17 numbers? What was the virtue of having two sets of
18 numbers?

19 WITNESS HIGGINS: Judge, at Shoreham it is
20 fairly typical, as with the other plants, for example,
21 that have General Electric as a vendor, General Electric
22 has certain -- a numbering system which is a generic
23 numbering system to a boiling water reactor. And each
24 utility typically has its own numbering system because
25 they have a lot of additional equipment besides what is

1 under the General Electric scope of supply, which, for
2 example, in this case would have been designed and
3 installed by Stone and Webster.

4 And what they typically do is come up with
5 their own numbering system to put everything into one
6 common numbering system, and then there are cross
7 references that are available to go, for example, a
8 valve under a General Electric number would be, say,
9 FO-30, and under the LILCO numbering system it would be,
10 perhaps, MOV-53. But there are the cross references to
11 go between the two.

12 And what the utilities will generally do,
13 because of the fact that you have more than one
14 numbering system, they will decide that this or the
15 other numbering system is the one that they will use for
16 their procedures, for their drawings for operation. And
17 at Shoreham they have decided to use their own or the
18 one that was put together by Stone and Webster, and that
19 is why we wrote this item up, because this particular
20 temperature recorder had not been converted over to the
21 LILCO identifying system, which everything else had
22 been.

23 JUDGE CARPENTER: Yes. To be sure I
24 understand, once they start moving away from or changing
25 from the GE generic numbering system, then that GE

1 numbering system essentially is obsolete and no longer
2 applicable.

3 WITNESS HIGGINS: Well, it still does exist,
4 and, as a matter of fact, in the control room most of
5 the labels for the valves have both the GE number and
6 the LILCO number on them. So it does still exist and,
7 as a matter of fact, most of the drawings have both the
8 GE number and the LILCO number indicated on it.

9 So if you looked at the drawings you would
10 actually see both numbers. If you went out in the
11 plant, I believe you would just see the LILCO number and
12 you wouldn't find the GE number on the valve out in the
13 plant.

14 JUDGE CARPENTER: It seems to me there is more
15 potential for confusion than is desirable. I mean, once
16 LILCO says we are setting up a new numbering system, why
17 don't they go completely to it? What is the virtue of
18 retaining the old GE numbers?

19 (Witnesses conferring.)

20 WITNESS HIGGINS: I guess there is some virtue
21 in maintaining the GE numbers because GE at times does
22 do design modifications, say, to their generic design
23 and also if they went back to GE for perhaps assistance
24 in repair work and this type of thing, they would need
25 to use the GE drawing numbers and valve numbers and this

1 typ of thing.

2 On the individual valve labels in the control
3 room, the two numbers are of a different type so it is
4 clear which one is which. That is, there really is not
5 the potential to mix up the GE number with the LILCO
6 number because they are of a different format and
7 different type of number.

8 JUDGE CARPENTER: Thank you for helping me.

9 MR. LANPHER: Judge Brenner, I should have
10 maybe said this at the start. With respect to the items
11 that have been referred -- the CAT items that have been
12 referred to NRR and as to which we have the documented
13 resolution, those two items -- the HPCI steam drain
14 line, the isolation arrangement, and the others, the
15 reduction of drywell sprays -- I have had an opportunity
16 to discuss the latter one -- the drywell spray matter --
17 and I'm going to pursue that now in questions.

18 The other one, in my discussions with my
19 consultant, is more complex. I'm not sure that I will
20 have questions on that. I'm not going to be prepared to
21 pursue that today. Mr. Hubbard had the testimony he is
22 preparing to get in tomorrow and we just haven't had an
23 enough time on that.

24 But I am going to pursue the drywell matter.

25 JUDGE BRENNER: Okay. Just make sure, as I

1 know you are, as counsel and also in your discussions
2 with your experts, that you focus on the QA/QC context
3 and not the diverting collateral context of the merits
4 of the design resolution by NRR.

5 MR. LANPHER: I intend to, and that is why I
6 prefaced my statements. I'm not sure that I'm
7 necessarily going to have questions on that, but I see
8 no problem in being able to be ready if I do have any
9 this week.

10 JUDGE BRENNER: We will give you the
11 opportunity to come back.

12 Mr. Bordenick, did you want to say something?

13 MR. BORDENICK: I just wanted to add there is,
14 of course, the remaining item that was closed last
15 Thursday, and I was told this morning it would be over
16 here sometime today. I urged that they get it over here
17 sooner rather than later.

18 JUDGE BRENNER: I said all I have to say about
19 it last week, as did you, in fairness to you, Mr.
20 Bordenick.

21 BY MR. LANPHER: (Resuming)

22 Q Gentlemen, I would like to turn your attention
23 to page -- well, to the drywell spray problem that had
24 been identified in CAT, and it is both on the first page
25 of Appendix B and also on page 6 of the CAT inspection.

1 On page 6 it states that the inspector
2 observed that some drywell spray nozzles were blocked by
3 ventilation duct work. Can you please describe the
4 nature of the blockage? What do you mean by "block"?

5 A (WITNESS HIGGINS) The drywell spray headers
6 go circularly around the drywell and they have nozzles
7 on them which are directed inward in the drywell. In a
8 few cases, we, during inspection tours of the CAT, where
9 we were reviewing the RHR system, of which the drywell
10 sprays are a part, we noted that ventilation duct work
11 several feet in width ran up the side of the drywell
12 very close to the drywell spray headers and thereby
13 passed in front of it.

14 And hence any spray coming out of these
15 nozzles would shoot right onto the ventilation duct work
16 and preventing it from performing its spray and
17 condensation that it is supposed to.

18 Q Well, then, Mr. Higgins, it wasn't -- the
19 blockage was not such that no spray could come out. It
20 was that when it came out it was immediately deflected
21 in some manner by the duct work?

22 A (WITNESS HIGGINS) When it came out, it
23 immediately hit the duct work and then would just run
24 down the duct work. Therefore, you wouldn't get the
25 effect of the spray as per design for those nozzles that

1 the ventilation duct work was in front of.

2 Q Mr. Higgins, on page 3 of the CAT inspection
3 this blockage of spray nozzle was described by the
4 inspectors as one of the more significant of the
5 discrepancies that are identified.

6 Do you see that portion on page 3? It is in
7 that first paragraph under paragraph 2.2.

8 A (WITNESS HIGGINS) Yes, I see where we
9 describe that the more significant of the 8 deviation
10 items were considered to be the electrical cabinet
11 installation, the ventilation duct work blocking.

12 Q Why did you consider this one of the more
13 significant items?

14 (Witnesses conferring.)

15 A (WITNESS HIGGINS) This was being compared to
16 the other 6 items in the deviation and it was felt that
17 the first two were primarily affecting hardware, whereas
18 the other ones appeared to be probably items that could
19 be resolved by paperwork resolution. It turns out that
20 the final resolution of this item, that this was
21 resolved by analysis also.

22 Q Now you referred to a final resolution. Isn't
23 that the December 16 memorandum to Mr. Bordenick?

24 A (WITNESS HIGGINS) Yes. Region I, when we saw
25 Long Island Lighting Company's response on this item, we

1 thought it was beyond the capability of Region I to do
2 the review of their response and referred it down to our
3 Office of Nuclear Reactor Regulation for resolution, and
4 just last week received the results of their review.

5 Q Have you had an opportunity to discuss the
6 results of NRR's review with the NRR personnel who
7 performed that?

8 A (WITNESS HIGGINS) Yes.

9 Q Mr. Higgins, do you know whether the blockage
10 by the duct work, which is identified in CAT, had been
11 analyzed in the design documents of LILCO prior to the
12 CAT team identifying this matter?

13 A (WITNESS HIGGINS) From the answers that we
14 got during the CAT inspection, I concluded that it
15 hadn't.

16 Q Well, has any information come to your
17 attention subsequently to change your view?

18 A (WITNESS HIGGINS) No. It appeared that the
19 information we received was the result of analysis
20 performed after the CAT inspection.

21 Q Now the drywell spray nozzles are
22 safety-related, correct?

23 A (WITNESS HIGGINS) Yes.

24 Q And had this item had QA inspection by LILCO
25 prior to the CAT inspection?

1 A (WITNESS HIGGINS) Yes, we believe it had
2 because the RHR system was construction-complete and was
3 turned over or released from construction to the startup
4 group for preoperational testing and, as such, the RHR
5 system had received quality assurance reviews.

6 Q And to the best of your knowledge had the
7 LILCO quality assurance reviews identified this problem
8 or this blockage prior to the time of the CAT
9 inspection?

10 A (WITNESS HIGGINS) To my knowledge, no.

11 Q Do you believe that they should have
12 identified this prior to the CAT inspection?

13 (Witnesses conferring.)

14 A (WITNESS HIGGINS) We feel that somebody in
15 the LILCO organization should have identified it.
16 Exactly who, we are not sure.

17 Q Well, wouldn't that have been, among others,
18 organizations that might have been involved, wouldn't
19 you have expected quality assurance inspectors to
20 identify potential concerns with blockage of a
21 safety-related system?

22 A (WITNESS HIGGINS) It is the type of thing
23 that we certainly would have liked to have them have
24 identified during the walk-down. Also, we think
25 engineering probably should have identified it also, so

1 exactly who in the organization was responsible for the
2 identification is difficult to say.

3 I guess the ventilation systems that were
4 blocking it, we are not sure right now whether those are
5 safety-related or not and, therefore, whether or not
6 they would have received their own separate quality
7 assurance inspections. And I am also not sure in terms
8 of time frame when the ventilation systems were
9 installed relative to the QA walk-downs of the
10 containment spray nozzles.

11 Q Well, even assuming that those ventilation
12 systems were not safety-related, you would agree, would
13 you not, that they affected a safety-related system?

14 A (WITNESS HIGGINS) Yes.

15 Q And thus shouldn't QA be involved in ensuring
16 that the installation or operation of a
17 non-safety-related system does not adversely affect the
18 performance of a safety-related system?

19 (Witnesses conferring.)

20 A (WITNESS HIGGINS) I guess the reason we are
21 having a little difficulty with this is I guess we don't
22 feel at this time that we can specifically identify who
23 or where in the licensee's organization should be
24 responsible for identifying this type of thing. We feel
25 that quality assurance should have involvement. We feel

1 that engineering should have involvement, and the
2 licensee has a number of ways that he can ensure that
3 things are done properly.

4 He has options as to exactly how to do it.
5 For us to try and say that it should have been
6 identified on a particular inspection or a particular
7 check, that is difficult to do at this time. We
8 certainly believe that it should have been identified by
9 a combination of quality control and engineering, but to
10 specify exactly where at this time is difficult.

11 Q But to the best of your knowledge at the time
12 of CAT this had not been identified as a potential
13 problem by any organization within LILCO?

14 A (WITNESS HIGGINS) To the best of our
15 knowledge, that is correct.

16 MR. LANPHER: Judge Brenner, I'm going to go
17 on to another item.

18 JUDGE BRENNER: We are going to save some of
19 our questions in some areas, including this one.

20 MR. LANPHER: Okay.

21 JUDGE BRENNER: But I appreciate your
22 informing me.

23 BY MR. LANPHER: (Resuming)

24 Q Gentlemen, I would like to go now to the first
25 item in Appendix B, that having to do with the mounting

1 bolts for two of the cabinets, and that is Item 1 of
2 Appendix B, and it is also discussed at page 35 of the
3 CAT inspection.

4 Gentlemen, what was the Staff's concern in
5 citing this deviation?

6 A (WITNESS HIGGINS) Concern was about the fact
7 that the actual bolting installation in the cabinet was
8 not as described in the FSAR and, therefore, the
9 possibility that perhaps a change had been made that
10 hadn't been properly analyzed and that might be
11 non-seismic.

12 Q Gentlemen, in I&E's response of November 4,
13 which has been marked as LILCO Exhibit 33, it is states
14 as follows: "We understand that a seismic evaluation of
15 the as-built configuration of the subject cabinets has
16 verified that they meet current seismic requirements."
17 Do you see that?

18 A (WITNESS HIGGINS) Yes.

19 Q Now the seismic evaluation that is referred to
20 there, when was it performed, if you know? Was it prior
21 to CAT, after CAT?

22 A (WITNESS HIGGINS) The licensee stated that it
23 had been -- there had been a design change from what was
24 shown in the FSAR, but that it had been
25 seismically-designed and analyzed prior to CAT.

1 Q Was I&E advised of this during the CAT
2 inspection?

3 A (WITNESS HIGGINS) During the CAT inspection
4 they said that they felt confident that it had been
5 properly seismically analyzed, that they could not get
6 any information to us regarding that during the time
7 frame of the CAT, and I believe the reason for that was
8 that this was a change that was made by General Electric
9 and, therefore, there was no information readily
10 available on site or through Stone and Webster.

11 Q Would you have expected that that kind of
12 seismic information would be available at the site for
13 I&E review when a problem of this kind is identified?

14 A (WITNESS HIGGINS) Generally not, not -- when
15 things are done by, say, the NSSS vendor or any other
16 vendor, quite often that type of information is not
17 available on-site for ready review. What we would have
18 expected was that when the design change was made that
19 the FSAR would have been corrected and updated so that
20 that discrepancy didn't exist to start with.

21 Q Do you know when the design change had been
22 made?

23 A (WITNESS HIGGINS) No.

24 Q So you do not know how long, then, the FSAR
25 had been at deviance from the as-built condition?

1 A (WITNESS HIGGINS) That is correct.

2 Q Gentlemen, turning to page 7 of the CAT
3 inspection, which also tracks certain of the items in
4 Appendix B in the CAT inspection, the second bullet
5 identifies items from an FSAR figure which were observed
6 by the inspector not to agree with piping drawings and
7 physical inspection.

8 The first item is loop on B Loop should be
9 between valves FO-15 and FO-17. What was the Staff
10 concern with this item?

11 A (WITNESS HIGGINS) For all the sub-items under
12 that bullet the concern was a generic one as to going to
13 accuracy of the FSAR. To our knowledge, all of the
14 changes involved here between the plant and the FSAR had
15 been properly made in terms of design changes to the
16 site design drawings, and the discrepancy in the plant
17 had been built in accordance with those site design
18 drawings.

19 The discrepancies here were in actuality
20 between the FSAR and the site design drawings and,
21 hence, between the FSAR and the as-built plant, and our
22 concern went to the accuracy of the FSAR.

23 Q Did you review those site design drawings to
24 ensure that the design changes had been properly
25 implemented pursuant to those drawings?

1 A (WITNESS HIGGINS) Yes, we did, and we found
2 that they had.

3 Q Do you know how long these items under this
4 bullet had been in this condition which was at deviance
5 with the FSAR description?

6 A (WITNESS HIGGINS) No, we don't, and I guess
7 just to add on the fact of the deviance with the FSAR
8 condition, we subsequently found out that the third
9 sub-item on thermal relief is actually correct. General
10 Electric has gone back and reviewed it and confirmed
11 that the valve was in fact a thermal relief, as
12 indicated. But the other items were borne out to be not
13 correct, and the FSAR was subsequently revised in
14 Revision 27 of August '82 in order to correct those, and
15 that was subsequent to the CAT inspection.

16 Q Do you know why the FSAR had not been updated
17 at an earlier time to make those changes -- I mean,
18 prior to CAT?

19 A (WITNESS HIGGINS) No.

20 Q In the course of the CAT inspection, did you
21 attempt to identify the causes for these -- well, for
22 the FSAR configuration problems which you have
23 identified?

24 A (WITNESS HIGGINS) We were aware generally
25 that there were some problems with the accuracy of the

1 detail in the FSAR which I believe we discussed last
2 week, which resulted in a couple of meetings between the
3 licensee and Region I personnel. As a result of these
4 concerns, the licensee instituted its Shoreham plant
5 configuration review program in order to update the FSAR
6 and ensure that it was accurate.

7 At the time of the CAT inspection, this was
8 just around the time that that program was being
9 finalized and we, therefore, as part of the CAT
10 inspection wanted to indicate any places that we felt
11 the FSAR was at variance with the actual plant in order
12 to strengthen our position, shall we say, that that
13 particular review was needed.

14 Q Why didn't you attempt to determine the cause
15 of these configuration discrepancies?

16 (Witnesses conferring.)

17 A (WITNESS HIGGINS) Again, as I believe I
18 testified last week, we had gone through a large number
19 of these FSAR discrepancies with the licensee as to
20 determine the cause and what the underlying reasons
21 were, and it seemed that for each of the various ones
22 that there were a multitude of reasons that led to it
23 that we never were able to find a common thread or a
24 common cause to really pin it down and say, yes, this is
25 the reason and, therefore, it's easy to correct that

1 reason and fix the problem.

2 What we found was there were a large number of
3 things that caused the detail and in the FSAR to be not
4 accurate and, therefore, what we felt rather than just
5 addressing one particular cause that what was needed was
6 an overall, broad-in-scope review of all safety-related
7 systems in the FSAR, and that is what we worked out with
8 the licensee to be accomplished.

9 And we had made those conclusions prior to the
10 CAT and, therefore, in the CAT inspection we didn't
11 attempt to plow through that ground again, having
12 already made our conclusions that the program was
13 necessary and at this time the licensee had committed to
14 the program but the details weren't finalized yet.

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1 Q Is I&E going to review the results of that
2 configuration program?

3 (Whereupon, the witnesses conferred.)

4 A (WITNESS HIGGINS) Yes.

5 Q Have you reviewed those results yet?

6 A (WITNESS HIGGINS) The program is not finished
7 yet, but we have been reviewing it on an ongoing basis
8 as the program is going on.

9 Q What does I&E's review consist of? This
10 ongoing review you just referred to.

11 A (WITNESS HIGGINS) The discussions with the
12 licensee personnel that are involved with the review.
13 The review to this extent, to the extent to date, has
14 been a review of each of the system reports that are
15 generated as each system -- each system is reviewed, and
16 the configuration discrepancy reports for each system
17 are generated, and we have reviewed each of those
18 reports, and now, as the final resolutions of those are
19 starting to come in, we have begun to review those
20 also.

21 We also intend to perform an additional review
22 of our own when the licensee is completed with his
23 resolutions to determine, to actually go out and look at
24 the as built hardware and the FSAR to see if now they do
25 have it corrected so that it is up to date and

1 accurate.

2 Q Is that something you intend to do prior to
3 fuel load, or what is your timing schedule for it?

4 A (WITNESS GALLO) I guess, Mr. Lanpher, that
5 will be done prior to fuel load in the SALP report from
6 July, 1982, category. Our SALP report in the area 10,
7 which was engineering and design, we had committed to
8 review the implementation licensee program instituted
9 for plant conformance in the FSAR, and when the program
10 is complete to perform additional NRC review of as built
11 plant versus FSAR on a sampling basis to determine the
12 adequacy of the program, and that was Region 1
13 management decision back in, I guess, April, that we
14 knew they were doing it, and it was after the CAT
15 inspection had been done, and we had committed to go
16 back and relook at the results of their program.

17 Q Gentlemen, turning your attention to the
18 bottom of Page 7 of the CAT inspection, you state, or it
19 is stated that a number of minor discrepancies between
20 flow diagrams and existing piping and hardware were also
21 identified. What do you mean by minor in the context of
22 that sentence?

23 (Whereupon, the witnesses conferred.)

24 A (WITNESS HIGGINS) I would like to just read
25 through those items before I comment.

1 (Pause.)

2 A (WITNESS HIGGINS) None of these items
3 affected the functioning of the system, and therefore we
4 felt that there was not really a safety concern involved
5 here with these particular items. There were some
6 discrepancies, as we noted, between what was actually on
7 the drawings and what we found. In most cases it was,
8 again, a paperwork type of a problem rather than an
9 actual hardware problem causing a safety concern.

10 Q Well, did you determine, Mr. Higgins, whether
11 the discrepancies that were identified should have been
12 discovered by LILCO quality assurance?

13 A (WITNESS HIGGINS) We felt they should have,
14 and that is why we wrote them up.

15 Q Well, Mr. Higgins, then the word "minor" which
16 we were talking about before, that means minor in the
17 sense that it did not create more than a minor safety
18 concern, correct? You weren't using minor in a quality
19 assurance sense?

20 MR. ELLIS: I object to that. That
21 mischaracterizes what he just testified to.

22 JUDGE BRENNER: Well, he is asking him. It
23 doesn't have the vice of mischaracterizing something and
24 then going on to another question. He is asking him
25 about it again.

1 MR. ELLIS: Well, my question is, or my
2 objection is, asked and answered.

3 JUDGE BRENNER: No, because he is refocusing
4 him in a somewhat different context. We will let him
5 probe to better understand the previous answer, but it
6 is a golden opportunity for the witnesses to answer in
7 another context which might have been lingering in our
8 minds, and now they can expressly comment on it, so I
9 will allow the question.

10 MR. ELLIS: May I have the question reread,
11 please?

12 MR. LANPHER: Let me just rephrase it.

13 BY MR. LANPHER: (Resuming)

14 Q Mr. Higgins, when you used the word "minor" at
15 the bottom of Page 7 in the CAT inspection, it means
16 minor discrepancies in the sense that they didn't have
17 more than a minor safety impact at most. You are not
18 using minor in any quality assurance sense. Is that
19 correct?

20 MR. ELLIS: I object to that, because there he
21 did mischaracterize it, and he went on to say something
22 else.

23 JUDGE BRENNER: I am going to overrule the
24 objection. I think the witness can straighten out any
25 problems.

1 (Whereupon, the witnesses conferred.)

2 JUDGE BRENNER: I don't know that Mr. Lanpher
3 has a right in the question either. That is why I want
4 to hear the answer eventually.

5 MR. ELLIS: But he didn't ask him the second
6 time.

7 JUDGE BRENNER: Mr. Ellis, it is your time as
8 well as my time.

9 MR. ELLIS: Well, but I have to --

10 JUDGE BRENNER: I have overruled the
11 objection. If I am wrong, I am sorry. Do you need it
12 again?

13 WITNESS HIGGINS: Yes.

14 JUDGE BRENNER: Let's get the question read
15 back, and if Mr. Lanpher has no big objection and if Mr.
16 Heer has no big objection, I would like to go back to
17 the first phrasing of the question.

18 MR. LANPHER: Fine.

19 (Whereupon, the Reporter read back the
20 previous question.)

21 WITNESS HIGGINS: First of all, I didn't
22 select the word "minor" for inclusion in the report
23 here, and I am not sure that whoever did went through
24 quite as detailed an analysis as Mr. Lanpher just did in
25 trying to decide what was really meant by minor. All

1 that I could give you right now is my best judgment that
2 by minor they meant that there were, and that is by
3 reviewing the items and discussing it at this point, and
4 also recalling our findings at that time, is that we
5 really had no safety concern with these items, and
6 therefore that is why we labeled it as minor.

7 BY MR. LANPHER: (Resuming)

8 Q But you did list these items because you felt
9 that quality assurance should have identified these
10 discrepancies earlier?

11 A (WITNESS HIGGINS) We felt that the
12 discrepancies should have been identified earlier, and
13 that the drawings should have been correct down to the
14 last detail, and that is why we identified them, yes.

15 Q Mr. Higgins, is it your testimony that each of
16 these discrepancies which are noted starting at the
17 bottom of Page 7 and going on for half of Page 8
18 involved discrepancies between the flow diagrams and the
19 existing piping and hardware?

20 A (WITNESS HIGGINS) Yes.

21 Q Gentlemen, looking at Page 9 of the CAT
22 inspection, just briefly, because we covered this in
23 somewhat of a different context, but under the listing
24 of bullets, that first paragraph starting, "The
25 inspector noted the identification tags were missing,"

1 and continuing to the end of that paragraph, what was
2 the staff concern that identification tags were
3 missing? How did that concern the staff?

4 MR. ELLIS: I am sorry, Mr. Lanpher. Where
5 were you reading? I am looking at Page 9.

6 MR. LANPHER: Right in the middle of the
7 page.

8 (Whereupon, the witnesses conferred.)

9 WITNESS HIGGINS: I am not 100 percent sure on
10 this one, but I believe there was probably either a
11 traceability concern or a concern about identification
12 of the instruments by, say, a maintenance or INC
13 personnel.

14 BY MR. LANPHER: (Resuming)

15 Q Well, did LILCO have a program which required
16 that metal identification tags be on that
17 instrumentation line?

18 A (WITNESS HIGGINS) I am not personally
19 familiar with their program for metal ID tags. I
20 believe they did, but I am not 100 percent sure on
21 that.

22 Q Do you know what the cause was for the tags to
23 be missing?

24 A (WITNESS HIGGINS) No, we weren't able to
25 identify the hour when they had been removed.

1 Q Do you know whether those tags had been
2 replaced or installed?

3 A (WITNESS HIGGINS) They were replaced before
4 the CAT inspection was finished, as indicated in the
5 last line of that paragraph.

6 Q Gentlemen, could you turn to Page 20 and 21 of
7 the CAT inspection, please, under the section labeled
8 Corrosion of Carbon Steel Bolts?

9 A (WITNESS HIGGINS) Yes, we have that.

10 Q At the top of Page 21, it states that the
11 inspector expressed concern that there was not an
12 adequate program to identify and replace all corroded
13 carbon steel bolts and nuts, and the sentence goes on.
14 Did LILCO have a program for identification and
15 replacement of those bolts?

16 A (WITNESS HIGGINS) No, their position was that
17 they didn't need to.

18 Q So in fact there was no program?

19 A (WITNESS HIGGINS) There was a program. The
20 program consisted of inspection of the bolts at the time
21 of the final torquing of the bolts and the nuts on the
22 flanges, and the licensee's position is that there was
23 not a requirement to replace the ones that were in
24 there, and they were experiencing some corrosion, but
25 that new bolts would receive a different type of

1 installation. It would include an insulation kit which
2 basically insulates the carbon steel bolts from the
3 copper nickel flanges and thereby tends to slow down the
4 corrosion.

5 Engineering has done an evaluation. The
6 licensee's engineering has done an evaluation, and
7 concluded that the bolts that are in there without the
8 insulation kits are acceptable, and that the corrosion
9 is just minor, superficial, general corrosion, and is
10 acceptable, and this is an item that I have reviewed
11 since the CAT inspection, and I was presented
12 information by the licensee since the CAT inspection,
13 and that is where the additional information comes from.

14 Q Well, had that evaluation regarding whether
15 the corrosion on the existing bolts was significant, had
16 that evaluation been performed prior to the CAT
17 inspection?

18 A (WITNESS HIGGINS) They had done an evaluation
19 prior to the CAT inspection, but we didn't feel that it
20 was well documented enough, and that it had been
21 thorough enough. After they did a more thorough and
22 documented evaluation, it turns out that the conclusions
23 were the same.

24 Q Well, again, referring to the top of Page 21,
25 the sentence goes on to state that the corrective action

1 taken to date has not involved appropriate levels of
2 management. What levels of management had been involved?

3 A (WITNESS HIGGINS) I don't recall exactly.

4 Q Do you recall what levels of management I&E
5 thought should have been involved?

6 A (WITNESS HIGGINS) I wasn't involved in this
7 particular item at that time, so I can't tell you either
8 exactly which levels had been involved or which levels
9 we thought should have been involved.

10 Q Do you know what levels of management have
11 become involved in this subsequent to the CAT?

12 A (WITNESS HIGGINS) Certainly all levels,
13 because the CAT report was sent to the vice president,
14 and I know that on-site I've had fairly extensive
15 discussions with the quality assurance group, field
16 quality assurance in this case, and also with senior
17 engineering personnel, and also engineering personnel in
18 Boston. As a follow-up to this, some of the more
19 corroded bolts, in fact, ones that were selected by
20 Region 1, were removed, and sent to Stone and Webster in
21 Boston for metallurgical analysis to determine whether
22 or not the corrosion was a galvanic corrosion or just a
23 general corrosion.

24 Our concern in this case was that if it was
25 galvanic corrosion, and it was not clear to us that it

1 was not, is that you could perhaps have some accelerated
2 corrosion and perhaps failure of the bolts, but if it
3 was just a general corrosion, then we would agree that
4 it really is not a problem. The metallurgical analysis
5 had not been done before, and when it was done, it
6 showed that it was in fact general corrosion.

7 Q What involvement had MILCO QA had in this
8 corrosion matter prior to the time of the CAT
9 inspection?

10 A (WITNESS HIGGINS) They had been involved with
11 it, and they were aware of it. We had considerable
12 discussion with quality assurance personnel during the
13 CAT inspection on this item.

14 Q Well, if you had the considerable discussion
15 with them during the inspection, why did you express the
16 concerns relating to the lack of an adequate program and
17 the lack of corrective action at the proper levels of
18 management?

19 A (WITNESS HIGGINS) Well, I guess that went to
20 the fact that we considered at that time that all the
21 bolts should be replaced, but subsequent to the CAT they
22 have changed our view, that we agree with them now that
23 all of the old bolts did not have to be replaced. It
24 appeared to us that they didn't have sufficient
25 justification at that time for taking the course of

1 action that they were, and although quality assurance
2 was involved, there had not been nonconformances
3 written, and this type of thing, and it was being
4 tracked by quality assurance and on surveillance
5 inspection reports and via inspections of this sort
6 using the criteria that engineering had given them,
7 which, as I say, was based upon a general engineering
8 evaluation, without a detailed metallurgical analysis.

9 Q So it was only subsequent to CAT that the
10 detailed metallurgical analysis that you felt was
11 necessary was performed?

12 A (WITNESS HIGGINS) That is correct.

13 Q And you believe that that analysis should have
14 been performed or scheduled for performance prior to the
15 time of CAT?

16 A (WITNESS HIGGINS) We felt that it should
17 have, and that is why we wrote the item up, and that is
18 why we asked even subsequent to CAT that it be
19 performed. As it turns out, the detailed analysis
20 confirmed their general engineering evaluation that had
21 been made in this case.

22 Q You stated, Mr. Higgins, that subsequent to
23 CAT you had an opportunity to review this detailed
24 analysis. Has this been closed out in a subsequent I&E
25 report?

1 A (WITNESS HIGGINS) I was reviewing that during
2 the current inspection program, I believe, very recent.

3 Q So there is not a closeout?

4 A (WITNESS HIGGINS) Not yet. There may be in
5 the report which -- that may be in the report that I
6 just wrote. I can't recall. It is certainly within the
7 last month, and it has not been issued yet, unless it
8 was issued within the last week.

9 MR. LANPHER: Judge Brenner, I am going to go
10 to another area not related to CAT at this time, and for
11 the Board's information, I just have a couple of
12 questions on Pages 6 and 7 of the cross examination plan
13 which I had deferred at an earlier time.

14 BY MR. LANPHER: (Resuming)

15 Q Gentlemen, looking at Page 40 of your prefilled
16 testimony, toward the top of the page, starting on the
17 fourth line, you state that a relatively small sampling
18 inspection by the NRC can provide timely insights into
19 the performance of the licensee and contractor QA
20 programs, and it goes on to say other things. What do
21 you mean by insights?

22 A (WITNESS GALLO) Mr. Lanpher, what we are
23 referring to is that we do not do 100 percent
24 inspection. The NRC is not responsible directly for
25 accepting hardware or construction in the plant, and

1 with our inspection -- our inspection program has been
2 in the past and still is a sampling program. We select
3 certain samples of various safety activities that are in
4 progress, so that we can determine how the utility is
5 managing a particular activity, be it a QA program,
6 documentation, or welding out in the field.

7 One of the things we do use again, I guess, in
8 insights is the fact that we have multiple inspectors go
9 to the site over many years and provide their viewpoint
10 of what -- how the licensee's programs are progressing.

11 Q Would it be fair to state that the insights
12 are based upon the results of what you refer to as the
13 small sampling inspections combined with the judgment of
14 the inspectors?

15 A (WITNESS GALLO) Yes, on a selective sampling
16 process that we use, and their judgments are very
17 important.

18 Q And I&E does not attempt to extrapolate the
19 results of those inspections on any statistical basis to
20 determine whether it is likely that there are
21 deficiencies in the larger population of items that are
22 not specifically looked at by I&E. Is that correct?

23 (Whereupon, the witnesses conferred.)

24 A (WITNESS GALLO) The word "statistically" is
25 -- has not been, I believe, incorporated into our

1 testimony. I believe that we do review and analyze the
2 situations to see if there are root causes that have to
3 be corrected, and if there are additional problems in
4 that area, as I believe we have found in reviewing some
5 of the welding items, that the licensee had to go back
6 and repair X number out of a fairly large sample of
7 welds.

8 Q Well, taking that welding item as an example,
9 based upon the results of your welding inspections, have
10 you attempted to determine whether there are likely to
11 be other similar problems in welds that were not
12 specifically looked at by I&E?

13 A (WITNESS GALLO) Yes, sir, Mr. Lanpher. In
14 that particular case, I believe we stated that we had
15 found one weld and licensee -- and I would have to go
16 back and dig out my notes, but I believe that we said
17 the licensee went back and reinspected 400 and some odd
18 welds and found 82 other discrepancies, and that all of
19 those type of welds on the site were reinspected by the
20 licensee, so in that particular case, yes, sir, I
21 believe we did look at -- look into the root cause, and
22 look at the largest sample size possible.

23 Q Was that a 100 percent inspection then?

24 A (WITNESS GALLO) By the licensee it was, not
25 by the NRC, but we did by selecting the sample and

1 identifying the problem require the licensee to go back
2 and apparently redo 100 percent sample size for a
3 particular type of weld.

4 Q Well, have you done that in other areas also?
5 (Whereupon, the witnesses conferred.)

6 A (WITNESS GALLO) Yes, sir. There have been
7 other instances of that. The only one I can think of
8 right offhand, I am sure Mr. Higgins or Mr. Narrow could
9 probably think of others, was the associated pipe and
10 engineering radiograph problem, which is identified in
11 our inspection report 82-19, where the licensee was
12 asked to go back and rereview 100 percent of the
13 radiograph from that particular vendor.

14 Q So would it be fair to state that you require
15 further looks by the licensee when you have identified
16 specific identifiable problems?

17 A (WITNESS GALLO) Yes, sir.

18 Q Mr. Gallo, could you turn to Page 44 of your
19 prefiled testimony? At the top of the page, you refer
20 to the core spray loop analysis. That is the analysis
21 being performed by Teledyne, correct?

22 A (WITNESS GALLO) That is correct.

23 Q Have you reviewed the Teledyne program?

24 A (WITNESS GALLO) Mr. Lanpher, as I understand,
25 NRR has reviewed that program. That was a program

1 requested by Mr. Denton from NRR.

2 Q Have you, Mr. Gallo, reviewed that program?

3 A (WITNESS GALLO) I had received a package of
4 the proposed inspection by Teledyne. I do not believe
5 that I have seen the actual Teledyne work, but a
6 description of the program that they would pursue.

7 Q You received that. Did you review that
8 description?

9 A (WITNESS GALLO) Yes, I did.

10 A (WITNESS HIGGINS) I reviewed the description
11 of the Teledyne report also, Mr. Lanpher.

12 Q Now, you state, Mr. Gallo -- well, first, you
13 reference a March 15, 1982, meeting between NRC
14 management and LILCO. Were you present at that meeting?

15 A (WITNESS GALLO) I was not.

16 Q Were any members of the panel?

17 A (WITNESS HIGGINS) No, none of us were, but I
18 did discuss it with the meeting, with personnel who were
19 present at the meeting.

20 Q Isn't it fair to state that the core spray
21 loop analysis which is being performed by Teledyne is
22 being performed as a result of a request made by the NRC
23 staff?

24 A (WITNESS HIGGINS) It was performed as a
25 result of a request made by the NRC staff at that

1 meeting. The particular system selected was not
2 indicated by the NRC.

3 Q You state at the top of Page 44 that this
4 report further emphasizes LILCO's commitments to
5 quality. Do you see that statement? In view of the
6 fact that this report was done pursuant to urgings by
7 the NRC staff, how does this emphasize LILCO's
8 commitment to quality?

9 (Whereupon, the witnesses conferred.)

10 A (WITNESS HIGGINS) It is true that the NRC did
11 request that study, but it is also true that we did not
12 require it, and that LILCO voluntarily committed to do
13 the study.

14 Q So that is the basis for the statement that
15 this is indicative of LILCO's commitment to quality?

16 (Whereupon, the witnesses conferred.)

17 A (WITNESS HIGGINS) I guess I can't add
18 anything more to that, Mr. Lanpher.

19 Q It is the NRC's intention, is it not, to
20 review the Teledyne report when it becomes available?

21 A (WITNESS HIGGINS) It is my understanding that
22 NRR is going to perform that review.

23 Q Have you received any of the documents thus
24 far indicating the results of the Teledyne studies?

25 A (WITNESS HIGGINS) Yes, I have.

1 Q Have you had an opportunity to review those?

2 A (WITNESS HIGGINS) Not all of them, no.

3 Q You have reviewed some?

4 A (WITNESS HIGGINS) Yes.

5 Q Have you documented your review in any manner?

6 A (WITNESS HIGGINS) No. I am not and Region 1
7 in fact is not the group within the NRC responsible for
8 the review, so my review is more of an informational
9 type of a review rather than the formal review by NRR.

10 Q Have you drawn any impressions from the data
11 that you have looked at thus far?

12 A (WITNESS HIGGINS) No, I feel it is too
13 preliminary, that the documents were handwritten, they
14 were ones that were sent, I believe, to Mr. McMilligan
15 of Long Island Lighting Company, with copies to Harold
16 Denton. I got mine through the NRC routing, but they
17 appeared to be preliminary, and they were in a format
18 that was pretty difficult to use.

19 Q Gentlemen, turning to Page 3 of your
20 supplemental testimony, that is, Staff Exhibit 9, at the
21 top of the page, you expressed a concern about the
22 number of exceptions which LILCO had been requesting to
23 the violations which had been cited. Do you see that
24 statement?

25 A (WITNESS GALLO) Would you wait one second

1 while we find the supplementary testimony?

2 (Pause.)

3 Q It is at the top of Page 3, sir.

4 A (WITNESS GALLO) Yes, we have that now.

5 Q What was the staff's concern in this regard,
6 concerning the number of exceptions?

7 (Whereupon, the witnesses conferred.)

8 A (WITNESS HIGGINS) What we mean by exceptions
9 to the violations is, when we write a violation or a
10 deviation, the licensee is required to respond back to
11 Region 1 formally. We found that in a number of cases,
12 the licensee had taken exception to the findings, and
13 that they either said they didn't feel it was a
14 violation, and that they met the requirement, and
15 therefore no corrective action was necessary, or in some
16 cases they went through a detailed evaluation and said
17 they didn't feel it was a violation.

18 However, they did say they were going to take
19 the corrective and preventive action necessary to make
20 sure it didn't happen again, even though they didn't
21 agree that it could legally be cited as a violation. We
22 didn't feel that this type of bickering back and forth
23 between LILCO and the staff was productive, and in fact
24 our review of the responses in most cases bore out the
25 fact that it was in fact a legitimate violation, and

1 that the violations in most all cases stood as written.
2 There was in fact one, however, that we agreed with Long
3 Island Lighting Company after receiving additional
4 information that they provided and performing additional
5 reviews by ourselves, and we did withdraw the
6 violation.

7 A (WITNESS GALLO) One of the things we are also
8 concerned with, Mr. Lanpher, is the amount of resources
9 it takes by the NRC staff when we decide to write a
10 violation and get a response back that provides some
11 corrective action, yet it may not be wholly responsive,
12 and in order to get the record straight, so to speak, it
13 takes us a considerable amount of time and effort to go
14 back and reconvince ourselves, first of all, which is
15 done internally, and we are convinced that the violation
16 was valid, to go back again to the utility and convince
17 them again that it was a correct violation.

18 MR. LANPHER: Judge Brenner, that completes
19 the county's questioning, subject to the caveats on
20 CAT.

21 JUDGE BRENNER: We are going to take a break,
22 I believe, and we will know for sure after the break
23 that we are going to have some questions on some of the
24 areas now, but we are going to hold the bulk of our
25 questions, and in fact they may not remain, depending

1 upon the questions asked by LILCO through Mr. Ellis and
2 the staff, so we will have some questions, but we will
3 probably be going to you very shortly after the break.

4 MR. ELLIS: Would it be appropriate to take a
5 little bit longer break?

6 JUDGE BRENNER: How much do you want?

7 Don't take too long. I want to finish this
8 week.

9 MR. ELLIS: How about 15 minutes longer? Or
10 maybe it would be better just to add it on at
11 lunchtime. That might be better.

12 JUDGE BRENNER: Well, that is fine, whichever
13 you prefer. We will give you the 15 minutes whenever
14 you want it.

15 MR. ELLIS: I think at lunchtime would be
16 preferable.

17 JUDGE BRENNER: Okay. Let's take 15 minutes
18 now, and come back. We will take a few more minutes,
19 and come back at 10:40, and then we will give you an
20 extra 15 minutes over lunch.

21 (Whereupon, a brief recess was taken.)

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1 JUDGE BRENNER: We do in fact have some
2 questions now, and Judge Carpenter will start.

3 BOARD EXAMINATION

4 BY JUDGE CARPENTER:

5 Q I would like to ask the panel if you have a
6 copy of the NRC Region 1 inspection report, 82-20, dated
7 November 16, 1982.

8 A (WITNESS HIGGINS) Yes, we do.

9 MR. ELLIS: Has that been marked at all?

10 MR. LANPHER: No, it has not.

11 JUDGE BRENNER: We will take care of that
12 after, depending upon where the questions go.

13 Do the parties have copies?

14 MR. ELLIS: No, sir.

15 MR. BORDENICK: The panel has a copy.

16 MR. LANPHER: The County has a copy.

17 MR. ELLIS: We have one upstairs.

18 JUDGE CARPENTER: We can come back to this
19 after lunch if you would like.

20 JUDGE BRENNER: Why don't we do that.

21 JUDGE CARPENTER: That might also give the
22 panel a chance to read it over lunch.

23 MR. ELLIS: Is there a particular part we
24 should focus on, Judge Carpenter?

25 WITNESS HIGGINS: I am basically familiar with

1 the report, Judge, if you want to ask now.

2 JUDGE BRENNER: Well, we want to wait because
3 the parties don't have a copy, Mr. Higgins.

4 BY JUDGE BRENNER:

5 Q I have some questions on some of the CAT
6 inspection items that you asked about this morning, and
7 I am asking them now in case the stimulate further
8 questions by LILCO or the Staff. I want to avoid
9 another go-round on them.

10 With respect to the reduction of drywell spray
11 by the getting in the way of the ventilation ductwork, I
12 don't understand why the NRR review closes out the
13 concern from an I&E point of view. As I understand it,
14 Mr. Higgins, the item was included, and I guess it is
15 Item 2 of Appendix B, but I don't remember. Is that the
16 right number?

17 A (WITNESS HIGGINS) Yes, it is.

18 Q This item was included in the report, as you
19 testified, because you could find no analysis of the
20 situation and the situation -- well, I will stop there.
21 Is that correct so far?

22 A (WITNESS HIGGINS) Yes.

23 Q This morning you were asked a few questions
24 along the lines of who at LILCO or its agents should
25 have done an identification in the first instance and

1 then an analysis of the situation, and essentially you
2 didn't know. Is that fair, Mr. Higgins, or would you
3 like to supplement that?

4 A (WITNESS HIGGINS) It appeared that one had
5 not been done.

6 Q Did you know if LILCO had even identified the
7 situation before the CAT inspection did?

8 A (WITNESS HIGGINS) They apparently had not.

9 Q Now, NRR's review has nothing to do with
10 whether LILCO's engineering reviews or QA/QC reviews
11 should have identified this matter before the CAT
12 inspection; correct?

13 A (WITNESS HIGGINS) That is correct.

14 Q Why, then, does NRR's review contained in this
15 one paragraph on page 2 of something that I'm sure we
16 will have marked eventually close out the item as far as
17 your interest, IE's interest? Maybe it doesn't.

18 A (WITNESS HIGGINS) When we have an item, an
19 inspection report like this that is opened in order to
20 -- normally we will close it similarly in an inspection
21 report. We obviously haven't done that in this case.
22 There were basically two concerns here for the drywell
23 sprays. One is the fact of the technical problem, and
24 the second is the fact that it was different and they
25 didn't identify that it was different, that it was a

1 problem. Since we very recently got the NRR resolution
2 of it, we haven't finally decided exactly what the final
3 course was, but I can probably give you some indication
4 of where we are headed on it.

5 Certainly the resolution of NRR does have some
6 bearing. We take that into consideration as to whether
7 or not it was really a problem or not. In a resolution
8 when we send something over for their review, we
9 generally will go along with their technical review from
10 that standpoint.

11 From the other standpoint with respect to this
12 item, I guess our first review of it is that the
13 Shoreham plant configuration review program is a program
14 that addresses the concerns from a review and adequacy
15 standpoint to see whether or not there are other items
16 of this sort in the plant, and as I described when I was
17 testifying to Mr. Lanpher, that we were concerned still
18 when the CAT inspection was going on that process had
19 not been finalized yet.

20 So that was one of the reasons for the
21 underlying concerns, that we wrote these deviations up
22 in the CAT inspection because they were different and
23 because we were concerned that their program be thorough
24 enough to address all items of this type, and that that
25 program has been put into place and is well on its way

1 to completion now.

2 Q Well, in terms of the root cause of how this
3 could have occurred, you stated in one or more of your
4 answers certain indications that I inferred you thought
5 would be pertinent to knowing how it occurred, and some
6 of those were the chronological sequence and time
7 differential between when the core sprays -- I'm sorry
8 -- the drywell spray nozzles were put in and in relation
9 to when the ventilation ductwork would have been put in.

10 What engineering review would have looked at
11 the ventilation ductwork: (a) depending upon how that
12 system was classified, and then (b) depending on how it
13 should have been looked at, regardless of how that
14 system was classified, given the involvement, at least,
15 or potential involvement with the drywell sprays and
16 things of that sort? I am wondering if that is the kind
17 of thing you are planning to follow up on.

18 [Panel of witnesses conferring.]

19 That in turn, as you obviously realize better
20 than me, leads to what sort of design document should
21 have been involved, whether there should have been
22 changes to design documents, et cetera.

23 [Panel of witnesses conferring.]

24 I recognize that you, as well as the rest of
25 us, have just received NRR's response and it turned out

1 not to be very extensive, but you did not think about it
2 in advance because you wanted to see what they were
3 going to say. I would like to come back to this item
4 later this week if we can and just to get some insight
5 into what, if anything, IE plans on doing. I am not
6 asking you to try to guess what we are interested in and
7 do something magical for us. I am truly interested in
8 what you would do on your own.

9 But I will tell you one thing I have in mind
10 is your testimony at around page 40, and I'm sorry, that
11 may not be the exact page, but around page 40, that IE
12 inspects basically to look at the symptoms rather than
13 the hardware consequences of an individual item. I
14 infer from that that where the hardware consequences
15 turn out not to be a problem, that does not mean that
16 there may not be something of interest for IE from the
17 QA/QC and engineering review program of the utilities
18 that IE might be interested in following up.

19 We have had a lot of testimony in this
20 hearing, in this contention as well as back to the old
21 7B contention, as to the types of reviews that LILCO and
22 its agents do on these kind of items, and this is an
23 item that, as an example, may or may not hold some
24 insights for their program.

25 Now, if you think it doesn't, that is fine and

1 we would like to hear that and why you don't think so,
2 why you don't think it would be worth your while to
3 follow it. Give us whatever answer you think is right;
4 don't try to please us. I just want to find out what
5 the situation is.

6 So I will leave that one for now and you can
7 come back at it through your counsel whenever you are
8 ready, which would be after the examination by the other
9 parties, presumably.

10 One other item. Well, not one other, but
11 another item was one involving the cabinets and whether
12 they had the correct number of bolts and so on.
13 Incidentally, I don't know who the inspector was, but he
14 certainly got down to fair detail, and commendably. You
15 stated, I think, Mr. Higgins, this morning that LILCO
16 had no onsite documents of their own showing the
17 difference in the number of bolts. Am I correct? That
18 is, design drawings or E&DCRs or anything of that nature.

19 A (WITNESS HIGGINS) They had, to my
20 recollection, Judge, and I wasn't the inspector directly
21 involved with this, but in my recollection, LILCO did
22 have drawings onsite which showed the number of bolts
23 that were actually installed, but they didn't have
24 design change documents available that showed how and
25 why it was changed from that in the FSAR to what their

1 drawings actually showed. And that was because that had
2 been changed at General Electric, and the design
3 documents that GE supplied to LILCO were the ones with
4 it shown in its current configuration.

5 Q You wouldn't know if the drawings showed
6 whether they were an update from a previous design in
7 any fashion, would you, or whether that would be
8 expected?

9 A (WITNESS HIGGINS) I am sure the drawings
10 weren't Rev. 0. I can't recall how long it has been
11 since I've seen a Rev. 0 drawing on site.

12 Q On the plant configuration review program, and
13 I sometimes don't get the full title in the right order,
14 you stated that LILCO agreed to do it in response to the
15 request by the Staff through NRR.

16 A (WITNESS GALLO) Judge Brenner, that was
17 basically Region 1's all.

18 Q Okay, thank you. Was it a mild suggestion of
19 something nice to have or really a strong request
20 tantamount to, although short of, a requirement?

21 A (WITNESS HIGGINS) No, sir, it was not a mild
22 request. We told them that we didn't feel that Region 1
23 would be able to recommend a license if they did not do
24 something to update the FSAR and get it accurate.

25 Q Would -- and I will let you comment as to

1 each, but I want to ask you about both so I will do it
2 in one question. Would you consider Torrey Pines and/or
3 the Teledyne review to be an adjunct or extension or
4 part of what you wanted in the plant configuration
5 review program?

6 A (WITNESS HIGGINS) No, Judge. Those are
7 different in focus, I believe. Torrey Pines looked at
8 the plant as built versus the onsite design documents
9 and not versus the FSAR. The Teledyne study was limited
10 to one loop of one system, and so what we felt was
11 necessary was a review of the FSAR versus the as-built
12 plant or versus the design drawings for all of the
13 safety systems in the FSAR.

14 Q Were you finished?

15 A (WITNESS HIGGINS) Yes.

16 Q Is it fair to say that Torrey Pines work is
17 consistent with the concern that you had in wanting the
18 plant configuration review program to proceed although
19 it covers less in scope of the plant, but for the part
20 it covers, it traces things back more thoroughly, back
21 earlier in the design stage?

22 A (WITNESS HIGGINS) No, Judge. Basically --
23 for example, when we did our CAT inspection we looked at
24 the FSAR as giving the basic design description of the
25 plant and the systems, and then after that you would

1 have the detailed design documents on site, and then you
2 would have the actual hardware. We looked at all three
3 in the CAT inspection for the RHR and supporting systems
4 for the Torrey Pines inspection.

5 It is my understanding that they looked at --
6 that they did not take that upper level of the FSAR,
7 they just looked at the design documents versus the
8 plant in general with most of the discrepancies that we
9 identified that led to our concern for the Shoreham
10 plant configuration review. When we identified these
11 discrepancies generally, we found that the plant was
12 built in accordance with the detailed design documents
13 on site but that those documents did not reflect the
14 FSAR in the details, and therefore our concern was at
15 that other level, namely, between the FSAR and the
16 detailed design documents, and therefore Torrey Pines
17 would not address that concern.

18 But I guess I might just add to that that, as
19 I said, with most of these discrepancies we found that
20 in general the plant was built in accordance with the
21 detailed design documents, and I think in general Torrey
22 Pines bore that out, so that we really weren't surprised
23 by the Torrey Pines findings.

24 Q Turning to Teledyne for a moment, you
25 indicated that one is being or will be reviewed by NRR

1 rather than IE. Is that correct?

2 A (WITNESS HIGGINS) Yes, that is our
3 understanding.

4 Q Given the nature of the Teledyne review, don't
5 you think that there would be some valuable input from
6 someone on the staff who knows the nuts and bolts of the
7 plant, so to speak, a little better than NRR might?

8 A (WITNESS HIGGINS) I intend to read it and
9 provide any comments that I see pertinent to NRR. I am
10 in almost daily contact with the licensing project
11 manager.

12 Q Are they affirmatively involving you in their
13 review or is it being stimulated from your end, if you
14 know?

15 A (WITNESS HIGGINS) I mentioned earlier that I
16 had received some documents through internal NRC
17 distribution, and it was from the licensing project
18 manager that I got the first batch of those. I guess,
19 though, with the number of things that we have scheduled
20 from a Region 1 standpoint, I don't feel that I have
21 time to do a detailed review myself, but I do intend to
22 read it and provide whatever input I can.

23 JUDGE BRENNER: That is all I had at this
24 time. We can turn to LILCO's examination of these
25 witnesses now.

1 Mr. Ellis.

2 MR. ELLIS: Judge, I may this evening modify
3 the cross plan and give you a new cross plan. I'm
4 fairly sure I will. Whether I am able to give you
5 something that is legible or not turns on logistical
6 problems not entirely within my control.

7 JUDGE BRENNER: Well, we are happy to accept a
8 handwritten modification, and we will do so because we
9 are very pleased when parties on their own initiative go
10 beyond our minimal requirements for the cross plan and
11 modify along the way, and the quid pro quo is for us to
12 make it as easy as possible for you to do that, so
13 that's fine.

14 MR. ELLIS: I am going to begin now with Roman
15 I for a few minutes.

16 CROSS EXAMINATION

17 BY MR. ELLIS:

18 Q Mr. Gallo, you were asked a number of
19 questions by Mr. Lanpher regarding your qualifications,
20 but I wonder if you would tell us, with respect to the
21 jobs that you held from 1975 to 1981, how those jobs
22 relate to QA/QC.

23 A (WITNESS GALLO) Starting with the Nuclear
24 Regulatory Commission in November 1975, I was assigned
25 as a construction project inspector. The first projects

1 I received responsibility for were the Salem projects.
2 As a project inspector I coordinated the inspections
3 from my regional office, much as Mr. Narrow has done. I
4 also was involved quite heavily in doing the inspections
5 at Salem 1 and Salem 2 facilities, and they were
6 generally in hardware-related areas, but also our
7 construction program, again, tries to look at the QA
8 program from a management standpoint: is the licensee's
9 program being implemented per their commitments and
10 their own individual manuals.

11 So I would say the type of inspections we were
12 doing were generally implementation-type inspections at
13 Salem. Beyond Salem, I did some QA programmatic
14 inspections for Jamesport, which was a LILCO facility,
15 and also at Millstone 3. I was also involved in the
16 early stages of another cancelled project, which was
17 Forked River, where we did some QA programmatic
18 inspections and some initial civil engineering type
19 implementation inspections.

20 That took me up to the summer of 1978 when I
21 was assigned as the resident inspector at Susquehanna.
22 The resident inspection program at Susquehanna was
23 principally a hands-on hardware-type inspection where we
24 were looking at work in progress to look at construction
25 activities from a daily standpoint where you can look at

1 the progress of a piece of equipment where some work is
2 done now and you could look at it again the next week
3 and you could look at it the week after that, so you can
4 see how the program is continually implemented or if
5 there are deficiencies.

6 I stayed in the construction area until June
7 1980, I believe, when I was transferred into the pre-op
8 testing group. I was transferred to a different branch
9 within the regional office and then started to do pre-op
10 testing inspections at Susquehanna, which were basically
11 initially programmatic-type inspections, but as the
12 plant progressed they were test witnessing inspections
13 and detailed review of as-built systems versus FSAR
14 versus design documents and that type of inspection.

15 Q At the time that you were an inspector at
16 Salem 1, was it a near-term operating license applicant
17 at that point in time?

18 A (WITNESS GALLO) I don't think that
19 terminology was coined yet, but yes, they were within
20 probably a year and a half or so from, I believe, their
21 proposed fuel load date.

22 Q And am I correct that you also did inspections
23 of the implementation of construction QA at Susquehanna
24 as well?

25 A (WITNESS GALLO) Yes. Principally the

1 inspections I did at Susquehanna were the implementation
2 type. The resident inspector program was highly
3 directed toward review of work activities. Generally
4 our inspection program, if you have seen it, is broken
5 down into review of procedures, review or witnessing or
6 examination of work activities and review of records.
7 The resident inspector program as initially written had
8 basically only the review of work activities portions.
9 Those modules were assigned to the resident inspectors,
10 so their programmatical aspects, initially many of those
11 were done when I arrived at Susquehanna. But the review
12 of records and review of programs were generally left to
13 the regional inspectors, plus they did some of their own
14 work activity inspections.

15 Q And in your current position you are
16 supervising a number of resident inspectors at a number
17 of plants; is that correct?

18 A (WITNESS GALLO) Yes, that is correct. I now
19 have five facilities in my section.

20 Q What are those five?

21 A (WITNESS GALLO) They are three operating
22 plants: Maine Yankee, Vermont Yankee, called Yankee
23 Rowe, and another construction site, which is Seabrook,
24 plus Shoreham.

25 Q And I think you testified that you had also

1 participated in two inspections at Shoreham; is that
2 right?

3 A (WITNESS GALLO) That was the best of my
4 memory. That was prior to 1978. That is correct.

5 [Counsel for LILCO conferring.]

6 Q Now, are there similarities between those you
7 have had experience with, such as Susquehanna, and Salem
8 and Shoreham?

9 A (WITNESS GALLO) I would say there are quite a
10 few similarities in hardware design between Susquehanna
11 units and Shoreham. Both are boiling water reactors,
12 NSSS being and General Electric, the architect
13 engineers, were different, so their programs, their QA
14 program type procedures were different, but the basic
15 plant is quite similar.

16 Q Mr. Lanpher asked you whether you were a
17 licensed reactor operator, and you indicated you were
18 not, but have you had operating experience with respect
19 to nuclear propulsion plants as part of your Navy
20 experience?

21 A (WITNESS GALLO) Yes. With respect to naval
22 reactors, I was qualified as an engineering officer of
23 the watch, which may require some explanation. That is
24 the engineering watch supervisor who supervises the
25 people, the reactor operator and electric plant operator

1 plus mechanical operators, actually standing watch in
2 the engine room, and I was qualified on three different
3 submarines, three different operating reactors on
4 submarines.

5 Q Mr. Lanpher also asked you whether you were
6 certified pursuant to any ANSI standard to be an auditor
7 or inspector, and I think you told him you were not.
8 Does the I&E program establish any qualification
9 requirements for its inspectors and supervisors?

10 A (WITNESS GALLO) For inspectors there is an
11 inspection and enforcement manual chapter, which I
12 believe is 0228, which I believe prescribes the
13 inspector training programs which basically, of course,
14 as I previously mentioned has a QA course,
15 nondestructive testing, concrete, and I believe Mr.
16 Narrow has been to a couple of other additional ones
17 that I did not attend, and in addition to that, the
18 Region 1 office at least has an inspector qualification
19 program which requires quite a bit of on-the-job
20 training and requires you to complete a written
21 notebook, so to speak, on the inspection program and the
22 technical aspects of a plant selected by the inspector
23 with approval of his supervisor, where you would answer
24 fairly detailed questions about that particular plant in
25 writing.

1 The end result of that Region 1 inspection
2 program is a certification, oral board, which is held
3 usually with the branch chief and three other members
4 asking questions of the potentially qualified inspector
5 regarding his selected plant and other inspection
6 program techniques. It generally lasts somewhere around
7 four hours, the oral board, so it takes probably six
8 months to a year to prepare for that.

9 Q Mr. Higgins and Mr. Narrow, presumably you all
10 have been through the same training that Mr. Gallo just
11 described in connection with the qualification
12 requirements for inspectors and supervisors?

13 A (WITNESS NARROW) Yes. I was through
14 approximately the same training, in addition to which I
15 had courses in electrical technology and codes and
16 instrumentation technology. And during the time towards
17 the end of my initial training program, I was assigned
18 for about three months working with a QA specialist on
19 review of QA manuals for several plants.

20 At that time late in '73, there were a number
21 of QA manuals being submitted, and he was responsible
22 for the review of all of the manuals for construction
23 sites and I was assigned to review them and assist him,
24 and then he would oversee the work I was doing in that
25 respect.

1 Q In that connection, have you reviewed any
2 Shoreham or LILCO manuals, QA manuals?

3 A (WITNESS NARROW) Not at that time. I have --
4 well, the Shoreham QA manuals were reviewed prior to my
5 assignment to that site. I have reviewed them for
6 changes and I have reviewed QA procedures at Shoreham.

7 Q And I take it if you found -- well, when did
8 you do this review?

9 A (WITNESS NARROW) That was late in 1973. I
10 joined the NRC around the middle of 1973, and it was
11 towards the end of that year.

12 Q Well, with respect to the review, though, of
13 the Shoreham manual and procedures, when did you do that?

14 A (WITNESS NARROW) That was during my
15 assignment as a project inspector for Shoreham.

16 Q So it was an ongoing thing throughout. Was it
17 eight years? I'm sorry, I'm not sure.

18 A (WITNESS NARROW) It is approximately nine
19 years.

20 Q Nine years. So that was an ongoing activity
21 that you performed throughout the nine years?

22 A (WITNESS NARROW) Well, during that time we
23 would get copies of them and we would review and I would
24 personally review them. In addition, the QA specialist
25 would also review any changes to their original

1 manuals. And in addition to that, I believe I discussed
2 last week the midterm QA program during -- or QA
3 inspection. During that inspection a complete review of
4 QA manuals was performed for the Shoreham plant by the
5 QA specialist, and in addition, selected procedures were
6 also reviewed.

7 Q I take it in connection with your review --
8 did you find the manuals and procedures that you
9 reviewed satisfactory and adequate for their purpose?

10 A (WITNESS NARROW) I don't recall personally
11 having found any unsatisfactory procedure.

12 Q Mr. Higgins, I guess you have received,
13 presumably, the same training that Mr. Gallo described
14 as an inspector for I&E?

15 A (WITNESS HIGGINS) Mine was a little different
16 since Mr. Gallo initially came into the NRC as a
17 construction inspector, whereas I came in initially as a
18 pre-operational testing and operational inspector. So I
19 went through a different series of courses, which
20 included a one-week reactor inspection training course,
21 which covered the various fundamentals of inspection,
22 including Appendix E, quality assurance.

23 I also attended a five-week boiling water
24 reactor series at which the fundamentals of hardware and
25 transient and also included a one-week simulator at a

1 boiling water reactor simulator. I went through a
2 similar five-week series for pressurized water reactors
3 and also attended at least two boiling water reactor
4 simulator refresher courses of about one week in length
5 since that initial series, and I also had a management
6 oversight and risk tree analysis course given by the
7 Department of Energy which was about one week long, and
8 a two-week accident investigator course which was given
9 through the cognizance of the Department of Energy, and
10 a one-week General Electric nuclear engineers course to
11 cover the details of core physics type material from the
12 detailed General Electric standpoint.

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1 Q Well, back to what you described as your
2 training as an inspector, Mr. Gallo, are you also
3 familiar with the ANSI standards that pertain to an
4 auditor-inspector?

5 A (WITNESS GALLO) Yes, I am the ANSI N45.2
6 series, or N45.2 is a basic document, and the standards
7 that go along with it.

8 Q Well, with respect to the training that you
9 and Mr. Narrow received, how would you compare that in
10 terms of rigor to the standards of ANSI? About the same?

11 A (WITNESS GALLO) I am not sure I quite
12 understand your question. Are you talking about the
13 training we received or how the ANSI standards compare?

14 Q Are the qualification requirements essentially
15 equivalent?

16 A (WITNESS GALLO) I guess it would be my
17 personal opinion that the NRC standards for
18 qualification are quite a bit more stringent regarding
19 inspection capabilities than would be required for an
20 auditor to be qualified under N45.2.23.

21 (Counsel for LILCO conferred.)

22 Q Mr. Higgins, as I understand it, you have been
23 the resident inspector at Shoreham since the fall of
24 1979; is that correct?

25 A (WITNESS HIGGINS) Yes.

1 Q Have you participated in or conducted
2 inspections at other plants?

3 A (WITNESS HIGGINS) Yes, I have.

4 Q Which ones?

5 A (WITNESS HIGGINS) Do you want a listing of
6 them?

7 Q Is it quite a large list?

8 A (WITNESS HIGGINS) Yes, it is. I did scratch
9 some down. Calvert Cliffs 1 and 2, Oyster Creek, Salem
10 1 and 2, Peach Bottom 2 and 3, Three Mile Island 1 and
11 2, Beaver Valley 1, Susquehanna 1, Shoreham Indian Point
12 2 and 3, Ginna, Fitzpatrick, Nine Mile Point 1,
13 Connecticut Yankee, Millstone 1 and 2, Yankee Row,
14 Pilgrim, Vermont Yankee, and Maine Yankee -- unless I
15 have missed some.

16 Q Is it safe to say that these were all
17 inspections of construction, or did they involve other
18 aspects of inspection other than construction?

19 A (WITNESS HIGGINS) No. The majority of my
20 inspections were done during the operational phase or
21 preoperational phase. And when I was an operational
22 inspector, generally during my three years inspecting
23 out of the region, I inspected during major outages so
24 that I would be involved with maintenance or overhaul
25 work or testing associated with -- and refueling

1 activities and this type of thing during major outages.

2 Q Well, were any of your inspections that you
3 made at other plants the large number that you listed,
4 did they involve construction other than Shoreham? And
5 let me be more specific: involve the implementation of
6 quality assurance programs in the construction phase?

7 A (WITNESS HIGGINS) The plants that I have been
8 involved with, as with Shoreham, have been primarily in
9 very late construction and preoperational phases; for
10 example, well, the plants that since I have been with
11 the NRC that have been in that phase and that I have
12 inspected at have been Shoreham, Susquehanna 1, Three
13 Mile Island 2, and Salem 2. And the other plants, I
14 inspected all after they received their operating
15 license.

16 Q Shoreham is the first one you have been the
17 resident inspector on?

18 A (WITNESS HIGGINS) That is correct.

19 Q And I take it all of the others that you
20 inspected that you just listed were in a construction
21 stage farther along than Shoreham was when you arrived
22 at Shoreham to be the resident inspector in the fall of
23 1979?

24 A (WITNESS HIGGINS) I believe somewhere in
25 comparable stages that I inspected some of the other

1 ones.

2 Q That would be Susquehanna and Salem?

3 A (WITNESS HIGGINS) That is correct.

4 Q Mr. Narrow, on your professional qualification
5 sheetit indicates that you had 18 years of prior
6 experience with AMF, Inc. as a project manager, section
7 manager, department manager on design and construction
8 of nuclear reactors. I wasn't aware that AMF was in the
9 nuclear reactor buisness. Can you tell us what that
10 experienced involved, sir?

11 A (WITNESS NARROW) AMF was in the business of
12 designing and constructing and installing small
13 reactors; that is, research reactors up to 10 megawatts,
14 test reactors, and some design on small power reactors,
15 which our management limited us to 25 megawatt maximum
16 power. Most of my experience was with the research and
17 test reactors.

18 Q Mr. Narrow, can you give us an estimate of how
19 many inspections you conducted or participated in at
20 Shoreham during the 9 years that you have been an
21 inspector at Shoreham?

22 A (WITNESS NARROW) You are asking that question
23 specifically with respect to the number of inspections
24 at Shoreham or inspections throughout?

25 Q Inspections at Shoreham, Mr. Narrow. If you

1 can give us an approximate number. I assume it is
2 large, but I simply want to confirm.

3 A (WITNESS NARROW) Well, during the first
4 period I was at Shoreham it probably averaged about 20
5 to 25 a year. During the second period, towards the
6 end, there were quite a few less. And I am trying to
7 get the years so that I could perhaps establish how many
8 there were. Probably during 1980 I may have made
9 approximately 20. In 1981 I know I made -- I should --
10 I am trying to recall this from memory -- possibly
11 between 15 and 20 during 1980.

12 Q Would it be fair to say that over the 9-year
13 period you conducted over a hundred inspections at
14 Shoreham or participated in?

15 (Witnesses conferred.)

16 A (WITNESS NARROW) I am sorry, I want to
17 correct what I said earlier based on this. And I was
18 forgetting that at times I was assigned to two sites at
19 a time. The average inspections, the total which I
20 made, were between 20 and 25 a year. Inspections at
21 Shoreham were probably averaged half of that number. In
22 1974 there were less than that; there were less than 10
23 that I made. Well, I would have made in 1974 perhaps
24 four or five, since I wasn't assigned to Shoreham.
25 Since July in 1975 I would estimate it was perhaps as

1 much as ten.

2 JUDGE BRENNER: Mr. Narrow, let me interject,
3 unless Mr. Ellis wants all that detail, I certainly
4 don't need it. And I think the question he went to was
5 would at least 100 inspections at Shoreham in which you
6 participated in be a fair number?

7 WITNESS NARROW: I believe that is more. I
8 don't believe I have participated in 100.

9 JUDGE BRENNER: Mr. Ellis.

10 BY MR. ELLIS: (Resuming)

11 Q Can you give me an approximate number?

12 JUDGE BRENNER: Mr. Ellis, I want to get out
13 of here this week, as you know. And some of these
14 questions are new, some of them aren't. We know quite a
15 bit about their qualifications already. I think I know
16 where you are headed now. It is a transition between
17 qualifications and other possible areas of interest
18 which would give you a basis to comment on the IE
19 program. But if the witness starts to get bogged down
20 in more detail than you need, you can interject
21 sometimes, unless you wanted that breakdown.

22 WITNESS NARROW: Judge Brenner, may I refer to
23 some notes that I have?

24 BY MR. ELLIS: (Resuming)

25 Q Well, Mr. Narrow, just to save time, is it

1 safe to say then that you have conducted a fairly large
2 number of inspections at Shoreham in the past 9 years?

3 A (WITNESS NARROW) I am not sure that I know
4 what your definition of "fairly large" is. Yes, I would
5 say that I have conducted quite a number of inspections
6 at Shoreham.

7 Q And, Mr. Higgins, would the same be true for
8 you during the period that you have been at Shoreham
9 since the fall of 1979?

10 A (WITNESS HIGGINS) Since that time I have
11 essentially worked my normal 40-hour work week at
12 Shoreham every week.

13 Q So the entire time you were at Shoreham then
14 is time devoted to inspection activities?

15 A (WITNESS HIGGINS) I guess based upon -- we do
16 computer runoffs from our hours, and about 50 to 55
17 percent of my time was charged to actual direct
18 inspection activity. So of those 3 years, in excess of
19 50 percent would have been on inspection work.

20 Q From your testimony either in response to Mr.
21 Lanpher or the Board, I think I gleaned the fact that
22 you generally produce an inspection report a month as a
23 resident inspector; am I correct?

24 A (WITNESS HIGGINS) About each month to 6 weeks
25 I will issue a report as a resident inspector, and that

1 is typical for each site.

2 Q And that is in addition to the inspectors, the
3 specialists who come from the region to Shoreham; is
4 that correct?

5 A (WITNESS HIGGINS) Yes.

6 Q I think you also indicated, Mr. Higgins, that
7 -- or it was Mr. Gallo, I think -- that this year
8 Shoreham had had some 37 inspections already done, with
9 the reports not in for, I think, eight of them or so.
10 Is that typical for a near-term operating license plant
11 in the stage that Shoreham is in to have 37 or more
12 inspections per year?

13 A (WITNESS GALLO) The number I gave, Mr. Ellis,
14 was that I checked our docket room which issued 86
15 numbers for calendar year 1982, and I would say that is
16 very typical to have fairly large number of inspections
17 in the year before and the year after an operating
18 license is granted.

19 Q And the typical number during the year prior
20 to the year before operations would be what, Mr. Gallo?

21 A (WITNESS GALLO) I am sorry, I am trying to
22 think of the other construction facility I have, and I
23 think the number there is -- I am pretty sure it is less
24 than 20. And I am talking about Seabrook. I think the
25 number there is principally only construction

1 inspections, and I don't know what the exact number is,
2 but I am pretty sure it's less than 20.

3 MR. ELLIS: Judge Brenner, strictly speaking,
4 those are the qualifications questions I had in mind,
5 and I am now going to move to some miscellaneous matters
6 before lunch.

7 BY MR. ELLIS: (Resuming)

8 Q Mr. Narrow and Mr. Higgins, you have indicated
9 in your testimony that you reviewed design activities at
10 the site engineering office. That site engineering
11 office is an extension of the Stone and Webster
12 engineering activity in Boston, isn't it?

13 A (WITNESS HIGGINS) Yes.

14 Q And based on what you observed, would you
15 agree that there have been significant engineering
16 activities conducted at the site engineering office by
17 Stone and Webster personnel at Shoreham?

18 A (WITNESS HIGGINS) Yes.

19 Q And you have engaged in some design review
20 activity at the site engineering office. Would you
21 describe some of those that you have engaged in during
22 the time that you have been at Shoreham?

23 A (WITNESS HIGGINS) Generally, when I got
24 involved with design reviews, they would have been
25 perhaps of two types: one, the type I believe I

1 described a little bit earlier, where I would choose a
2 system from the FSAR and review the FSAR design
3 documents and commitments and then review the detailed
4 design documents at the site and then also go out and
5 tour the plant and look at the detailed system hardware,
6 the preoperational test procedures, and this type of
7 thing.

8 In the course of doing this, I did get
9 involved on a number of systems with the site
10 engineering office when design type of questions came
11 up. And also, the other -- that is one type of activity
12 where I would get involved with the site engineering
13 office.

14 Another would be when particular problems that
15 came up, say, either identified by inspection work or
16 identified by bulletin or circular or this sort of thing
17 or perhaps during review of a preoperational test when
18 particular items were identified for follow-up quite
19 often, when it would get into the design area in the
20 course of this follow-up I would end up being involved
21 in having discussions with the site engineering office
22 and looking at documents in the site engineering office.

23 So those are the two primary areas.

24 Q Mr. Higgins, you said that on occasion you had
25 people come down from Boston and documents sent down

1 from Boston for the purpose of resolving questions you
2 raised during your inspections because you felt the need
3 for more design information. Was the information
4 readily made available to you when you requested it?

5 A (WITNESS HIGGINS) Well, generally, it did
6 take some time, since it usually involved a trip from
7 Boston by personnel down to the site. So when the
8 information came down from Boston, it was. But
9 generally, that might take a week or two to get it down
10 from Boston.

11 Q But it was readily available in the sense that
12 there was no delay other than the delay to collect the
13 material and take it down to Shoreham; is that right?

14 A (WITNESS HIGGINS) I would generally agree
15 with that, yes.

16 Q And when you asked for the information and
17 received it, was it generally understandable, organized,
18 and complete?

19 A (WITNESS HIGGINS) Yes, I would agree that is
20 generally the case.

21 Q And to the extent then -- well, would you
22 agree also that these are attributes of a controlled
23 design process?

24 A (WITNESS HIGGINS) Yes.

25 Q Would you agree that to the extent that you

1 have been exposed to it, that the design process appears
2 to be adequately controlled?

3 A (WITNESS HIGGINS) Yes, I would. Obviously, I
4 might add that there were particular discrepancies
5 identified, and those would be identified in the
6 violations that were written over the last few years.

7 Q Mr. Narrow, you indicated that you reviewed
8 ENDORs on a routine basis as part of your efforts with
9 respect to design. What sorts of design reviews did you
10 do with respect to Shoreham on a nonroutine basis?

11 A (WITNESS NARROW) Well, on a nonroutine basis
12 I think it would be similar to what Mr. Higgins
13 described, that if I had a question primarily it would
14 be related to a change. If I had a question concerning
15 some change, I would go back and review the basis for
16 that change and determine whether it appeared to be
17 acceptable from an engineering standpoint.

18 In addition to that, I did review the response
19 and the actions taken with respect to items which the
20 licensee had reported under 50.55.E and these quite
21 frequently required engineering evaluation or studies in
22 order to determine the necessary corrective action. And
23 generally, I would review those actions.

24 Q To ensure that they were being adequately
25 handled?

1 A (WITNESS NARROW) Yes, in my judgment.

2 Q And did you generally confirm that they were
3 being adequately handled when you reviewed them?

4 A (WITNESS NARROW) Generally, yes, and I can
5 think of perhaps one or two exceptions where I felt they
6 had not. This is not with relation to ENDICRs, but with
7 some of the changes that had been made.

8 Q Changes to the design?

9 A (WITNESS NARROW) Yes. Well, the one in
10 particular I was thinking of is still open, and it was
11 open by our electrical specialist concerning some
12 instrumentation equipment for radioactivity
13 measurements. And the initial response was not
14 considered adequate by him and therefore is still under
15 discussion and is still being reviewed. But I would say
16 that those cases were quite infrequent.

17 Q They were by far then the exception rather
18 than the rule?

19 A (WITNESS NARROW) I would say they are the
20 exception, yes.

21 Q And in those cases that are the exceptions,
22 would it be fair to say that they were technical
23 disagreements rather than quality disagreements?

24 A (WITNESS NARROW) Yes, I would say they were
25 technical disagreements.

1 Q In response to Mr. Lanpher, you indicated that
2 your review of design had been a judgmental review
3 instead of a close technical review, I think you said.
4 Is it nevertheless fair to say that you have confidence
5 in your judgmental review and the conclusions as they
6 are based on engineering experience and technical
7 judgments?

8 MR. LANPHER: Could I have that question read
9 back, please, Judge Brenner?

10 JUDGE BRENNER: Yes.

11 (The reporter read the record as requested.)

12 MR. ELLIS: Didn't I say since they are based
13 on?

14 JUDGE BRENNER: Can you answer the question,
15 Mr. Narrow?

16 WITNESS NARROW: Mr. Ellis, in response to
17 that, I would say that I do have confidence in my
18 judgment and my ability to judge the response to
19 technical questions. But on the other hand, if I had
20 any questions concerning certain technical areas, I
21 would refer back to the specialist inspectors in our
22 office and ask them to review it when they made their
23 next inspection at the site. And in turn, if they felt
24 that it was a question of greater magnitude than they
25 felt should become involved in, it would then be

1 referred back to NRR for review.

2 MR. ELLIS: Judge Brenner, I had intended in
3 connection with a desire we had to indicate the scope or
4 depth of NRR review, to submit a list -- which I don't
5 have typed yet and I will have at lunchtime -- which I
6 will distribute to the parties, some of the questions
7 and answers relating to design review by NRR in the
8 FSAR. And I had planned to cover that at this
9 particular point. But I just have not been able to get
10 that typed, and I will have it typed at lunchtime and
11 pass it out to the parties at that time.

12 JUDGE BRENNER: Are you going to cover that
13 through examination of these witnesses?

14 MR. ELLIS: Yes, sir.

15 JUDGE BRENNER: Okay. All right. So you want
16 to come back to that?

17 MR. ELLIS: Yes, I will come back to that.

18 JUDGE BRENNER: Well, let's pick up another
19 area then.

20 BY MR. ELLIS: (Resuming)

21 Q Mr. Gallo, I think you indicated that there
22 were procedures or criteria used by Region IV in order
23 to notify pertinent dockets and other Region personnel
24 of significant findings by Region IV. Are you familiar
25 now with those procedures and criteria?

1 A (WITNESS GALLO) Basically, what Region IV
2 does, we haven't done much further research on that, but
3 basically, what Region IV does is go through our IE
4 headquarters to generate either information, notice,
5 bulletin, or circular on a particular problem area that
6 they have identified, which they believe to be generic,
7 and coming from the Region IV office.

8 Region IV also does, as we mentioned
9 previously, provide copies of inspection reports to the
10 other regional offices where their individual findings
11 are identified.

12 Q So that there is a mechanism then, for
13 example, for Region I to find out if Region IV has found
14 anything with respect to Region IV's review of the GE
15 and Stone and Webster phases in Boston and California
16 and other places of the Shoreham design and design
17 control process?

18 A (WITNESS GALLO) Yes, sir, I would agree with
19 that. We do have, obviously, inspection reports
20 available to us. And I guess it has been my experience
21 that Region IV does bring to the whole of I&E's
22 attention when they do have a significant deficiency
23 that they have identified.

24 Q And given that you're the chief of the
25 Projects Branch Number 1, wouldn't notifications of

1 significant findings relating to Shoreham by Region IV
2 have been communicated to you?

3 A (WITNESS GALLO) You just gave me a
4 promotion. But, yes. That is Section 1.A. But, yes, I
5 would expect that anything that is received in our
6 regional office that pertains to Shoreham, it would be
7 disseminated among the supervisors by my branch chief
8 principally who receives -- all interoffice
9 correspondence comes to our division director and to the
10 branch chiefs, and he makes me well aware of problems I
11 have in my section.

12 Q Well, in this connection, have you received
13 notification of any findings relating to the design of
14 Shoreham from Region IV?

15 (Witnesses conferred.)

16 A (WITNESS GALLO) Mr. Ellis, the only one I am
17 familiar with is the matter we have discussed before
18 with the associated pipe and engineering welding. And,
19 of course, I have only been involved in the plant for a
20 little over a year, but that is the only one I can
21 remember where there has been a generic problem that
22 applied to the Shoreham site.

23 Q That is the problem then that was checked out
24 by the NDE van that visited Shoreham this year?

25 A (WITNESS GALLO) It is in the Inspection

1 Report 82-19, when the van was at the site. I am not
2 sure if they looked at those welds specifically or not.
3 I would have to go back and check the report. I know we
4 looked at the records of the welds, but I am not 100
5 percent sure that we actually relooked at the welds.

6 A (WITNESS HIGGINS) What was the question
7 again, please?

8 A (WITNESS GALLO) I think Mr. Higgins had
9 something to add about what the vans actually looked
10 at. I was not aware of what welds they had looked at.

11 Q I think I can have the question repeated
12 back. I think what I had asked Mr. Gallo was was the
13 matter that he referred to as having come from Region
14 IV, was that matter a part of the review of the NDE
15 van that went to Shoreham this year?

16 A (WITNESS HIGGINS) Yes, it was.

17 (Counsel for LILCO conferred.)

18 Q Well, would it be fair to say then that to
19 your knowledge, Mr. Gallo, that Region IV has not found
20 it necessary to notify Region I of any specific problem
21 found at Stone and Webster or General Electric that
22 should be brought to the attention of Region I people?

23 A (WITNESS GALLO) I am not aware of any. As I
24 said, associated pipe and engineering is a fairly recent
25 one. I am not aware of any others that I can recall

1 right offhand.

2 Q Is that true as far as you know, too, Mr.
3 Higgins, and Mr. Narrow?

4 A (WITNESS HIGGINS) Yes.

5 A (WITNESS NARROW) I can't recall any at this
6 time.

7 Q Mr. Gallo, I think you also in your testimony
8 in response to Mr. Lanpher described an instance of
9 another construction site where Region I felt it
10 necessary to ask Region IV to conduct a review of an
11 architect-engineer office. To your knowledge, has
12 Region I ever found it necessary to notify Region IV
13 that such a review needed to be done with respect to
14 Shoreham at GE or Stone and Webster or anywhere else?

15 (Witnesses conferred.)

16 A (WITNESS HIGGINS) No, to our knowledge Region
17 I has never notified Region IV about problems with GE
18 and Stone and Webster as applied to Shoreham.

19 MR. ELLIS: Judge, this is the area I want to
20 come back to. Let me come back and ask some questions
21 in another area.

22 JUDGE BRENNER: I would like to, for your own
23 timing, I would like to go about another 15 minutes.

24 MR. ELLIS: That is fine.

25 BY MR. ELLIS: (Resuming)

1 Q Mr. Gallo, you have had experience and
2 participation in the SALP process. Would it be fair to
3 say that the SALP process includes thorough
4 consideration and review of the licensee performance for
5 the year?

6 A (WITNESS GALLO) Yes, I would say that. I
7 believe that we try to get a fairly wide perspective
8 from our inspectors and our managers within the regional
9 office plus the licensing project manager's input into
10 really, which turns out to be a subjective analysis of
11 the facility based on not only the inspection reports
12 which are factual in nature but the inspectors' opinions
13 and how they affect the licensee.

14 Q Can you give us some idea of the people who
15 participate in the SALP review? I take it the resident
16 inspector would certainly be a participant; is that
17 correct?

18 A (WITNESS GALLO) Yes, the resident inspector
19 is usually the principal author of the draft SALP
20 report, which is prepared before the regional SALP
21 meeting. This is only NRC people attend that meeting,
22 and it has been the experience that the resident
23 inspector is the principal author of that report. He
24 gets inputs from the other inspectors in the region and
25 occasionally has to rewrite them entirely. Sometimes

1 they are put into the report just as is, depending upon
2 the quality of the input.

3 Q So we have the other I&E personnel who have
4 conducted inspections submitting information to the
5 resident inspector, who then is responsible for
6 preparing a first draft; is that correct?

7 A (WITNESS GALLO) Yes, sir. I may have skipped
8 a step there. The inspectors that go to the site during
9 the year will provide input to their own management, and
10 we expect usually a section chief level to review that.
11 And he provides me a copy and then he provides a copy
12 directly to the resident inspector of what their ratings
13 are regarding the particular facility.

14 Q So we have the involvement of the resident
15 inspector, and we have the involvement of branch chiefs
16 for each of the branches involved in having sent
17 inspectors to Shoreham; is that correct?

18 A (WITNESS GALLO) Yes, that is correct.

19 Q And who else would be involved in the
20 generation of a SALP report or consideration of it?

21 JUDGE BRENNER: Mr. Ellis, we have some of
22 this on the record already. Do you want something in
23 addition to what we already have?

24 MR. ELLIS: Well, I don't think this detail
25 was on the record, Judge.

1 JUDGE BRENNER: Wait a minute. I think it was.

2 MR. ELLIS: Well, then I am mistaken, and I
3 apologize.

4 JUDGE BRENNER: How much do you want to ask
5 about it?

6 MR. ELLIS: Well, I want to get into the basis.

7 JUDGE BRENNER: We don't have the details
8 necessarily of the sequential steps, some of which you
9 just got in response to previous questions. We do have
10 the details of who is involved.

11 All right, Mr. Gallo, why don't you tell us
12 again how it works, what the branch chief of the other
13 branch being involved and so on?

14 MR. ELLIS: Judge --

15 JUDGE BRENNER: Let him tell it quickly, and
16 then you can pick up from there and see what else you
17 want.

18 WITNESS GALLO: Yes. That draft report is
19 supplied to the branch chiefs. And the way our current
20 organization now is, there are two division directors,
21 engineering and technical programs and project and
22 resident programs. And those two are the two senior
23 members that are present at the regional SALP board.

24 However, when we do go to the licensee's
25 facility, it is not only the SALP board; some of the

1 SALP board members attend that meeting, but also it is
2 the regional administrators' policy to attend those
3 meetings personally. And it is the regional
4 administrator who eventually signs out the entire
5 package that goes to the licensee.

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1 BY MR. ELLIS: (Resuming)

2 Q Does NRR also have involvement?

3 A (WITNESS GALLO) Yes, sir. It is our -- I
4 believe it is in the NRC manual chapter that the project
5 manager for the facility will be a member of the
6 regional SALP board and we usually request their
7 attendance at the meeting with the licensee also.

8 Q And the final report that is produced, is that
9 reviewed by all of the persons that you have described
10 as being involved and require concurrence by them?

11 A (WITNESS GALLO) The report is generally
12 prepared, again, by the resident inspector and goes
13 through the section chief, the branch chief, the
14 division director for project and resident programs, the
15 division director for engineering and technical
16 programs, and to the deputy regional administrator and
17 the regional administrator.

18 So everyone who is there is represented. I
19 don't believe -- we usually just send a copy to NRR
20 after the product is completed.

21 Q Now the CAT inspection was included as a
22 separately-evaluated item in SALP. Why was that the
23 case?

24 A (WITNESS GALLO) Yes, that was included and we
25 have done this as a policy -- that where a facility has

1 a team inspection, CAT inspection particularly, in
2 particular that in the SALP report we have tried to
3 include it as a separate section. One of the reasons is
4 to highlight that activity and to highlight the results
5 of that inspection and also because we feel it is a
6 significant expenditure of our effort, our inspection
7 effort, went into the team-type inspection.

8 Q And I take it it is because a significant
9 expenditures of inspector time that went into this that
10 makes it a valuable source of information for drawing
11 conclusions as was done in the SALP. Is that correct?

12 A (WITNESS GALLO) Yes, that is correct. It
13 looks like our inspection table 3 in the SALP report,
14 the estimate of the time was 23 percent of our
15 inspection time during the appraisal period was taken up
16 by that assessment team inspection.

17 Q And, as Judge Brenner pointed out in a
18 comment, I would like for you to comment on it as well,
19 Mr. Higgins. It was a very detailed inspection, was it
20 not?

21 JUDGE BRENNER: Did I say that?

22 MR. ELLIS: Well, I think when you commented
23 about the fact that the inspector got down to the number
24 of bolts, you made a remark about that.

25 JUDGE BRENNER: That was hardly a comment on

1 the whole report. All right, whatever I said, I said.

2 MR. ELLIS: Well, let me just rephrase and
3 just ask the witnesses whether in their opinion it was a
4 detailed inspection.

5 WITNESS HIGGINS: Yes.

6 MR. ELLIS: Thank you.

7 BY MR. ELLIS: (Resuming)

8 Q And as a result of that inspection, Mr. Gallo
9 and Mr. Higgins, I take it I&E was able to reach the
10 conclusion that is stated on the bottom of page 17 of
11 SALP, the last paragraph.

12 JUDGE BRENNER: That is Suffolk County Exhibit
13 92.

14 MR. ELLIS: Thank you.

15 (Witnesses conferring.)

16 WITNESS HIGGINS: Yes.

17 BY MR. ELLIS: (Resuming)

18 Q And this conclusion, then, was the SALP
19 conclusion concurred in by all that management
20 involvement in assuring quality was evidenced by
21 explicitly-stated procedures and policies well
22 maintained in available records and working corrective
23 action decisionmaking with adequate design and
24 activities, well controlled and verified by QC
25 inspection?

1 A (WITNESS HIGGINS) Yes.

2 Q When it says no inferior workmanship was
3 observed, Mr. Higgins, I take it you were also drawing
4 not just on the single CAT inspection but you were
5 drawing on your experience over a longer period of time
6 rather than just the CAT. Is that correct?

7 A (WITNESS HIGGINS) Well, that statement in
8 this paragraph was meant to reflect the CAT inspection,
9 if I had felt strongly in the other direction, based
10 upon experience, otherwise I wouldn't have let them put
11 it in.

12 Q So is it fair to say that is your general
13 experience?

14 A (WITNESS HIGGINS) Yes.

15 Q And when I say "general experience" I mean
16 apart from the CAT.

17 A (WITNESS HIGGINS) Yes, general experience.
18 As I said before, I can pretty easily answer specific
19 questions and exceptions to that have been documented in
20 the inspection reports.

21 Q And those are the violations, is that correct?

22 A (WITNESS HIGGINS) That is correct.

23 Q And it is fair to say that every time that you
24 do an inspection, I think you indicated in your prefiled
25 testimony that things that you find that are done right

1 in the population of things that you look at rarely get
2 documented in the detail and that the discrepancies or
3 violations are documented? Is that right?

4 A (WITNESS GALLO) Mr. Ellis, I guess I could
5 answer that in general, that one of the things that the
6 SALP process has tried to do is to bring out some
7 positive aspects of what the utility has done. If we
8 had our choice, we would probably like to rate each
9 utility category 1 in every aspect that they have
10 participated in during the year.

11 One of the things that we have found in
12 reviewing inspection reports is that the inspection
13 reports are supposed to be factual in nature and that
14 they generally do have -- inspectors do have a tendency
15 to dwell on the problems that they have found, where
16 they have identified in one short paragraph the nature
17 of the activity they have inspected and in maybe two or
18 three or more paragraphs identified the discrepancies
19 that they have found during the inspection period.

20 Occasionally you will find a long list of
21 items where the inspector looked at things and found
22 them all acceptable, but more frequently you will
23 probably find that he says he looked at pipe welding
24 activities and he identifies the particular welds that
25 he looked at and he doesn't identify that he looked at

1 10 or 20 attributes or aspects of each one of those
2 welds, and he doesn't go into details on that type of
3 inspection except where he has identified a
4 discrepancy.

5 The end result is that we have tried to get
6 those, the good points that we have identified during
7 inspections into this SALP in the SALP report.

8 Q Well, is it fair to say, Mr. Gallo and Mr.
9 Higgins, that the positive comments that appear on the
10 bottom of page 17 were carefully considered conclusions
11 drawn by the SALP review process?

12 A (WITNESS GALLO) Yes, sir. I believe those
13 words were prepared by Dr. Bettenhausen, who was a team
14 leader from the CAT inspection. But they were reviewed
15 by the SALP board members.

16 JUDGE BRENNER: Mr. Ellis, we will break any
17 time it is convenient for you.

18 MR. ELLIS: This would be fine, Judge
19 Brenner.

20 JUDGE BRENNER: I had that feeling. We will
21 give you the extra time and take until 2:00 and I expect
22 to come back at a much quicker pace, given that extra
23 time, because we are going to have problems if the pace
24 doesn't pick up and this was pretty basic information,
25 and you get into the more controversial stuff.

1 I am afraid that if we kept up this pace it
2 would slow down even more.

3 MR. ELLIS: I understand, Judge, but I do feel
4 some obligation to put some positive things on the
5 record.

6 JUDGE BRENNER: I'm not complaining about the
7 information. It is the pace at which it is coming out.
8 There are long pauses between every question and the
9 pauses between the questions are much longer than the
10 pauses for the answers.

11 Well, I don't want to dwell on the past.
12 Let's pick it up in the future. We will be back at
13 2:00.

14 (Whereupon, at 12:10 o'clock p.m., the hearing
15 recessed, to reconvene at 2:00 o'clock p.m., the same
16 day.)

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AFTERNOON SESSION

(2:00 p.m.)

JUDGE BRENNER: We are back on the record.

I know that those incoming signed settlement agreements will be here between now and 9:00 tomorrow morning, as we had discussed last week, because otherwise, gentlemen, we are going to have an up-in-the-air situation that we want to avoid about the week of the fourth.

MR. LANPHER: Judge Brenner, are the two items you have in mind ECCS cutoff and electrical separation?

JUDGE BRENNER: No. It is all of them.

Inadequate core cooling. I don't want to pull my list out, but it is all of the settlements that are pending and short of the written, signed agreement we want to hear something very definitive mutually from all of the parties next week.

Now I remind you the concern we expressed on the record, which I thought the parties shared at the time, which is not to be in an uncertain situation as to whether some things will have to be litigated while taking the week of January 3 off from the hearing, on the assumption that there was in fact nothing left to litigate.

And we have to find that out this week. I

1 suppose we could let it slip a day or so, but I'm not
2 going to let it slip beyond this week, and it is for the
3 benefit of all, as we have to make arrangements and so
4 on.

5 We will ask, where appropos of knowing what we
6 are doing, when, in the near future. We will ask for
7 time estimates later on today rather than now, with the
8 belief that that will be a more meaningful estimate near
9 the end of the day from LILCO and also from the Staff.

10 Right now, we would like to take up the matter
11 that we put off until we could get copies of the
12 inspection report. Judge Carpenter is going to have a
13 few questions and we would like to mark as, I suppose,
14 Board Exhibit 2 for identification -- we would like to
15 mark an I&E inspection report number 82-20 of the
16 Shoreham facility, and the exhibit consists of a cover
17 letter to LILCO from Thomas T. Martin, Director,
18 Division of Engineering and Technical Programs,
19 presumably from the IE region, the cover letter dated
20 November 16, 1982.

21 And the inspection was conducted from October
22 12 through 15, 1982, and other than the cover letter it
23 consists of 8 numbered pages.

24 (The document referred to
25 was marked Board Exhibit

Number 2 for
identification.)

3 Whereupon,

LEWIS NARROW,
ROBERT GALLO,
and JAMES HIGGINS

7 the witnesses on the stand at the time of recess, having
8 been previously duly sworn, resumed the stand and were
9 further examined and testified as follows:

BOARD EXAMINATION

BY JUDGE CARPENTER.

12 Q I would like to get the panel's help on my
13 understanding of this inspection report in the context
14 of your supplemental testimony which, on page 2 in
15 answer to question 4 reads: "During the summer of 1982
16 Region I management raised a concern as to the effective
17 use of NRC inspectors at the Shoreham facility. This
18 concern involved several items, including, the state of
19 preparedness of the facility for fuel load, the status
20 of preoperational and startup testing program, and the
21 manner in which inspection items were being resolved" --
22 emphasis added by me.

23 Regarding the last point, it was noted that,
24 "In some cases, several iterations were necessary to
25 have an item ready for close-out inspection." And the

1 area I would like to get some help in is, as I read this
2 inspection report in nearly every item I find that it
3 really wasn't ready to stand inspection for one reason
4 or another.

5 First of all, do you agree with that
6 characterization?

7 A (WITNESS HIGGINS) For one reason or another,
8 that is correct.

9 Q Is this compatible with what you hoped had
10 been accomplished in that meeting this last summer?

11 A (WITNESS HIGGINS) I believe that the items in
12 this inspection report were primarily not ready because
13 the testing hadn't been completed, which was different
14 than some of the concerns that we had in the meeting of
15 the summer. A lot of the concerns there were in
16 inspections that we had previously raised and we went
17 back to close out -- more bulletins and circulars, as we
18 discussed a little bit earlier that were addressed by
19 the licensee and then given to us and weren't really
20 ready to be closed out.

21 And my comment after looking at it and turning
22 it back to them and saying we agree with your action but
23 we feel these additional actions are necessary, an that
24 was primarily the concern in the meeting of the summer.
25 And most of the items in this inspection report were

1 primarily because the actual testing wasn't done yet.

2 So I believe there was somewhat of a
3 difference between things that came up in this report
4 and the concern that we had during the summer.

5 Q There was not only testing but in some cases
6 they weren't delivered yet?

7 A (WITNESS HIGGINS) That is correct.

8 Q You see, I read this and I was sort of
9 surprised that the applicant was telling you that he was
10 ready for the inspection to take place.

11 A (WITNESS HIGGINS) This is an inspection that
12 I scheduled but not the applicant, and the reason I did
13 is that I felt that it was time to have our preop
14 inspector that reviews these radiation monitors, the
15 process radiation monitoring -- this type of thing -- to
16 come out to inspect it because I didn't want to wait to
17 have him come until the programs were all done, all of
18 the calibrations were done and find problems with them.

19 It was the type of thing that I realized that
20 a lot of things were not completed yet, being familiar
21 with their startup schedule, but I wanted him to come
22 out and get a look at -- some had been done; I wanted
23 him to get a look at some results and also be there
24 early enough to look at a lot of the procedures while
25 they were still in process.

1 He probably didn't really need to write up the
2 report quite the way he did in indicating that he was --
3 in making specific items to come back and look at
4 because it wasn't done yet and look at that because it
5 wasn't done yet. Sometimes some of our inspectors use
6 our item tracking system as a tickler for things that
7 they want to be sure that they do inspect before a
8 certain time, like, for example, before the facility
9 gets a license. And I think in a lot of cases this
10 inspector was doing that.

11 Q Well, thank you for helping me, because that
12 was just exactly my question, as to whether LILCO felt
13 they were ready. And you are telling me that you
14 scheduled it because you thought that even though many
15 things would either have to come back for, it was still
16 worthwhile at that time, and I didn't get that
17 perception from reading the reports.

18 A (WITNESS HIGGINS) And even after he did the
19 report I still felt that it was beneficial to have him
20 come up and do the inspection at the time. He didn't
21 completely feel that, but I felt that it was worthwhile
22 and I think overall regional management felt that it
23 probably was beneficial because he did identify some
24 concerns that hopefully can be addressed as the
25 procedures get finalized and the testing gets completed.

1 But he will definitely have to come back and
2 do another inspection.

3 Q The other thing, since we have the opportunity
4 of having you answer questions, this supprises me very
5 substantially that in October these items which were
6 absolutely essential to be completely resolved before
7 fuel load were in this condition.

8 Is that surprise on my part unreasonable?

9 A (WITNESS HIGGINS) I think it is probably true
10 and it has been borne out by their facilities that right
11 up until the day they do get a license to load fuel that
12 there will be things that need to be resolved.

13 Q I hope not radiation monitors.

14 A (WITNESS HIGGINS) We feel, as you do, that
15 there are still quite a number of things that need to be
16 resolved before they will be ready to load fuel.

17 Q Yes. Sitting here in this hearing room we
18 have heard nothing but before fuel load. If I made a
19 punch list, I don't know how long it would be. I
20 presume you have one.

21 A (WITNESS HIGGINS) Ours is in excess of about
22 225 or so at this time.

23 JUDGE CARPENTER: Well, thank you very much.
24 I think you can see my reading of that inspection report
25 and reading your testimony I was having trouble putting

1 the two together, and that is very helpful. Thank you.

2 WITNESS HIGGINS: You're welcome.

3 JUDGE BRENNER: Okay, Mr. Ellis, we will go
4 back to your questioning. Can you orient us in your
5 cross plan?

6 MR. ELLIS: Well, right now I think I am going
7 to follow up a little bit, and then I am going to get to
8 finish up some things I had before lunch, and then I
9 will go to the CAT.

10 JUDGE BRENNER: Okay, and then you will
11 proceed in the sequence?

12 MR. ELLIS: I'm not sure. I will have to let
13 you know about that.

14 JUDGE BRENNER: All right.

15 CROSS EXAMINATION - Continued

16 BY MR. ELLIS:

17 Q Mr. Higgins, confirm for me, if you would,
18 please, that in Board Exhibit Number 2, which is the I&E
19 inspection 82-20, there are no violations or deviations
20 noted as a result of that inspection.

21 A (WITNESS HIGGINS) That is correct.

22 Q And I get the sense that you thought this was
23 a useful inspection to have to make clear at a
24 reasonably early time what had yet to be done so that it
25 could be completed by a proposed fuel date. Is that

1 right?

2 A (WITNESS HIGGINS) I don't know if I would put
3 it exactly in those words.

4 Q Well, would it be fair to say that you weren't
5 surprised that some of these things weren't done yet?

6 A (WITNESS HIGGINS) Well, I knew they weren't
7 before the inspection was done. I knew that.

8 Q Is the follow-up inspection yet scheduled?

9 A (WITNESS HIGGINS) It will be an unannounced
10 inspection.

11 Q Do you know whether any of the testing that is
12 referred to in here has yet been done?

13 A (WITNESS HIGGINS) It has been continuing
14 since that inspection. It is not done yet, but I know
15 that it has been continuing.

16 MR. ELLIS: That is all of the follow-up that
17 I had on that.

18 JUDGE BRENNER: All right.

19 BY MR. ELLIS: (Resuming)

20 Q Before lunch we were talking about the SALP
21 inspection or the SALP evaluation, rather, and confirm
22 for me, if you would please, gentlemen, that Shoreham --
23 violations of Shoreham have always been of the lower
24 categories 4 and 5 and the lower categories as they were
25 previous classified. Is that correct -- severity level

1 categories.

2 A (WITNESS GALLO) For all parties' information,
3 I don't know whether we have covered it or not, but the
4 NRC has gone through at least three in my history with
5 the Nuclear Regulatory Commission, three systems of
6 enumerating violations. The current system we have is
7 the enforcement policy in 10 CFR 2, as five levels of
8 severity. Just before that, we went through a period of
9 about a year where there was an interim enforcement
10 policy where there were six levels of severity.

11 Prior to that, from about December 1974, I
12 believe, there was a letter issued to all facilities
13 describing the three categories of violations which
14 were -- one of them was a violation which was the
15 highest level, the next was an infraction, and the
16 lowest level was a deficiency.

17 So we have changed our system of identifying
18 violations at least three times, to my knowledge. As
19 far as the specifics in 1982, SALP -- at least the one
20 issued July '82 -- the violations are listed numerically
21 in the table. I think I would like to refer to that
22 again quickly.

23 MR. ELLIS: This is Suffolk County 92, I
24 believe, Judge Brenner.

25 WITNESS GALLO: It is the Table 2, Enforcement

1 Data, and that lists in various ways the severity levels
2 and the items that were identified during the previous
3 12 months. There were three violations in the category
4 level 4, five in the level 5, and one in severity level
5 6, and two deviations which we included in the general
6 category of enforcement actions.

7 BY MR. ELLIS: (Resuming)

8 Q You were reading then from the 1981 SALP?

9 A (WITNESS GALLO) It is a report dated July 22,
10 1982, which covered the period March 1, 1981, to
11 February 28, 1982.

12 Q All right, sir. Go ahead.

13 A (WITNESS GALLO) It is Table 2 of the SALP
14 board report.

15 A (WITNESS HIGGINS) And I would like to add to
16 that that when we went back over historical review of
17 the violations for Shoreham, when we were using the
18 older category there were none that were issued in the
19 violation category and the rest were in the infraction
20 and deficiency category.

21 In the most recent of the categorizations,
22 since we went to severity levels, they have all been in
23 the severity level 4, 5 and 6, and none have been in
24 severity level 1, 2 and 3, which are the more severe
25 severities.

1 Q Mr. Higgins, what is the significance of the
2 fact that the severity levels have all been 4, 5 and 6
3 or the lower levels, or Mr. Gallo?

4 MR. LANPHER: I would like to object to the
5 question because I don't know the time period that he is
6 referring to. Is it just since the 1980, because if
7 it's before that, there were other levels.

8 JUDGE BRENNER: He was looking at Table 2 and
9 I took it -- and this will be a chance for Mr. Ellis to
10 clarify -- that he was following up on the previous
11 answer which in turn was based upon Table 2 to the 1982
12 SALP report. Is that right, Mr. Ellis?

13 MR. ELLIS: No, sir. I was following up on
14 Mr. Higgins' response where he said that in addition
15 they had reviewed the history of Shoreham and they had
16 found that in prior Table 2 there had been a sixth level
17 and there had never been anything above a 4 there
18 either, and that prior to that there had never been in
19 the three categories that they had had, there had not
20 been any violations, only infractions and, I think,
21 deficiencies.

22 JUDGE BRENNER: All right. That clarifies
23 it. Now what is your problem?

24 MR. LANPHER: Then I object to the question as
25 to the pre-1980 period when there were three levels,

1 because to characterize the middle level as the lower
2 category just is mathematically wrong.

3 JUDGE BRENNER: That objection is overruled.
4 The witness can answer the question -- lower relative to
5 the highest. I am not interested in Mr. Ellis'
6 characterization so much as the answer anyway.

7 (Witnesses conferring.)

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1 WITNESS HIGGINS: To give some correlation
2 between the old and the new in general, there is a small
3 bit of overlap. The old violation corresponds mainly to
4 the severity level 1, 2, and 3 of the current, and the
5 old infractions and deficiencies would correspond
6 roughly to the severity level 4, 5, and 6 when that
7 existed. And I guess the significance is that certainly
8 the old violation and the current severity level 1, 2,
9 and 3 are considered much more significant.

10 Just to read a couple of words out of the
11 enforcement policy, 10 CFR 2, it says, severity level 1
12 and 2 violations are very significant regulatory
13 concern. Severity level 3 violations are cause for
14 significant concern. Severity level 4 violations are
15 less serious but of more than minor concern. And
16 severity level 5s are of minor safety significance.

17 So that basically outlines the levels.

18 JUDGE BRENNER: That is Appendix C, Mr.
19 Higgins?

20 WITNESS HIGGINS: Yes, under Roman III of
21 Appendix C.

22 JUDGE BRENNER: Thank you.

23 BY MR. ELLIS: (Resuming)

24 Q Turning your attention to page 46 of your
25 testimony, is the review that you made of SALP and the

1 history of the severity levels in violations one of the
2 reasons or one of the bases for your conclusion on page
3 50 -- or page 46, I am sorry -- answer 50, that the
4 results of the NRC's routine inspection program,
5 including a recent construction assessment team
6 inspection report 82-04 provide assurance of compliance
7 with NRC requirements and license commitments?

8 (Witnesses conferred.)

9 A (WITNESS GALLO) Mr. Ellis, as we have stated
10 before, those violations are certainly considered. But
11 again you have pointed out that we have not tried to
12 numerically rank facilities by numbers of violations.
13 And if notice the history of the SALP reports, you will
14 go back over the previous reports, you will notice a
15 change in the way the SALPs are constructed, in that the
16 evaluation is of more significance to the board members
17 and to the regional administrator than is necessarily
18 the absolute numerical number of violations that
19 occurred.

20 Certainly, there would be some consideration
21 if there were a big difference, a trend in the utility,
22 particular utility, from one year to the next. Where
23 something was totally unexpected by us if there was a
24 significant violation or an escalated enforcement
25 action, that would certainly be considered in the

1 overall evaluation. Escalated enforcement action, I
2 referred to, generally you are talking about a civil
3 penalty or an order something in that nature.

4 Q And there has been no escalated enforcement
5 with respect to Shoreham, has there?

6 A (WITNESS GALLO) No. Not to my knowledge.
7 And Mr. Higgins says no, there is none.

8 Q Gentlemen, let's turn to the CAT inspection.
9 Also, do you have a copy of Mr. Hubbard's testimony,
10 prefiled testimony, there?

11 A (WITNESS HIGGINS) Yes.

12 JUDGE BRENNER: I guess I am a little slow. I
13 would like to follow up on the last answer, if I could.

14 Mr. Gallo, or anybody else on the panel, what
15 heading would you put the Staff's strong request that
16 LILCO do the plant configuration review program under?
17 Is that -- I take it you would not put it in the
18 escalated enforcement category, since you said there
19 were none. But could you help me out vis-a-vis that
20 category and categories like it? Or was it just a
21 normal, everyday, run-of-the-mill type action?

22 WITNESS HIGGINS: I guess, Judge Brenner, that
23 would fit into what we mentioned a couple of times in
24 the enforcement area requiring further management
25 attention, because I guess we felt that that sort of did

1 flow out of the design control concern that we had, as
2 described in our prefiled testimony and several of the
3 violations that were listed as design control problems,
4 were the things that really pushed us towards that.

5 We did have some other unresolved items, but
6 we also had two or three or four of the violations that
7 were listed in the design control area. And that led to
8 a couple of management meetings between NRC and Long
9 Island Lighting Company and ended up with the Shoreham
10 plant configuration review program.

11 So I guess that would be there were some
12 violations in that area, and those were severity level
13 4, and that as a result of those plus some other
14 findings that were unresolved items, we ended up having
15 a management meeting giving it additional attention and
16 getting the commitment from them to do the program.

17 WITNESS GALLO: Judge Brenner, one of the
18 things in the enforcement policy that is discussed is
19 called "related administrative mechanisms," and it talks
20 about bulletins and it also talks about something now
21 called a confirmatory action letter, which in this case
22 we did not issue. But I have been involved with several
23 of those in Region I, and it is a fairly common piece of
24 paper used to confirm that the utility has committed to
25 do certain things.

1 And in this case thinking back on it, we did
2 not -- obviously, we did not choose to use that type of
3 administrative confirmation, because we felt we got
4 adequate commitments at the level we discussed in the
5 site meeting in November. And we documented those in
6 our own inspection report.

7 JUDGE BRENNER: But it would have fit within
8 the category of things of the nature that you do as your
9 confirmatory action letters?

10 WITNESS GALLO: Yes, sir. And I think in this
11 case or in any other case, if we had to -- making a
12 point beyond what actually happened, I guess if we had
13 to do something, go to a higher level of management to
14 get the commitments that we felt we needed, perhaps we
15 would have written a confirmatory action letter.

16 We try to resolve things at the lowest level
17 possible without making a federal case out of everything.

18 WITNESS HIGGINS: Just to add one small thing
19 to that. The final written commitment that we got from
20 Long Island Lighting Company on this SPCR program did
21 come in a letter as a response to one of the deviations
22 that was sort of one of the final things that resulted
23 in this.

24 JUDGE BRENNER: If you had issued a
25 confirmatory action letter or even -- well, let me stop

1 with that -- but not any civil penalty, would you have
2 categorized that as escalated enforcement action? I
3 have tried to understand what you had in mind when you
4 answered Mr. Ellis' questions, whether you were
5 restricting that just to civil penalties or whether you
6 had in mind something like this that confirmed the plant
7 configuration program.

8 WITNESS GALLO: No, Judge Brenner, I had in
9 mind explanation. I was considering civil penalties and
10 orders and that level or that nature of thing and not a
11 confirmatory action letter.

12 JUDGE BRENNER: So in that sense, whether
13 escalated enforcement was taken or not is not solely an
14 indicia, if you will, of the nature of the item; it is
15 more a comment on the lack of resolution of the item
16 between the Staff and the utility?

17 WITNESS HIGGINS: I don't think that is
18 completely true. I think if we had found what we would
19 consider to be very significant design discrepancies
20 that we would have created escalated enforcement action
21 and issued a civil penalty regardless of where the
22 actual final resolution was headed.

23 None of the ones that we found really in
24 themselves merited more than the severity level 4. And
25 had we found ones that we considered were more

1 significant such that, say, the design function of the
2 system would be compromised, then that would have been a
3 higher severity level and would have received a civil
4 penalty regardless of where things stood on this
5 commitment for the configuration review program.

6 JUDGE BRENNER: Okay. That helps me with what
7 you had in mind when you answered the other question.
8 Thank you.

9 Mr. Ellis.

10 BY MR. ELLIS: (Resuming)

11 Q Gentlemen, do you have before you Mr.
12 Hubbard's testimony, prefiled testimony? Let me see if
13 I can --

14 A (WITNESS HIGGINS) Yes, I have a copy of it.

15 Q Look at page 41 if you would, please, sir.

16 Have you gentlemen had an opportunity to review Mr.
17 Hubbard's testimony?

18 A (WITNESS HIGGINS) Yes, we have.

19 Q All right. On page 41 there is a reference
20 under Roman IV.B to the preceding 43 examples of
21 recently discovered QA/QC breakdowns at Shoreham clearly
22 document that LILCO and its major subcontractors did not
23 develop and implement a QA/QC program in compliance with
24 Part 50 Appendix B in a timely manner.

25 The reference to 43 there is to the 43 items

1 that were taken out of CAT. Do you gentlemen agree with
2 that statement on page 41 of Mr. Hubbard's testimony?

3 A (WITNESS HIGGINS) No.

4 Q Now I am going to turn to individual, but is
5 it clear that you gentlemen do not believe that any of
6 the 43 items that are listed by Mr. Hubbard in his
7 testimony are QA/QC breakdowns; is that correct?

8 A (WITNESS HIGGINS) Yes.

9 Q Let's turn first to page 20 of Mr. Hubbard's
10 testimony, which corresponds to the CAT. On pages 19
11 and 20 are listed the items that I believe appear on 6
12 and 7 of the CAT inspection. As you can see, Mr.

13 Hubbard in his testimony contends that the seven items
14 listed there constitute a violation of Criterion 3 of
15 Appendix B. Do you gentlemen agree with that opinion?

16 A (WITNESS HIGGINS) No, we cited those as
17 deviation and not as a violation of Criterion 3.

18 Q Earlier this morning you indicated that the
19 item that is the third bullet on page 20 and is also the
20 third bullet on page 7, the thermal relief had been
21 changed. That is no longer a deviation; is that correct?

22 A (WITNESS HIGGINS) Yes.

23 Q Let's look, at the item which is the last
24 bullet on page 20. That is, drains from RHR pump
25 suction and discharge do not tie together.

1 MR. LANPHER: Excuse me. You are on page 20
2 of Mr. Hubbard's, the last item?

3 JUDGE BRENNER: It is the last bullet, the one
4 right above the small "f," Mr. Lanpher, and it is also
5 on page 8 of CAT.

6 MR. LANPHER: Thank you.

7 (Counsel for LILCO conferred.)

8 BY MR. ELLIS: (Resuming)

9 Q I understand that I&E wants this matter
10 clarified in the FSAR. What I want to be clear about in
11 my own mind is that it is, in a sense, a matter whether
12 the depiction of the drains tie together in a Y or come
13 down to a line independently; is that correct?

14 A (WITNESS HIGGINS) Yes.

15 Q Am I also correct that whether the depiction
16 is as a Y or it comes down separately, the function is
17 the same?

18 A (WITNESS HIGGINS) Is that a question?

19 Yes, that was a question.

20 A (WITNESS HIGGINS) Yes, I would agree with
21 that.

22 Q So would it be fair to conclude that however
23 it's depicted, whether it is as it is or as it was at
24 the time of the CAT inspection or as the inspector
25 thought it should be, that there would be no effect on

1 any analysis by NRR relating to the safety of the plant?

2 A (WITNESS HIGGINS) There should not be. I
3 cannot fully speak for NRR. But I guess this was more
4 as on several of these items, as we said when we were
5 discussing this with Mr. Lanpher, that these were areas
6 that we felt the FSAR was incorrect and not accurate and
7 that we felt it should be, although on most of them we
8 didn't have a design concern. The design was not
9 properly implemented on them.

10 Q These were matters of some descriptive detail
11 then in the FSAR?

12 A (WITNESS HIGGINS) Certainly, yes.

13 JUDGE MORRIS: Excuse me, Mr. Ellis.

14 Mr. Higgins, I have a note here that Revision
15 27 of the FSAR corrected the situation. Do you know
16 whether that is correct?

17 WITNESS HIGGINS: For the items under E, that
18 is correct except for the thermal relief, which we now
19 agree is a correct designation for that.

20 BY MR. ELLIS: (Resuming)

21 Q Well, with respect then to -- well, strike
22 that. Back to the previous item where the reference is
23 to emergency equipment cooling water, am I correct that
24 that was a reference generically by using a GE term to
25 what is the RBCLCW at Shoreham?

1 A (WITNESS HIGGINS) That is my understanding,
2 yes.

3 Q And I take it that is another example where
4 the descriptive detail of the FSAR I&E believes should
5 be changed to use the correct terminology?

6 A (WITNESS HIGGINS) Yes.

7 Q Now, we have talked about, or in your
8 testimony, of the SPCR program, am I correct that LILCO
9 had a program in place prior to the SPCR to revise or
10 amend and correct this sort of detail in the FSAR, to
11 update the FSAR?

12 A (WITNESS HIGGINS) Yes. I am certainly aware
13 that LILCO has, and Stone and Webster had, a program in
14 place. And in fact, during my time with Shoreham had
15 submitted a number of amendments to the FSAR where
16 details of this sort were changed and updated, yes.

17 Q Would it also be fair to say that FSARs
18 generally, and the use of them, has changed markedly in
19 the past 5 years or so.

20 A (WITNESS GALLO) Mr. Ellis, is your question
21 with regard to use of the FSAR?

22 Q The kind of detail that is contained in the
23 FSAR and the extent to which the detail is required to
24 be precise.

25 A (WITNESS GALLO) Certainly, the amount of

1 detail in the FSAR for, say, a 1972 vintage plant may be
2 three volumes whereas opposed to I guess Shoreham is up
3 to 16 or 17 volumes. So the amount of detail reviewed
4 by the NRC has certainly increased in that amount of
5 time by quite a large amount.

6 Q The requirements to update and maintain it
7 have changed as well over that period of time?

8 A (WITNESS GALLO) Yes, sir, Mr. Ellis, in 10
9 CFR 50. Now there is a requirement to have updated FSAR
10 for operating plants. The first installment in that
11 updating for operating plants was due to be submitted
12 this previous July 1982. And I believe the requirement
13 includes an annual update after that first July 1982
14 date for all plants in operation.

15 Q And is it also fair to say that the use of the
16 FSARs by the NRC has changed over the years after the
17 Shoreham history began; in other words, after Shoreham
18 was commenced and the FSAR was commenced?

19 JUDGE BRENNER: Wait a minute. You mean after
20 the FSAR was filed?

21 MR. ELLIS: Yes, sir. Thank you.

22 WITNESS GALLO: Well, again, there were two
23 reasons why we got into the Shoreham plant configuration
24 review program. One was again NRR's review, which I
25 realize is probably considerably more detailed review

1 done now than there was on some of the other facilities
2 in my section which were licensed in the early 1970s.

3 The other concern the regional office has is
4 the use of the FSAR as one of our documents in the
5 emergency situation. That is one of the principal
6 documents we rely on for information about the plant
7 which, in the case of an emergency, I guess prior to at
8 the time of Three Mile Island that was also true. And I
9 think as far as I understand, the updating of the FSAR
10 is one of the items that has fallen out since TMI, since
11 March 1979.

12 So that the document now should be a lot more
13 useful document to the NRC and really the plant staff, I
14 guess. But I wouldn't expect the plant staff to rely on
15 it as heavily as the NRC does and the regional office
16 would down here in the operations center and the
17 headquarters area.

18 BY MR. ELLIS: (Resuming)

19 Q I take it you agree the SPCR program that is a
20 good program that will assure the level of agreement
21 between the FSAR and the as-built plant at the detail
22 level?

23 A (WITNESS HIGGINS) We feel that that is the
24 case. We still intend to do some follow-up to verify
25 that.

1 Q In connection with the use of the FSAR by the
2 NRC, as you say, it has changed over time. There is
3 more emphasis now than when the FSAR was filed by LILCO
4 on updating the text rather than providing separate
5 answers to update the information. Isn't that right?

6 A (WITNESS GALLO) I don't know when that policy
7 was changed. And apparently, in some of the older
8 plants that I have there is text. This is prior to July
9 1982 when the whole book was updated. There was a text,
10 and there were separate questions and answers. And
11 those questions and answers were not incorporated into
12 the text.

13 So it is occasionally quite difficult to find
14 out what the licensee's commitment was in any one
15 particular area because you have to read the text and
16 then you have to search through maybe 50 to 200
17 questions to find out if any of those questions modified
18 the licensee's position in that area. And that was a
19 very clumsy way of doing business. And sometime in the
20 last 7 or 8 years, I would guess, NRR change of policy
21 has required all of those answers to be incorporated
22 into the text of the FSAR. I don't know exactly when
23 that was done, though.

24 Q Well, after, let's say, 1975 when the FSAR for
25 Shoreham was filed, was there also a change by I&E in

1 the use of FSARs in routine inspections?

2 A (WITNESS HIGGINS) At about the time of the
3 institution of the resident inspector program, which
4 would be the time frame of 1978 and '79, there were
5 additional inspection procedures that were added to our
6 inspection program to actually go out and review an
7 as-built system versus what was in the FSAR. So, yes,
8 that has changed also.

9 Q In light of all these changes, is it fair to
10 say that finding deviations in the Shoreham FSAR from
11 the detail in the detail areas is not uncommon or is not
12 unique to Shoreham?

13 A (WITNESS GALLO) I would agree with that. I
14 think that is a very common occurrence, to have details
15 in as-built discrepancies. And that has been in NRC's
16 policy as the plant gets ready for an operating license
17 to do something to ensure that the utility gets their
18 FSAR updated.

19 Q And that has been more true since TMI than
20 before; is that correct?

21 A (WITNESS GALLO) I guess I would have to agree
22 with you. I guess that was part of the impetus for, of
23 course, that change in the regulation requiring an
24 operating plant to update their FSAR.

25 Q And that change in the regulation, is that the

1 50.71(e)?

2 A (WITNESS GALLO) I would have to look it up.

3 I know it is somewhere in that part of Part 50.

4 (Pause.)

5 A (WITNESS GALLO) Yes. 50.71(e) appears to
6 contain those requirements.

7 Q Now, Mr. Gallo or Mr. Higgins, I think you
8 indicated you had had an opportunity to see some of the
9 preliminary results of the SPCR program; is that correct?

10 A (WITNESS HIGGINS) Yes.

11 Q Now, based on that and based on what you have
12 found in the other I&E inspections, would you agree that
13 the I&E and the SPCR program have not pointed out any
14 discrepancies in FSAR detail that would affect NRR
15 review of the safety of the plant, its design basis, or
16 the implementation of the design basis?

17 A (WITNESS HIGGINS) I don't believe that in the
18 SPCR findings that I reviewed to date I have run into
19 any of that sort. With respect to the I&E ones, the
20 only I guess really exception that comes to mind are the
21 violations that are listed under the design control
22 section of our testimony.

23 Q Are the ones you are referring to on page 24
24 and 25 of your prefiled testimony?

25 A (WITNESS HIGGINS) Yes.

1 Q Which numbers are those?

2 A (WITNESS HIGGINS) That would be number 2,
3 number 4, number 6, and number 7.

4 Q All right. With the exception of those, I
5 take it, though, you would agree with me that the I&E
6 inspections have not pointed out any discrepancies in
7 FSAR detail that could affect NRR review of the plant
8 and its design basis or the implementation of that
9 design basis?

10 A (WITNESS HIGGINS) I would agree that the
11 discrepancies that we have identified do not appear to
12 be such that the design function of the system other
13 than these at the particular design criteria or design
14 function of the system was not met so that the NRC
15 review in that area would be compromised.

16 Q Were any of the four that you have listed for
17 me, were any of those close calls in making the judgment
18 you just made?

19 A (WITNESS HIGGINS) How do you mean, Mr. Ellis?

20 Q Well, is it a close question as to whether it
21 would affect NRR analysis or not?

22 A (WITNESS HIGGINS) I guess I would have to
23 take them one by one to answer a question like that.
24 Would you like me to do that?

25 Q Yes. And also, while you are doing it, tell

1 me whether it is a close question as to whether it is a
2 deviation from the FSAR.

3 A (WITNESS HIGGINS) Well, number 2 had to do
4 with conformance to the conformance of the design to an
5 FSAR committed reg guide and ANSI standard. And we felt
6 that the design and the FSAR had committed to that and
7 that it had not in the inspector's judgment and in
8 Region I's technical evaluation, that it had not
9 complied with that design commitment made in the FSAR to
10 those documents.

11 This is one that since the time it was
12 written, 80-10, there has been a considerable amount of
13 technical discussion on this item between LILCO and
14 Region I and to date is not finally resolved. It
15 appears that we are getting pretty close to resolution.
16 But it is not finally resolved yet. And I will admit
17 that on this, this is one that LILCO has stated that
18 they felt that they did comply with the design
19 commitment, although perhaps not in as full a manner as
20 the inspector would have liked. So there were some
21 technical disagreements on item 2.

22 Q Would it be fair then to say that with respect
23 to item 2 on page 24 that that was a matter of a
24 technical disagreement rather than a quality assurance
25 problem?

1 A (WITNESS HIGGINS) Well, there were certainly
2 a lot of technical discussions on it. And I am not sure
3 that it would have been clear to quality assurance
4 inspector, the concerns that our inspector, who is a
5 specialist in this area, had raised. There was a lot of
6 -- for the Board's information -- there were a lot of
7 pros and cons on this, and it had to do with some of the
8 nonmandatory appendices to the ANSI standard which LILCO
9 maintained were not originally committed to but that the
10 inspector felt, in order to meet the design commitments
11 really had to be followed.

12 So there were a lot of technical disagreements
13 on this item. But I guess the final resolution is that
14 basically LILCO has since that time committed to meet
15 those nonmandatory appendices and has done a
16 considerable modification to their sampling line since
17 this violation was written. And as I said, because of
18 that, we are very close to resolution on this with, I
19 believe, only one outstanding question.

20 JUDGE BRENNER: I guess one of the keys -- and
21 maybe you answered this in passing, Mr. Higgins -- is
22 whether LILCO's or Stone and Webster's QA/QC check at
23 some point in their processes should have raised the
24 same questions regardless of the ultimate resolution.
25 What do you think? Can you answer that?

1 WITNESS HIGGINS: I guess I could see why they
2 didn't, because of the way the commitments were
3 structured and the nonmandatory appendices. But our
4 inspector felt that the basic design commitment without
5 doing that really couldn't be met. That is all I have
6 on that one.

7 On the next one, which was number 4, again
8 this is a quite judgmental item because we are talking
9 about a criterion here that says the location of the
10 containment isolation valve should be as close as
11 practical to containment. And the point of difference
12 between LILCO and the NRC on this was what was
13 practical. And obviously, there is some room for
14 judgment on that.

15 In this case, the NRC felt that LILCO hadn't
16 put it as close as practical, and that's why we wrote it
17 up as a violation and didn't carry it as an unresolved
18 item for some future or subsequent resolution.

19 Again, on this one there has been a
20 considerable amount of technical discussion on this.
21 Region I has referred it to NRR for resolution, and
22 there have been meetings held on it which the County has
23 attended. And the final resolution has not come out yet
24 on this item.

25 BY MR. ELLIS: (Resuming)

1 Q How about number 6?

2 (Witnesses conferred.)

3 JUDGE BRENNER: Mr. Higgins, back to number 4
4 for a minute. Was there an evaluation anywhere prior to
5 the CAT inspection by LILCO assessing whether or not the
6 valve was as close as practical in their view?

7 WITNESS HIGGINS: This was identified in
8 81-02. So this was a year prior to the CAT inspection.

9 JUDGE BRENNER: Substitute prior that
10 inspection report in my question?

11 WITNESS HIGGINS: I was never able to get one,
12 though. This was a case, I believe, where LILCO said
13 that they met as close as practical. And when
14 questioned about it, they said, well, discuss with the
15 Region the various things that they took into
16 consideration when locating valves, but none of that was
17 documented.

18 JUDGE BRENNER: Is that a reasonable question
19 on my part? Is that something of interest from the
20 QA/QC point of view to see if they had documented some
21 assessment as to why they may be as close as practical?

22 WITNESS HIGGINS: Well, we felt it was, and
23 that is why we wrote it up as a violation. I guess
24 really that is our -- the ones that we feel were
25 significant from perhaps from a QA standpoint were the

1 ones that we wrote up as violations. I guess when I am
2 using "QA" now, I am using it really in the broad sense
3 that we are using it in this hearing as opposed to --

4 JUDGE BRENNER: You can say that again.

5 (Laughter.)

6 WITNESS HIGGINS: As opposed to the perhaps
7 narrower sense that it is used just in referring to the
8 specific QA organizations and their defined
9 responsibilities as they are on site. I mean here we
10 are talking about looking at perhaps Stone and Webster's
11 QA/QC, LILCO's QA/QC, audits, this type of thing, should
12 that have been picked up somewhere within that QA
13 framework.

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1 JUDGE BRENNER: The reason I am interrupting
2 some of these questions is Mr. Ellis started off with an
3 introductory question as to whether these were close
4 calls, and then he also added, to make life even more
5 difficult for you, whether or not they would affect
6 NRR's review and I want to distinguish the "close calls"
7 on the ultimate resolution from the QA/QC angle.

8 And the questions I am asking in my own mind,
9 at least, are pertinent to whether or not LILCO or Stone
10 and Webster's or somebody's processes -- some agent of
11 LILCO's processes -- should have raised these questions
12 even if they were resolved in a manner different than
13 the ultimate technical resolution. So maybe you could
14 bear that in mind as you go through the others.

15 WITNESS HIGGINS: And if I don't hit all the
16 points you are interested in, please come back and ask
17 me.

18 BY MR. ELLIS: (Resuming)

19 Q While we are on this one, let me ask one
20 question, if I may. I'm not sure whether we are talking
21 now about quality assurance in the big "Q" or the little
22 "q", but let me ask this: I take it that you would
23 agree that an inspector, a LILCO or FQC inspector, who
24 went out to inspect with construction or design
25 documents, where these isolation valves were, you would

1 not expect him to make the technical judgments, would
2 you, that are now troubling NRR and LILCO? That is not
3 something that a LILCO audit would pick up.

4 Am I correct?

5 A (WITNESS HIGGINS) The on-site QA/QC audits,
6 walk-downs, et cetera, you are correct. I would not
7 expect those to pick them up and that is why I guess in
8 general we would categorize it more as an engineering
9 item than a QA problem, because in general when we say
10 QA the inspection people were thinking more in terms of
11 the on-site QA/QC inspections, QA audits on-site.

12 But certainly you have the QA associated with
13 the engineering design, which normally Region I doesn't
14 get involved with, and I guess when I say that the
15 larger scope of QA is namely QA somewhere, namely the
16 engineering assurance QA, or on-site QA audits perhaps
17 should have picked it up.

18 I guess in general when we say it is an
19 engineering item, that is not really quality assurance
20 but we feel that this probably felt more in the realm of
21 engineering than, say, something that on-site QA
22 follow-up would have found.

23 JUDGE BRENNER: Incidentally, I wasn't clear
24 on that in my question to you, Mr. Higgins, though you
25 and I were on the same wavelength. In fact, I had

1 primarily that kind of engineering assurance in mind
2 because we have had some glowing testimony from LILCO as
3 to all of their quality assurance checks and balances,
4 and that aspect of their work also.

5 BY MR. ELLIS: (Resuming)

6 Q Does Number 6, Mr. Higgins, fall into
7 essentially the same category as Number 4?

8 MR. LANPHER: I object to the question. I
9 don't know what you mean by "same category".

10 JUDGE BRENNER: Well, I'm not sure either, but
11 would it be all right, Mr. Ellis, if we let him describe
12 it and then you can follow up?

13 MR. ELLIS: Yes, sir.

14 WITNESS HIGGINS: I will try and do it that
15 way. This was an item that was identified during the
16 CAT inspection and had to do with what Region I felt was
17 a case where the design had not completely implemented a
18 Regulatory Guide that had been committed to in the FSAR
19 and, therefore, we felt that it was a failure of design
20 control in that those design functions of the Reg Guide
21 were not implemented.

22 There has on this one, as on the previous,
23 been a considerable amount of technical discussion on
24 it. LILCO's response came back and said that the way
25 they read the Reg Guide that they felt their design did

1 meet it. Region I did not agree with that in just
2 reading the words, and although we understood the points
3 that LILCO raised for that reason it was referred over
4 to NRR for technical resolution.

5 And it is my understanding that that technical
6 resolution has been reached. I guess our opinion on
7 this was it was the type of thing that a careful review
8 and careful looking at the words could have identified,
9 although we understand the engineering position that
10 LILCO has taken in this case.

11 BY MR. ELLIS: (Resuming)

12 Q Well, again, would you agree that the manual
13 initiation of ECCS, which is Number 6 on page 25, is not
14 something that a QA/QC inspector on an audit is expected
15 to pick up, that this is a technical engineering matter?

16 A (WITNESS HIGGINS) I would agree that again
17 perhaps trying to discern between the two, that on-site
18 QA audits or QC types of inspections do not identify
19 this type of thing, and maybe that is why the Board is
20 having a little bit of difficulty with these things.

21 In general, these type of findings where the
22 actual design is questioned is normally not included in
23 the on-site QA reviews, but that would be an engineering
24 type of review or an engineering QA type of finding back
25 at the design process where the original design would be

1 performed, say, at Stone and Webster.

2 JUDGE BRENNER: Is that why, following up on
3 what you just said and the distinction that you have
4 expressed, is that why an as-built inspection of a plant
5 is not sufficient to ascertain whether the design
6 criteria have been implemented at the plant -- the
7 design goals have been implemented at the plant?

8 WITNESS HIGGINS: An as-built inspection of
9 what type?

10 JUDGE BRENNER: An as-built inspection of the
11 type of walk-downs, as against the final design
12 documents, drawings and so on.

13 WITNESS HIGGINS: Do you mean as Torrey Pines
14 did?

15 JUDGE BRENNER: Well, I'm not sure at the
16 present moment I have cognizant in my mind everything
17 Torrey Pines did.

18 WITNESS HIGGINS: I would agree that a
19 finalized as-built walk-down would take in design
20 documents and review to the as-built plant would not
21 identify these types of things because what they are
22 using as a given are the detailed engineering design
23 documents, and in this case that is what Region I felt
24 were incorrect.

25 JUDGE BRENNER: So just because -- and is that

1 what you had in mind when you said you wouldn't expect
2 the QA/QC inspector in the field necessarily to find it?

3 WITNESS HIGGINS: That is correct, Judge.

4 JUDGE BRENNER: Okay. Thank you.

5 (Witnesses conferring.)

6 BY MR. ELLIS: (Resuming)

7 Q Mr. Higgins, looking at Number 6, isn't it
8 fair to say that the designers, in this instance Stone
9 and Webster, had a consistent interpretation and GE had
10 a consistent interpretation of this particular Reg Guide
11 and the function of QA was simply to ensure the design
12 reviews were in fact accomplished?

13 A (WITNESS HIGGINS) I can't answer that.

14 A (WITNESS GALLO) Mr. Ellis, I was going to add
15 that I believe this was associated with the Regulatory
16 Guide 1.62, and I guess what I would expect from a
17 design review standpoint and the involvement of quality
18 assurance, speaking a little bit generically, I guess,
19 as I would expect to find in a design input data sheet
20 things like the NRC requirements and the NRC commitments
21 that had been made in the FSAR or the PSAR.

22 One of those, in one case we had previously,
23 would have been GDC-56, in this case Reg Guide 1.62, and
24 I guess what I would expect the quality assurance people
25 to verify is that the commitments and the appropriate

1 requirements, NRC requirements, had been incorporated
2 into the design input sheets. And if they were not
3 incorporated, it would be fairly easy for quality
4 assurance auditor to verify what the input information
5 should be.

6 However, if they are included as design input
7 information, they would purely depend upon his
8 qualifications as to how far he could go in a judgment
9 call as to whether or not, as close as practicable, it
10 had been met. And for a quality assurance auditor, that
11 is probably beyond the average auditor's expertise.

12 Q So your point, Mr. Gallo, with respect to
13 Number 6 would be that the role of QA would simply be to
14 ensure that the commitments, namely Reg Guide 1.62 or
15 whatever was the appropriate commitment, was part of the
16 design input and not to become involved in whether
17 various means of fulfilling those commitments were
18 acceptable or not?

19 A (WITNESS GALLO) If it required an engineering
20 judgment, my estimate would be the auditor ought to
21 leave that to the engineers, as long as they know that
22 they have considered Reg Guide 1.62, and he can have
23 some evidence that that Regulatory Guide had been
24 considered.

25 Q So in citing Number 6 as a violation, am I

1 correct that I&E cited it as a violation really without
2 regard to whether or not Reg Guide 1.62 or whatever
3 other commitment was appropriate was taken into account
4 by GE and Stone and Webster?

5 A (WITNESS HIGGINS) Could you ask that again,
6 please?

7 Q Yes. In other words, I&E cited the item in
8 Number 6 as a violation because the I&E inspector
9 interpreted the commitment to the Reg Guide differently
10 from the way the designers interpreted it and not
11 because he determined that the designers failed to take
12 the Reg Guide into account in the design process.

13 A (WITNESS HIGGINS) Yes, I would agree with
14 that. And I guess by that I mean that it was evident to
15 us that Reg Guide 1.62 had been used in the design
16 process. We're not saying that it wasn't used. Then it
17 was only when you got down to a fine level of detail in
18 one particular area of the Reg Guide that in reaching
19 one's view -- and not just the inspector's view because
20 the report was reviewed by management -- that there was
21 a disagreement and we felt that that aspect of the Reg
22 Guide had not been complied with.

23 And I guess I might add that during the CAT
24 inspection we did review fairly thoroughly the various
25 requirements of Reg Guide 1.62 and it was only in this

1 one area that we found a discrepancy or violation.

2 Q Do you know whether this is a generic problem
3 or a generic issue, I should say, regarding manual
4 initiation of safeguards as noted in Number 6 on page
5 25?

6 A (WITNESS HIGGINS) No. We are not -- no, we
7 don't know that.

8 (Counsel for LILCO conferring.)

9 Q Mr. Higgins, did you want now to turn to
10 Number 7, which was the last of the four that you
11 mentioned?

12 A (WITNESS HIGGINS) Yes. Number 7 was a case
13 where there were two check valves as opposed to
14 automatic isolation valves and this was a case where,
15 similar to a number of other containment penetrations at
16 Shoreham, that the GDC is not precisely followed but
17 that it is acceptable in some other described or defined
18 basis.

19 For other ones that were similar to this,
20 LILCO had put in specific exceptions in the FSAR and had
21 described the justification for having that other
22 arrangements which NRR reviewed and found acceptable.
23 This was a case that apparently through some type of
24 oversight they did not request a specific exemption and
25 give the detail and apply these detailed exceptions and

1 justifications to this particular penetration.

2 And, therefore, NRR was unable to grant an
3 exception to that. It is true that there was a
4 picture. If you looked at one of the drawings in the
5 FSAR you could see that this arrangement for these
6 containment isolation valves was just two check valves,
7 and it is possible that it could possibly have been
8 picked up before and identified, but it was not.

9 And so that is why it was cited as a
10 violation, was because it didn't meet the GDC and had
11 not been specifically culled out to apply those generic
12 exceptions to that one. Subsequent to this, NRR has
13 reviewed those exceptions and found them acceptable for
14 this penetration.

15 Q The drawings you referred to were the drawings
16 of the containment isolation, specific for that section,
17 in the FSAR? Is that correct?

18 A (WITNESS HIGGINS) Yes, it was the drawing in
19 the containment section of the FSAR that depicts all of
20 the penetrations and containment isolation valves.

21 Q Am I correct that in this instance there was
22 no change to the hardware of the plant at all, that it
23 was merely a matter of putting into the FSAR a specific
24 reference to these valves for an exception that was
25 already stated in the FSAR for other valves?

1 A (WITNESS HIGGINS) Yes. That was the
2 resolution.

3 (Pause.)

4 JUDGE BRENNER: While there is a pause, Mr.
5 Higgins, do you know offhand which pages of the CAT
6 inspection have the details on that Item 6 at the top of
7 page 25 of your testimony?

8 MR. ELLIS: Which page, Judge Brenner?

9 JUDGE BRENNER: Well, that's what I'm asking.

10 WITNESS HIGGINS: That was one of the items in
11 the Appendix A, and I will get you the pages.

12 MR. ELLIS: I believe it is page 17 over to
13 18, Judge Brenner.

14 JUDGE BRENNER: Is that it, Mr. Higgins?

15 WITNESS HIGGINS: Page 14 and 15.

16 JUDGE BRENNER: You gave me the one for Number
17 7, Mr. Ellis.

18 WITNESS GALLO: Section 3.3.3 in the CAT
19 report.

20 JUDGE BRENNER: Okay. Thank you.

21 BY MR. ELLIS: (Resuming)

22 Q Let's turn now, Mr. Higgins, to pages 21 and
23 22 of Mr. Hubbard's testimony where he refers to a
24 number of items that are listed in the CAT inspection as
25 minor discrepancies, and let me give you the page on

1 that. The page on my copy of Mr. Hubbard's testimony is
2 cut off at the footnote.

3 JUDGE BRENNER: It is page 7 and 8 of the CAT
4 inspection.

5 MR. ELLIS: Thank you, Judge Brenner.

6 BY MR. ELLIS: (Resuming)

7 Q At the bottom of the page, do you see down
8 there, sir, it begins "a number of minor discrepancies
9 between flow diagrams and existing piping and hardware
10 were also identified."

11 A (WITNESS HIGGINS) We have that.

12 Q All right, sir.

13 Do you agree with Mr. Hubbard, as he states in
14 his testimony, that the items he lists there constitute
15 violations of Criteria 10 and 11?

16 A (WITNESS HIGGINS) No, we did not cite them as
17 violations in the CAT inspection.

18 Q You already stated that I&E considered these
19 matters to be minor because they presented no safety
20 concern. Am I correct that the item that lists the
21 reference locations on a flow diagram or Drawing M-10148
22 are not correct? It is just a matter of whether the
23 grid references or grid locations for a particular drain
24 are proper or improper?

25 A (WITNESS HIGGINS) Yes.

1 Q Mr. Hubbard also cites those items as a
2 violation of Criterion 15. Do you agree that they are
3 violations of Criterion 15 of Appendix B?

4 A (WITNESS HIGGINS) No.
5 (Counsel for LILCO conferring.)

6 Q When you indicated that the 43 items were not
7 breakdowns, you had in mind, did you not, these specific
8 items that we are now going through, did you not?

9 A (WITNESS HIGGINS) Could you ask that again,
10 please?

11 Q Yes. When you indicated that the 43 items in
12 Mr. Hubbard's testimony, which I indicated to you were
13 from the CAT were not QA/QC breakdowns, you had in mind
14 and you were referring, were you not, to these items
15 that we are now going through?

16 A (WITNESS HIGGINS) Yes.
17 (Counsel for LILCO conferring.)

18 Q With respect to any of the items listed on
19 page 21 of Mr. Hubbard's prefiled testimony, is it true
20 that none required any change in the design,
21 construction or hardware of the plant?

22 A (WITNESS HIGGINS) No, that is not true.

23 Q Which one is the exception?

24 A (WITNESS HIGGINS) In Mr. Hubbard's testimony,
25 I guess that would be F, G, and H. There were some

1 changes in those areas and some are still ongoing. On
2 Item F, the bird screens were added subsequent to the
3 CAT inspection. And on Items G and H it was our
4 understanding that when we asked about this we
5 understood and licensee told us that he intended to have
6 some program in place for defining which vent and drain
7 lines would be capped and also which valves would be
8 locked.

9 We asked to review that program and the
10 licensee told us that it had not been finalized yet and
11 he had no program that he could show us, and that was
12 why we wrote these items up as this because they were
13 not capped or locked, as shown in the FSAR drawings, and
14 he could not show us a program at that time that defined
15 exactly what that program was going to be.

16 So, therefore, F, G and H there, there were
17 some changes.

18 Q With respect to that program, would you agree
19 that that is a matter of timing rather than a matter of
20 changing the design or construction of the plant?

21 A (WITNESS HIGGINS) Yes, I would.

22 (Counsel for LILCO conferring.)

23 Q With respect to the bird screens, did
24 representatives of LILCO indicate that those were
25 planned?

1 A (WITNESS HIGGINS) Yes, they did, and we asked
2 to see where on the punch list or construction schedule
3 specifically they were planned, and they weren't able to
4 show us that, and that is why we included it as an item.

5 Q With respect to the RHR system that was being
6 inspected, I think you indicated earlier that it was
7 essentially construction-complete. Are you familiar
8 with the A Release, B Release, and C Release programs?

9 A (WITNESS HIGGINS) Yes.

10 Q Had the RHR system been A-released as of the
11 time of the CAT inspection?

12 A (WITNESS HIGGINS) No.

13 Q So there were still some -- had it been
14 B-released?

15 A (WITNESS HIGGINS) Yes.

16 Q When you say that it was essentially complete,
17 does that mean that there was still some construction
18 and some testing and inspection to be done?

19 A (WITNESS HIGGINS) Yes, it does. The
20 preoperational test had not started, but the preliminary
21 testing after construction complete, namely, it is
22 called C&IO or checkout and initial operation testing.
23 That had essentially been completed, but the
24 preoperational test itself had not started yet.

25 Also, there were a number of specific items

1 that were on the master punch list and also listed on
2 the repair-rework requests that were defined as work
3 that still needed to be done, and we took that into
4 account when we did the inspection.

5 (Counsel for LILCO conferring.)

6 Q Mr. Higgins, so that we are clear, with
7 respect to G and H relating to the program that was not
8 in place as yet, is it fair to say that LILCO personnel
9 knew that those programs had to be in place and not that
10 they had overlooked them or forgotten them? Is that
11 correct?

12 A (WITNESS HIGGINS) When we discussed it with
13 the personnel, they were aware of the need for a
14 program, yes.

15 (Counsel for LILCO conferring.)

16 Q With respect to the matter that is listed on
17 page 22 of Mr. Hubbard's testimony, do you agree with
18 Mr. Hubbard that that matter constitutes a violation of
19 Criteriaion 13?

20 A (WITNESS HIGGINS) No.

21 Q And is it fair to say that this, too, is a
22 matter where -- a matter of timing, as procedures were
23 being considered but not ready at that time?

24 A (WITNESS HIGGINS) No, I don't believe so.

25 Q I'm talking about the vent valves. I'm

1 sorry.

2 A (WITNESS HIGGINS) I am not sure why the vent
3 valves were unplugged in this case.

4 (Counsel for LILCO conferring.)

5 Q Mr. Higgins, the identification tags that were
6 missing, are these tags that appear at various intervals
7 along the line?

8 A (WITNESS HIGGINS) I'm not sure.

9 Q And the inspector apparently was able to
10 identify which line had tags missing and I was asking it
11 in terms of whether this was the tag that was missing
12 along a certain portion of the line but was present on
13 other portions of the line and, therefore, enabled him
14 to make that identification.

15 Do you know that?

16 A (WITNESS HIGGINS) I know that the inspector
17 was doing walk-downs of instrumentation lines, so
18 clearly he was able to identify it. I don't know about
19 the other part of the question, though.

20 (Counsel for LILCO conferring.)

21 Q There were still preoperational tests to be
22 conducted on -- the preoperational tests were still
23 remaining to be conducted on the RHR system that was
24 inspected in CAT. Is that correct?

25 A (WITNESS HIGGINS) Yes.

1 JUDGE BRENNER: Mr. Ellis, we were going to
2 take a break around this time. I don't know if it's
3 convenient for you or if you want to follow up on the
4 previous questions. It's up to you.

5 MR. ELLIS: It is convenient. I am going to
6 move to another topic within CAT.

7 JUDGE BRENNER: All right. Let's take a
8 fifteen-minute break until 3:45.

9 MR. BORDENICK: Judge Brenner, could I give
10 out, particularly to Mr. Lanpher and the Applicant and
11 the Board, the final item on the NRR resolution of the
12 CAT inspection, which is finally here?

13 JUDGE BRENNER: Sure. I never wanted to get
14 in the way of that.

15 (Laughter.)

16 JUDGE BRENNER: We will be back at 3:45.

17 (A brief recess was taken.)
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1 JUDGE BRENNER: Let's go back on the record.

2 We will continue LILCO's examination.

3 BY MR. ELLIS: (Resuming)

4 Q Mr. Higgins, there may be an impression based
5 upon the focus on FSAR detail that LILCO is not meeting
6 its commitments in the FSAR, and that there are major
7 problems with the accuracy of the FSAR, and that major
8 revisions are required to make it accurately describe
9 the as built conditions. Is that an accurate
10 impression, in your view?

11 A (WITNESS HIGGINS) No, I don't believe so. In
12 general, we felt that the degree of detail and the
13 accuracy of the detail was not there, and needed to be
14 there, but in general I guess it has been our finding
15 that the design detail, that the design commitments as
16 far as the design function of the system, and in fact
17 most of the details were correct and accurate, and were
18 being updated.

19 As to the exceptions to that, we have already
20 spoken to a great extent.

21 (Whereupon, counsel for LILCO conferred.)

22 Q Mr. Higgins, let me see if I can add some
23 perspective to the considerable amount of testimony we
24 have had on electrical separation. Is it fair to say
25 that the essence of the electrical separation discussion

1 in CAT and the testimony here is a technical issue
2 caused chiefly by LILCO's agreement to upgrade
3 separation to newer standards in 1975 rather than
4 quality assurance or QC problems?

5 A (WITNESS HIGGINS) This is a question about
6 electrical separation?

7 Q Yes, sir.

8 A (WITNESS HIGGINS) I guess to try and -- I
9 guess I really have a concern when we keep going back to
10 electrical separation, and I hope that no one takes the
11 exact words that we have said on various days and try to
12 compare them precisely.

13 JUDGE BRENNER: Somebody will.

14 (General laughter.)

15 JUDGE BRENNER: Seriously, you should keep
16 that in mind. That is what the purpose of a record is
17 for.

18 WITNESS HIGGINS: I have tried to be careful
19 not to go beyond my knowledge in speaking about it in
20 the details. I also have gone back and done some review
21 of the inspection reports in the electrical separation
22 area since this first came up in the testimony, and
23 discussed it with our inspector in that area. And while
24 I am not familiar exactly when LILCO committed to the
25 various standards and so forth, I would certainly agree

1 that there has been a lot of technical discussion,
2 disagreement, what have you, as to how to treat this
3 electrical separation issue, and I would agree also that
4 that has been the primary focus as to our problems with
5 electrical separation.

6 It is certainly true that we have had a few
7 QA/QC problems with the way electrical separation has
8 been treated, and I guess those are identified in the
9 violations that we have cited LILCO for at varying
10 intervals of about a year or two.

11 BY MR. ELLIS: (Resuming)

12 Q And those QA/QC problems relating to
13 electrical separation, are those the kinds you would
14 normally expect to find in a plant where you have very
15 substantial amounts of cable throughout the plant?

16 (Whereupon, the witnesses conferred.)

17 A (WITNESS NARROW) I would agree that they are
18 the type and probably the number of violations that you
19 would expect to find on electrical separations, and if
20 you consider the amount of cable and conduit and cable
21 tray that is installed in a plant of this type - it would
22 be highly unusual if you couldn't find a few violations
23 or possibly some from time to time, so in summary, I
24 think it is the type of thing you would usually expect
25 to find.

1 Q So is it also fair to say that when -- I don't
2 remember which one of you all did characterize it, maybe
3 it was Mr. Gallo, that there were electrical separations
4 at all or most plants, but the electrical separation
5 problems at Shoreham were worse, I believe was the
6 testimony. Would it be fair to say that the part that
7 is worse is the technical discussions that have arisen
8 over LILCO's commitment to attempt to meet new standards
9 rather than QA/QC problems?

10 (Whereupon, the witnesses conferred.)

11 A (WITNESS HIGGINS) Although, as we stated
12 before, it is very difficult to separate the items in
13 this case, I guess we would perhaps lean a bit towards
14 that characterization that you gave that it appears that
15 where they have had the real problem has been more in
16 the technical area than in the QA/QC area.

17 JUDGE BRENNER: Mr. Higgins, when you give
18 that answer, are you including QA/QC in that larger
19 engineering sense also, control of the design in a
20 timely fashion?

21 WITNESS HIGGINS: Yes.

22 (Whereupon, counsel for LILCO conferred.)

23 BY MR. ELLIS: (Resuming)

24 Q Gentlemen, turn to Page 27 of Mr. Hubbard's
25 prefiled testimony, which refers to a number of labeling

1 matters that appear, I think, on Page 14 of the CAT
2 inspection. Do you agree with Mr. Hubbard that these
3 matters constitute violations of Criterion 3 of Appendix
4 B?

5 A (WITNESS HIGGINS) No, we did not cite this as
6 a violation.

7 Q Now, I think with respect to the label on the
8 shutdown cooling isolation reset button, you indicated
9 it was confusing because it had both suction and
10 discharge for the same button, and you couldn't tell
11 clearly what it could be used for. Now, would you agree
12 that a QA/QC inspector on a normal inspection or an
13 audit would not be expected to make a judgment on
14 whether something like this is confusing or not?

15 A (WITNESS HIGGINS) I would agree that is the
16 case for the normal type of audits and inspections at
17 Shoreham.

18 Q That would be true, too, wouldn't it, of the
19 other items that are listed here as confusing on Page
20 27?

21 A (WITNESS HIGGINS) Yes, I would agree with
22 that. In general QA/QC inspects to well identified
23 requirements and specifications, this type of thing.
24 All of these items are somewhat judgmental and don't
25 come from clear regulatory requirements.

1 MR. LANPHER: Judge Brenner, I am late in
2 jumping in with an objection, but it is really -- maybe
3 while the record is fresh, I only see one thing referred
4 to as confusing was Mr. Ellis intending to include other
5 things like contradictory labels in that question?

6 MR. ELLIS: Yes, I was. I think the witness
7 understood that. I was intending -- let me be explicit,
8 A, F, I, and H as well, and I think it would also
9 include the D, E.

10 WITNESS HIGGINS: I answered it generally in
11 that context.

12 MR. ELLIS: Thank you.

13 BY MR. ELLIS: (Resuming)

14 Q So that I am clear, Mr. Higgins, you indicated
15 that when the QA/QC inspector or auditor goes through,
16 he does it to well defined specifications. That is the
17 generally accepted and appropriate means for QA/QC
18 inspectors everywhere, isn't it?

19 (Whereupon, the witnesses conferred.)

20 Q And I am talking about the licensee level.

21 (Whereupon, the witnesses conferred.)

22 A (WITNESS HIGGINS) That is a pretty broad
23 question. I am not sure we can really answer that.

24 (Whereupon, counsel for LILCO conferred.)

25 Q Well, you indicated in your response that

1 these were not items that were regulatory requirements.
2 Would it be fair to say that these are -- that these
3 items fall into the category of inspector judgment and
4 good human factors practices?

5 A (WITNESS HIGGINS) Primarily, yes.

6 Q And there was a complete human factors review
7 of the control room prior to this time, was there not,
8 by the NRC?

9 A (WITNESS HIGGINS) Yes.

10 JUDGE BRENNER: What do you mean by complete,
11 Mr. Higgins?

12 WITNESS HIGGINS: Looked at the whole control
13 room. Each panel of the control room was looked at as
14 to whether or not every single label switch, et cetera,
15 from the standpoint of -- I guess some of these things,
16 in order to pick out the particular findings here, you
17 would have to have systems knowledge in addition to
18 human factors knowledge to pick them out, and therefore
19 the NRC human factors people that did the review
20 probably would not have picked some of these up,
21 because, not coming at it from a systems standpoint,
22 which is how the CAT inspection looked at it.

23 JUDGE BRENNER: It may be useful for the
24 future human factors review of other plants to consider
25 how they might improve their review.

1 Mr. Ellis.

2 BY MR. ELLIS: (Resuming)

3 Q Well, would it be fair to say --

4 (Whereupon, the witnesses conferred.)

5 A (WITNESS GALLO) I was going to add, Judge
6 Brenner, that usually when the human factors reviews are
7 done, the resident inspector is invited to accompany
8 them, and he is only one member out of maybe six or
9 seven people. I was involved in one of them
10 particularly, and there is a detailed picture of each
11 part of each panel with the labeling on it provided to
12 all of the team members, but the one resident inspector
13 probably has his pet problems that he can bring up
14 during the human factors review that he already knows
15 about, and these apparently came up several months
16 later.

17 A (WITNESS HIGGINS) I guess I would add that I
18 did have the opportunity to participate in the control
19 room human factors review when it took place at
20 Shoreham, but I would agree with Mr. Gallo's comments
21 that I certainly, while I was doing my other inspection
22 activities, at the time, I did not have the opportunity
23 to go through every single system during the review.

24 Q Well, would it be fair to say, as I think you
25 have indicated, that picking up these items that are

1 listed on Page 27 does require a fairly sophisticated
2 knowledge of systems as well as human factors?

3 A (WITNESS HIGGINS) Yes.

4 Q I think you indicated that you had talked to
5 some of the control room personnel on how they
6 understood some of these things that are listed on Page
7 27, and you indicated that you have been through some
8 simulator training. Have you been through the actual
9 training that is given to the Shoreham specific
10 operators for operating on the Shoreham control room?

11 A (WITNESS HIGGINS) Their training was done on
12 both the Dresden simulator and the Limerick simulator.
13 I have been to neither one.

14 Q We have had a lot of testimony concerning the
15 cross-reference between -- no, I am sorry, the GE and
16 LILCO identifying numbers for the recorders. Are the
17 operators at Shoreham in their training familiarized
18 with both systems so that they are aware of and familiar
19 with both systems, if you know?

20 A (WITNESS HIGGINS) To my knowledge, they are
21 made familiar with both the GE and the LILCO and Stone
22 and Webster system, yes.

23 Q Well, based on the fact that there has been a
24 human factors review of the control room by the WRC
25 prior to this time, would you agree with me that the

1 items listed A through I on Page 27 are in the nature of
2 fine tuning or improvements to the control room?

3 A (WITNESS HIGGINS) Some are, not all of them.
4 I guess the ones that were clearly incorrect I wouldn't
5 put in the category of fine tuning, but some of the
6 other ones, yes.

7 Q And the ones that were incorrect were B and
8 C. Is that correct?

9 A (WITNESS HIGGINS) Yes.

10 Q With respect to B and C -- well, strike that.
11 (Whereupon, counsel for LILCO conferred.)

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1 Q With respect to our local instruments not
2 being clearly labeled as to function, do you agree with
3 me as well there that that is not an item which an ANSI
4 qualified QA/QC inspector inspecting to a specification
5 or a drawing would be expected to make a judgment about?

6 A (WITNESS HIGGINS) In that there is no clear
7 regulatory or specification requirement for it, yes.

8 JUDGE BRENNER: Mr. Ellis, did you ever ask
9 that question, your last one, as to B and C also?

10 MR. ELLIS: No, but I will, since you have
11 invited me to do so.

12 BY MR. ELLIS: (Resuming)

13 Q Mr. Higgins, would your answer be the same
14 with respect to QA/QC inspector for items B and C
15 inspecting to a specification or drawing?

16 A (WITNESS HIGGINS) I am not aware of any QA/QC
17 inspection that LILCO has for that type of thing, I
18 guess. Where I would really expect it to be picked up
19 would be by the operators and fed back into the system
20 by the control room operators, and apparently that had
21 not happened yet at this time, and I would have expected
22 it to, although, as on B, I testified that discussions
23 with operators on duty in the control room at the time
24 of the CAT indicated that they were aware that it was
25 wrong.

1 Q And as I recall your testimony, you couldn't
2 recall with respect to C whether you had had that
3 conversation with the operators or not.

4 A (WITNESS HIGGINS) That is correct, and even
5 -- I did go back through what information I could get
6 together over the weekend, as Judge Carpenter suggested,
7 and was not able to come up with anything additional on
8 that.

9 Q Would you agree with me that the nature of the
10 findings on Page 27, and I guess I would direct this to
11 you, Mr. Gallo, that the nature of the findings on Page
12 27 confirm or underscore the detailed nature of the CAT
13 inspection?

14 A (WITNESS GALLO) Yes, that was the detailed
15 inspection. I believe that was one of the purposes of
16 it, to give a fine tooth comb inspection to the RHR
17 system.

18 MR. ELLIS: Judge Brenner, I think that is all
19 the questions I am going to have on Page 27.

20 JUDGE BRENNER: That is Page 27 of Mr.
21 Hubbard's testimony, which should not be confused with
22 the page in the CAT inspection or a page in their
23 testimony.

24 MR. ELLIS: That is right, and that page, of
25 course, refers to the items that are listed in the CAT

1 inspection.

2 JUDGE BRENNER: We have the cross-reference.

3 MR. ELLIS: At Page 14.

4 (Whereupon, counsel for LILCO conferred.)

5 BY MR. ELLIS: (Resuming)

6 Q Mr. Higgins, as I understand your testimony --
7 Turn, by the way, to Page 33 of Mr. Hubbard's prefiled
8 testimony relating to carbon steel bolts and nuts. As I
9 understand your testimony on this particular topic,
10 there was a program, an inspection at the time of final
11 torquing that was in place, and there was an engineering
12 evaluation done prior to CAT, but it was not well enough
13 documented or thorough enough in the inspector's view.
14 Were you the inspector on this particular one, by the
15 way?

16 A (WITNESS HIGGINS) No. I was involved in some
17 of the discussions, though, as I was on most of these
18 items on the CAT.

19 Q Would it be fair to say, then, that whether or
20 not -- I think you also testified that you were really
21 concerned at base as to whether it was galvanic
22 corrosion or normal corrosion. Was that correct?

23 A (WITNESS HIGGINS) The initial discussions and
24 concerns that we had during the CAT inspection I believe
25 I did discuss to some extent, and are documented fairly

1 well in the CAT inspection itself. The discussions that
2 I had subsequent to the CAT inspection, I did have
3 additional follow-up on this item. We received
4 additional information from LILCO and went back to our
5 corrosion specialist in Region 1 who was not on the CAT
6 inspection, but I did discuss the additional information
7 that I received from LILCO on this item with our
8 specialist, and put together that additional
9 information, what was in the CAT and some additional
10 tours that I made. I went back with that information to
11 our corrosion, metallurgical specialist in the region,
12 and as a result of all of that, we were pretty much able
13 to distill our concerns down to what you just described,
14 as we had to determine, we felt, whether it was galvanic
15 or general corrosion, and being able to do that, we
16 could then decide what it was appropriate to do from an
17 engineering and QA/QC standpoint, and that is why we
18 requested that LILCO take the additional step of doing
19 the metallurgical analysis on some bolts, so that we
20 could decide once and for all what the problem was, and
21 then what course of action should be followed.

22 Q But it is fair to say, isn't it, that prior to
23 the CAT inspection, LILCO was aware of corrosion and had
24 concluded on the basis of its engineering evaluation
25 that that corrosion was acceptable, given the inspection

1 at the time of final torquing? That was the LILCO
2 position, wasn't it?

3 A (WITNESS HIGGINS) Yes.

4 Q And so it isn't a matter of LILCO not being
5 aware of it. It was a matter of LILCO not at the time
6 being persuaded that it needed to do an additional
7 metallurgical analysis to confirm that it was normal
8 corrosion. Is that correct?

9 A (WITNESS HIGGINS) It was a case of we felt
10 that they had not done a complete enough analysis of it,
11 and a well documented enough analysis. As it turned
12 out, after they did the additional things that we asked
13 them to do, the conclusion was the same.

14 Q Well, in making the judgment that the analysis
15 was not sufficiently thorough or documented, I take it
16 that was an engineering judgment that was made by I&E,
17 that it wasn't sufficiently documented or thorough?

18 (Whereupon, the witnesses conferred.)

19 A (WITNESS HIGGINS) Yes. That is basically
20 correct.

21 Q So would it be fair to say that a QA/QC
22 inspector could confirm that an engineering analysis was
23 done, and not be expected to make a further engineering
24 judgment as to whether a metallurgical analysis should
25 be done to confirm the results?

1 A (WITNESS HIGGINS) I didn't understand that
2 question.

3 Q I didn't phrase it very clearly. What I am
4 getting at is, would it be fair to conclude that a QA/QC
5 inspector could reasonably conclude that quality
6 assurance has been satisfied by confirming that an
7 engineering analysis had been done, and that you
8 wouldn't expect a quality assurance inspector to make an
9 engineering judgment concerning whether a further
10 metallurgical analysis should be done to confirm the
11 engineering analysis.

12 (Whereupon, the witnesses conferred.)

13 A (WITNESS HIGGINS) I am struggling with that
14 one still. I guess to some extent that is reasonable,
15 yes.

16 JUDGE BRENNER: Now, Mr. Higgins, just to
17 complicate your life further, as part of his question,
18 it was assumed that an engineering analysis had been
19 done which the LILCO QA/QC inspector would have
20 available. Was there such an analysis?

21 WITNESS HIGGINS: Yes, there was, and when we
22 asked about this, that was -- we were told that there
23 had been one, and we were shown it, and the QA/QC people
24 were aware of it at the time. That engineering
25 evaluation was on an E&DCR.

1 MR. ELLIS: May I proceed, Judge Brenner?

2 JUDGE BRENNER: Yes.

3 BY MR. ELLIS: (Resuming)

4 Q Mr. Higgins, Mr. Hubbard classified that as a
5 violation of Criterion 16. Do you agree with that
6 conclusion?

7 A (WITNESS HIGGINS) No, we did not cite that as
8 a violation.

9 Q Mr. Higgins, on Page 34 of Mr. Hubbard's
10 prefiled testimony, he cites two items which are in fact
11 identical to items cited on Page 21 of his testimony. C
12 and D on Page 21 are the same as A and B on Page 34. Is
13 that correct? And the page references I am giving for
14 the record are to Mr. Hubbard's prefiled.

15 (Whereupon, the witnesses conferred.)

16 A (WITNESS HIGGINS) Yes, those appear twice in
17 Mr. Hubbard's testimony, and also twice in the CAT
18 inspection.

19 Q On Pages 34 and 35, Mr. Hubbard cites those as
20 violations of Criteria 3 and 10. Do you agree with that
21 conclusion?

22 A (WITNESS HIGGINS) No, we did not cite those
23 as violations in the CAT inspection.

24 Q Turn to Page 36 of Mr. Hubbard's prefiled
25 testimony. He cites there a reference to a program to

1 compile as built information, and he notes, quoting from
2 the CAT inspection on Page 30, the CAT inspection
3 indicates that the program was still incomplete, and the
4 area remains unresolved pending further definition of
5 this program. He cites that as a violation of Criteria
6 2, 3, 5, and 6. Do you agree with that conclusion?

7 A (WITNESS HIGGINS) No, we did not cite that as
8 a violation in the CAT.

9 Q There is an as built program under way at
10 Shoreham, is there not?

11 A (WITNESS HIGGINS) Yes, there was more than
12 one as built program under way at the time of the CAT,
13 and this item, I believe, although I wasn't directly
14 involved on it, related to the tying together of a
15 couple of these as built programs.

16 Q Were these programs, the as built programs,
17 undertaken voluntarily by LILCO?

18 A (WITNESS HIGGINS) Which as built program?

19 Q I was afraid you would ask me that.

20 (General laughter.)

21 Q Can you list the as built programs?

22 JUDGE BRENNER: You know, when he asked me the
23 same question, I gave him an answer, Mr. Ellis. But
24 that was a different context. You want him to list the
25 ones that are the subject of that portion of the CAT

1 inspection, or all the ones going on?

2 MR. ELLIS: Just the ones that were the
3 subject of the CAT inspection. I think those are the
4 ones that he had in mind in his testimony.

5 WITNESS HIGGINS: I am aware that there are a
6 number of as built programs on site. The ones discussed
7 in this paragraph relate to, I guess, one program that I
8 might call the stress reconciliation program, and then
9 the other one is perhaps the N Stamp program.

10 JUDGE MORRIS: Excuse me, Mr. Ellis. Mr.
11 Higgins, if we were focusing on the testimony of Mr.
12 Hubbard, on Page 37, I believe he quotes from a CAT
13 inspection and describes three parts of an as built
14 program for electrical systems. Mr. Ellis, is that what
15 you were inquiring about?

16 MR. ELLIS: Yes, sir.

17 JUDGE BRENNER: Don't you remember the names
18 of those, Mr. Ellis?

19 MR. ELLIS: I do. I am in fear of
20 mispronouncing them.

21 JUDGE BRENNER: No, that is okay. All kidding
22 aside, now, Mr. Higgins, are those the only three that
23 were of concern in that quote from the CAT inspection
24 about compiling the as built information? And that
25 quote starts on Page 36 of Mr. Hubbard's testimony, and

1 I believe, at least according to Mr. Hubbard, it comes
2 from Page 30 of the CAT inspection.

3 WITNESS HIGGINS: Really, Page 30 of the CAT
4 inspection at the top, it talks about the piping as
5 built programs, and it goes into the stress
6 reconciliation, and then the N Stamp program, and ends
7 with the unresolved Item 82-04-12, and then the last
8 paragraph starts in and does talk a little bit about the
9 as built program for electrical systems, and says that
10 it comprises three parts, but doesn't give the acronyms
11 for them.

12 BY MR. ELLIS: (Resuming)

13 Q Were those programs undertaken voluntarily by
14 LILCO?

15 A (WITNESS GALLO) Mr. Ellis, on Page 30 we are
16 still talking about the items on there, the ones at the
17 bottom of the paragraph, the last paragraph on Page 30.
18 We are talking about raceways and cables. Those to my
19 understanding, those were LILCO's own programs, were not
20 required or requested by the NRC. The ones above that
21 where we are talking about ASME code stamp, that is a
22 code requirement, and talking about stress
23 reconciliation on pipe supports, I believe, and that --
24 and the N piping systems, and that really, I guess,
25 comes out of the two NRC bulletins that came out back in

1 1979, so while that may not be labeled NRC requirement,
2 it would be an NRC position that that would have to be
3 done, that reconciliation. And I am speaking of the
4 piping sections now.

5 Q Well, on Page 44 of your prefiled testimony,
6 gentlemen, you, referring to the March 15 meeting, you
7 said as a result of that meeting LILCO, to further
8 emphasize LILCO's commitment to quality, decided to
9 proceed with an independent review of controls supplied
10 to the design, construction, verification of plant
11 systems. You indicated to further emphasize LILCO's
12 commitment to quality to the programs stated or referred
13 to at the bottom of Page 30 of the CAT report, that is,
14 the CABTRAP and CABRAP and CONQUIP and CONSAP. Are
15 they, in your view, also indicative of LILCO's
16 commitment to quality that you referred to on Page 44 of
17 your testimony?

18 A (WITNESS GALLO) Yes, sir.

19 Q Would the same be true of the E&DCR
20 implementation verification program?

21 (Whereupon, the witnesses conferred.)

22 A (WITNESS HIGGINS) Could you ask me that
23 again, please?

24

25

1 Q Would the same also be true, that is, would
2 your conclusion that those programs are indicative of
3 LILCO's commitment to quality also be true with respect
4 to the program that is entitled "E&DCR Implementation
5 Verification Program," which was referred to on page 178
6 of LILCO's prefiled testimony?

7 [Panel of witnesses conferring.]

8 A (WITNESS HIGGINS) I am basically familiar
9 with the E&DCR implementation verification program, and
10 it is my understanding that it is not a requirement and,
11 in fact, in a manner of speaking you might say in our
12 inspection program we don't really give them credit for
13 that. That is, we inspect the E&DCRs and the design to
14 be implemented and verified through other programs which
15 we do inspect, and so yes, the E&DCR implementation
16 verification program is an extra program that LILCO is
17 doing on their own.

18 Q Are the final A release programs and the
19 Reinhart [phonetic] quality audit, which I believe was a
20 review of the pressure vessel, also programs that were
21 voluntarily undertaken by LILCO and reflect, in your
22 view, a commitment to quality?

23 A (WITNESS HIGGINS) Yes, I would agree that
24 those are additional programs that LILCO has undertaken
25 without any regulatory requirement for them, and they

1 are additional checks, balances, quality verifications,
2 what have you.

3 Q On page 42 of Mr. Hubbard's prefiled testimony
4 at the bottom, Mr. Hubbard states that the breakdowns at
5 Shoreham cast substantial doubt -- and I'm paraphrasing
6 -- on the safe design and construction of Shoreham and
7 there can be no basis for licensing absent a full
8 physical inspection and design review that he outlines
9 in his testimony.

10 Do you agree with that conclusion?

11 A (WITNESS HIGGINS) No.

12 Q On page 43, I take it -- well, on page 43 of
13 Mr. Hubbard's testimony --

14 [Counsel for LILCO conferring.]

15 I believe you gentlemen testified that some of
16 the LILCO field audits were reviewed on a programmatic
17 basis and others were reviewed on occasion. Let me hand
18 you if I may, please, excerpts from I&E report 79-04,
19 and Judge Brenner, I think that we chose not to Xerox
20 the whole thing. We chose only to include in this
21 exhibit, which we would like to have marked for
22 identification, the cover letter, pages one and two, and
23 then nine, ten and eleven for our purposes.

24 I will need Judge Morris' help again.

25 JUDGE BRENNER: Judge Morris informs me that

1 is LILCO Exhibit 52 for identification.

2 (The document referred to
3 was marked LILCO Exhibit
4 No. 52 for
5 identification.)

6 JUDGE BRENNER: Did you give the date of the
7 report?

8 MR. ELLIS: No, sir, I haven't. The date of
9 the report is July 12, 1979. The number is 79-04 and it
10 refers to an inspection conducted on March 27 through
11 30, April 2 through 4 at Shoreham.

12 BY MR. ELLIS: (Resuming)

13 Q Gentlemen, LILCO Exhibit 52 consists of
14 excerpts, pages 1 and 2 of the cover letter, and then 1,
15 2, 9, 10 and 11 of the I&E report 79-04. Would you
16 look, please, at pages 9, 10 and 11 and confirm for me
17 that this is an instance where the inspector in the
18 course of an inspection did use LILCO's surveillance
19 reports and field audits in connection with his
20 inspection.

21 A (WITNESS NARROW) That is correct.

22 Q And is this an example, then, Mr. Narrow, of
23 an instance where inspectors do use the applicant's or
24 licensee's audit material?

25 A (WITNESS NARROW) Yes, this is, and apparently

1 this was specifically an audit of a number, a
2 substantial number of both surveillance reports and
3 audit reports. And I might say that you have been going
4 through our inspection reports for this type of
5 information. It has been more commonly reported as
6 perhaps the inspector reviewed audit reports for a
7 certain period of time rather than listing each audit or
8 surveillance report individually. Either of those
9 methods of reporting such inspection might have been
10 used.

11 Q But would you agree with me that it is not
12 uncommon to do this sort of inspection, thought it may
13 not always be documented; is that right?

14 A (WITNESS NARROW) That is correct.

15 Q Now, this inspection appears to have been done
16 in order to satisfy the inspector that the corrective
17 action was adequate; is that right? And I call your
18 attention to page 11.

19 A (WITNESS NARROW) Apparently this was done for
20 that purpose as well as to determine that the corrective
21 action would prevent a repetition of such type of
22 deficiency.

23 Q And on page 11 the inspector did conclude
24 that, didn't he?

25 A (WITNESS NARROW) That is correct.

1 Q Judge Brenner, I think, asked you a question,
2 whether it would make sense in some instances to use
3 audit or surveillance material in order to help direct
4 inspection activities. Is this an instance where
5 something like that has occurred?

6 [Panel of witnesses conferring.]

7 JUDGE BRENNER: I guess it might be helpful if
8 I could interrupt -- and I apologize, Mr. Ellis -- if we
9 ask a preliminary question as to whether any of you know
10 anything about this inspection besides pages 9 through
11 11 that we are reading along with you of the inspection
12 report.

13 WITNESS NARROW: Other than having reviewed
14 along with the inspections prior to preparing our
15 prefiled testimony, I would not have known anything
16 about it.

17 JUDGE BRENNER: All right. That won't preclude
18 you from answering Mr. Ellis' question if you can, but
19 as you answer it, tell us how you know, from reading
20 this or otherwise.

21 MR. LANPHER: Judge Brenner, could I get the
22 question repeated then?

23 JUDGE BRENNER: The gist of it is Mr. Ellis
24 asked him if this was an instance in which the inspector
25 used the LILCO or LILCO agent surveillance and audit

1 reports to direct the direction or focus of the
2 inspection, and I added some of my own words there,
3 presumably as distinguished from the other way around,
4 of the inspector going to the reports after finding
5 something that the inspector was interested in from
6 other sources.

7 WITNESS NARROW: Was that a question, Judge
8 Brenner?

9 JUDGE BRENNER: Yes, it was Mr. Ellis'
10 question, so don't blame me.

11 MR. ELLIS: You may not be able to tell from
12 what you know, and if you can't, that's fine.

13 WITNESS NARROW: I cannot tell from this and I
14 do not know whether he used this as a basis for
15 performing his own inspection. He apparently did use it
16 in determining whether the corrective actions had been
17 -- well, not whether they had been performed, but
18 whether they were such as would have prevented
19 recurrence. But I have no information on whether it was
20 used as a basis to inspect other or to inspect
21 electrical installation.

22 BY MR. ELLIS: (Resuming)

23 Q Is it fair to say then, Mr. Narrow and other
24 members of the panel, that your knowledge of this
25 inspection is limited to what you see on the pages

1 themselves?

2 A (WITNESS NARROW) That is correct.

3 Q On page 43 of Mr. Hubbard's prefiled
4 testimony, Mr. Hubbard refers to the LILCO audit
5 program. Are you gentlemen familiar with the LILCO
6 audit program on the basis of your reviews of audit and
7 the program?

8 A (WITNESS HIGGINS) To the extent that we
9 previously testified, yes.

10 Q Well, on the basis of your familiarity with
11 it, do you agree with Mr. Hubbard that the LILCO audit
12 program required by Criterion 18 was not effectively
13 implemented? That is at the middle of page 43.

14 [Panel of witnesses conferring.]

15 A (WITNESS NARROW) No, I would not agree with
16 that, and in fact, I would like to say that the field
17 audit program, including the surveillance by LILCO, is
18 one of the better audit programs, that is, better field
19 QA programs, that I have encountered during inspection
20 of a number of plants.

21 Q On page 44 of Mr. Hubbard's testimony, if I
22 can direct your attention there, he reaches a number of
23 conclusions that are set out by double dashes. Do you
24 see those, gentlemen? Based upon your familiarity and
25 your inspections of Shoreham --

1 A (WITNESS HIGGINS) Would you give us a minute?

2 [Panel of witnesses conferring.]

3 We have read it now.

4 Q Based upon your familiarity with Shoreham and
5 your inspections at Shoreham, and based upon your
6 familiarity with the implementation of the QA program at
7 Shoreham, do you agree with Mr. Hubbard's conclusions
8 that are listed on page 44?

9 A (WITNESS GALLO) No, sir.

10 [Counsel for LILCO conferring.]

11 JUDGE BRENNER: Just to make sure I am on the
12 same wavelength as the questioner and the responders,
13 when you answered that question, gentlemen, were you
14 referring to the four -- and I guess I can call them
15 bullets even though I guess they are ellipses --

16 WITNESS GALLO: Yes, sir, we were reading
17 those on page 43 -- I'm sorry, page 44 of Mr. Hubbard's
18 testimony.

19 JUDGE BRENNER: Did you include Footnote 42 on
20 page 44 in your answer? And if not, what say you about
21 that one?

22 WITNESS HIGGINS: Are you asking whether we
23 agree with Footnote 42 or just the way that is put into
24 context with the entire page?

25 JUDGE BRENNER: I guess I'm asking if you

1 agree with all of or none of Footnote 42.

2 WITNESS HIGGINS: Well, we do agree with some
3 parts of Footnote 42 in that we did in fact just inspect
4 on site. We did by our onsite review, however, get
5 involved indirectly with offsite work in Boston because
6 we did receive a number of documents from Boston during
7 the CAT inspection and did inspect areas that were where
8 design work was done offsite. But that was done all
9 from onsite and documents that were brought to the
10 site. Other than that, I guess we still stand by our
11 statement.

12 JUDGE BRENNER: All right. What about, just
13 to be explicit, the last sentence of Footnote 42, and
14 perhaps I should read it for the record. It says, "To
15 determine whether Shoreham has been safely designed and
16 constructed, in view of LILCO's QA breakdowns, a far
17 more comprehensive audit program must be conducted," and
18 then that follows in the context of the first sentence
19 of the footnote.

20 WITNESS HIGGINS: No, we don't agree with that.

21 JUDGE BRENNER: I guess the answer to "Why
22 not?" is your entire testimony. Is that fair?

23 WITNESS HIGGINS: I guess it would be. I
24 can't think of a very simple and quick answer.

25 MR. ELLIS: Judge Brenner, I can go on to

1 another topic now.

2 JUDGE BRENNER: Well, there are only about 12
3 minutes left. Would it be inconvenient for you to do
4 it? I will leave it up to you.

5 MR. ELLIS: I think I might cut some things.

6 JUDGE BRENNER: If we stop now?

7 MR. ELLIS: Yes, sir.

8 JUDGE BRENNER: Okay. Your estimate?

9 MR. ELLIS: I tell you there is one thing I
10 could do now that might save time.

11 JUDGE BRENNER: Whatever you want.

12 MR. ELLIS: Why don't we do that. It is a
13 simple matter and I just want to put it on the record,
14 and that might take a few minutes.

15 BY MR. ELLIS: (Resuming)

16 Q Gentlemen, do you have with you Mr. Hubbard's
17 attachments to his testimony? And if not, could I
18 prevail on Mr. Bordenick to supply you with one. I want
19 to refer specifically to the attachment that summarized
20 the I&E violations, which is Attachment 5, I believe.
21 This is an item that was not on the cross plan, Judge
22 Brenner.

23 JUDGE BRENNER: Do the witnesses have it?

24 WITNESS HIGGINS: Not yet.

25 WITNESS GALLO: We have Table 5 attached to

1 the supplemental testimony.

2 JUDGE BRENNER: That is it.

3 WITNESS GALLO: It is identified as page 47 of
4 supplemental testimony?

5 MR. ELLIS: No, Attachment 5 to the testimony
6 itself.

7 JUDGE BRENNER: I can lend them my copy.

8 MR. ELLIS: Here is a copy.

9 [Counsel handing document to witnesses.]

10 BY MR. ELLIS: (Resuming)

11 Q In my purpose, gentlemen, in showing you
12 Attachment 5, I would like to draw your attention to
13 four items that are listed as open and ask if you would
14 confirm for me that they are in fact closed. The first
15 one is 79-02.

16 JUDGE BRENNER: Do you want them to look at
17 page 5-50?

18 MR. ELLIS: I'm sorry, Judge Brenner.

19 JUDGE BRENNER: Do they need to look at page
20 5-50 to focus on the item?

21 MR. ELLIS: Yes, sir.

22 [Panel of witnesses conferring.]

23 BY MR. ELLIS: (Resuming)

24 Q 79-02, that is listed as being open, is it not?

25 A (WITNESS HIGGINS) Yes.

1 Q Would you confirm for me that in fact that was
2 closed in 79-18?

3 JUDGE BRENNER: It seems like they are having
4 to thumb through the reports. I have an alternate
5 suggestion to take advantage of your suggestion of using
6 the time now, Mr. Ellis, but only partway. Would it be
7 all right if you gave them the four items and then we
8 will pick it up in the morning?

9 MR. ELLIS: Yes, I think that would be far
10 better. The four items are 79-02, which we believe was
11 closed by 79-18; 79-07, which we think is closed in
12 82-24, which was after the filing of Mr. Hubbard's
13 testimony; 81-01, which was closed in 82-16, which,
14 though before Mr. Hubbard's filing, is almost
15 contemporaneous, so he couldn't have known about it; and
16 81-13 was resolved in 82-23, which is also after Mr.
17 Hubbard's testimony.

18 WITNESS HIGGINS: We will check those.

19 MR. ELLIS: Thank you.

20 WITNESS HIGGINS: We have the information that
21 79-02 was closed in 79-18, and we can check the other
22 ones.

23 JUDGE BRENNER: All right. Your goal, Mr.
24 Ellis, I guess, your own goal is to finish tomorrow?

25 MR. ELLIS: To be home for Christmas.

1 [Laughter.]

2 JUDGE BRENNER: Well, you will accomplish that
3 regardless. You don't have to meet the time requirement
4 here to do that. We won't penalize you. You think you
5 might finish tomorrow?

6 MR. ELLIS: Oh, yes. I don't have any doubt I
7 will finish tomorrow.

8 JUDGE BRENNER: All right. Now I am going to
9 get pushy. Do you think you might finish with
10 meaningful time for Mr. Bordenick to use tomorrow?

11 MR. ELLIS: Yes, sir. And if that changes, I
12 will let you know first thing in the morning.

13 JUDGE BRENNER: All right. I won't push you
14 for any further detail until first thing in the morning,
15 but we may go right to you, Mr. Bordenick, at an
16 appropriate time tomorrow, and if you finish, back to
17 Mr. Lanpher. And I am not forgetting the Board. But in
18 light of that, we have got a long list of settlement
19 items that we want to get the status on, but we are
20 willing to take it up first thing tomorrow, but if the
21 parties prefer, we can take it up either at the end of
22 the day tomorrow or first thing Wednesday morning. So
23 we will leave it up to the parties. If that gives you a
24 little extra time to get things organized, that is
25 acceptable to us, and the idea is to get a very good

1 crystal ball reading on whether there is any jeopardy of
2 litigating those matters for which settlements were in
3 the offing, shall we say.

4 MR. EARLEY: Judge, we will discuss that with
5 the County. I believe Mr. Irwin, whom I have been in
6 touch with during the day, was planning on being here
7 first thing in the morning, and I will talk to Mr.
8 Lanpher.

9 JUDGE BRENNER: All right. We will do it
10 whenever the parties want to, but I am concerned. I
11 thought that we would have more paper before us on the
12 settlements, and we have only got one.

13 All right, we will be here at 9 o'clock
14 tomorrow morning.

15 [Whereupon, at 4:55 p.m., the hearing was
16 recessed, to reconvene at 9:00 a.m. the following day.]

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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 20, 1982

Docket Number: 50-322 JL

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)