

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 10, 1982
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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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In the Matter of:

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LONG ISLAND LIGHTING COMPANY : Docket No. 50-322-OL

(Shoreham Nuclear Power Station) :

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Bethesda, Maryland

Friday, December 10, 1982

The hearing in the above-entitled matter

convened, pursuant to recess, at 8:33 a.m.

BEFORE:

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LAWRENCE BRENNER, Chairman
Administrative Judge

JAMES CARPENTER, Member
Administrative Judge

PETER A. MORRIS, Member
Administrative Judge

1 APPEARANCES:

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1	<u>C O N T E N T S</u>					
2	<u>WITNESS</u>	<u>DIRECT</u>	<u>CROSS</u>	<u>REDIRECT</u>	<u>RE CROSS</u>	<u>BOARD</u>
3	Richard B. Hubbard (Resumed)					
4	By Mr. Ellis				16,024	
5	By Mr. Bordenick				16,031	
6	By Judge Morris					16,033
7	By Judge Carpenter					16,098
8	By Judge Brenner					16,113
9		<u>(Afternoon Session..16,137)</u>				
10	Richard B. Hubbard (Resumed)					
11	By Mr. Lanpher			16,137		
12	By Mr. Ellis				16,145	
13	By Mr. Bordenick				16,155	
14						
15						
16	RECESSES:					
17		Morning - 16,074				
18		Noon - 16,136				
19		Afternoon - 16,161				
20						
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P R O C E E D I N G S

(8:33 a.m.)

JUDGE BRENNER: Good morning.

We have received reports from the parties on scheduling which we appreciate, and we will be prepared to discuss it as we planned starting at 12:30 today or earlier if we finish Mr. Hubbard's testimony earlier.

We have some adjustments that we want to discuss with the parties. Maybe I should mention two of them now so whoever is in charge of thinking on these things can think about them for the next few hours. They are not going to be major suggestions, and that is why I mention them now.

Number one, we want to set date certain for containment isolation also based on the staff's schedule of mid-January. We're not going to dispute that schedule, but we want to take that and make that a set target, and then keep testimony filing after. So think about the dates so we can get to scheduling the potential litigation of that at the beginning of February. You can tell us if that is possible and what dates would be appropriate and reasonable.

In addition, based upon when the staff says it will complete its review on electrical penetrations, there seems to be no reason not to schedule

1 approximately the same filing dates for testimony on
2 that issue as have been agreed to by the parties for
3 environmental qualification and seismic qualification.

4 Now, we wouldn't litigate them together. We
5 would keep the order of litigation that the parties have
6 agreed upon; but it is possible that one or the other of
7 these issues could be settled, substantially narrowed or
8 not take a full week to litigate. All of those are
9 possible. And therefore, we would want to be in a
10 position of litigating electrical penetrations prior to
11 the week of February 1st; that is, we would want to be
12 able to litigate electrical penetrations the week of
13 January 25th after environmental qualifications and
14 seismic qualifications that same week, or instead of if
15 something happens. And as we see the staff's review
16 schedule, there is no reason not to do it that way.

17 So those are the two main things we would like
18 to discuss, and we will all talk about them the week of
19 January 4th and at the end of the day also.

20 And without further ado, unless there is
21 something that needs to be mentioned at the beginning,
22 we can complete LILCO's followup questions, and then we
23 will go to the Board questions and then to the County
24 for its redirect on CAT inspection.

25 Mr. Ellis.

1 Whereupon,

2

RICHARD B. HUBBARD

3 resumed the stand and was further examined and testified
4 as follows:

5

REXCROSS EXAMINATION -- Continued

6

BY MR. ELLIS:

7

Q Good morning, Mr. Hubbard.

8

Yesterday Judge Carpenter had asked a number
9 of questions concernin staffing and in particular
10 whether it would make sense to reassess manpower
11 proceedings after the first year. When you were at GE
12 didn't you assess your manpower needs at GE on an annual
13 basis or more often?

14

A (WITNESS HUBBARD) At GE we made in the spring
15 of the year a ten-year forecast of manpower which was
16 called the long-range forecast, and in the fall of the
17 year we made a budget for the following year -- well,
18 let me go back. In the ten-year forecast we made a
19 preliminary budget for the ten-year period. Then in the
20 fall we made what we called the short-range forecast
21 which was a budget for the next approximately three-year
22 period.

23

So, yes, we looked at manpower twice a year,
24 and at one time in about ten years and at the next time
25 at about three years.

1 Q So you made adjustments as appropriate each
2 year then?

3 A (WITNESS HUBBARD) As part of the budgeting
4 process.

5 Q Can you answer my question first and then
6 explain?

7 A (WITNESS HUBBARD) You used the word "you made
8 adjustments each year." It's not clear what you mean by
9 the word "adjustments." We reviewed them twice a year,
10 and if changes were made in the forecast, then there had
11 to be -- the basis for making the changes had to be
12 discussed, whether it was increased volume, decreased
13 volume, changes in productivity, things of that sort.
14 So you were always compared with your previous forecast,
15 and any differences had to be justified.

16 Q So is it fair to say that you did reassess
17 your manpower needs on at least an annual basis?

18 A (WITNESS HUBBARD) It is fair to say we
19 reassessed manpower needs on an annual basis, but it was
20 being reassessed against a forecast for a ten-year
21 period.

22 Q Judge Carpenter also asked you questions
23 concerning the comparison of a manufacturing plant to
24 nuclear plant, and in your response you went through a
25 number of the Appendix B criteria and indicated that you

1 expected all of those activities to be carried on during
2 operation.

3 Is it your testimony that all of these
4 activities, if you know, related to all of those
5 criteria would continue at the same level as the first
6 year of operation, or should they be re-evaluated
7 periodically?

8 A (WITNESS HUBBARD) We need to have a good
9 definition of what you mean by first year of operation.
10 When we were discussing that with Mr. Muller there were
11 a couple of definitions, so could we get a definition of
12 what you mean by the "first year of operation?"

13 Q Well, what do you understand will occur during
14 the first year of operation?

15 MR. LANPHER: Judge Brenner, I think the
16 witness' request is fair here.

17 JUDGE BRENNER: I don't know how fair it is,
18 but it is certain that he can't answer the second
19 question you asked given his problem. The request was
20 fair only if it matters to the answer to his question.

21 MR. LANPHER: The witness clearly thinks it
22 does.

23 JUDGE BRENNER: Mr. Hubbard, you couldn't
24 answer the first question without defining that?

25 WITNESS HUBBARD: Well, I will define "the

1 first year of operation" as first year of commercial
2 operation.

3 JUDGE BRENNER: For my purposes why don't you
4 start from fuel load?

5 WITNESS HUBBARD: I might get a different
6 answer if I started from that.

7 JUDGE BRENNER: All right, Mr. Ellis. It is
8 your question. You pick the period you want.

9 MR. ELLIS: Yes, sir. I think that helps me.

10 BY MR. ELLIS: (Resuming)

11 Q Mr. Hubbard, is it your testimony that all of
12 the activities that you went through in your response to
13 Judge Carpenter relating to Appendix B would continue at
14 the same level during the commercial operation as during
15 the first year after -- the first year from fuel load,
16 the 12 months after fuel load?

17 Do you understand?

18 A (WITNESS HUBBARD) Yes, I do.

19 Q Thank you. Go ahead, sir. I'm sorry.

20 A (WITNESS HUBBARD) I would expect that the
21 time between fuel load and commercial operation would be
22 -- there would be more testing and, as Dr. Carpenter
23 said, fixing of early failures, infant mortality during
24 that break-in period, though again I would expect that
25 most of the infant mortality would have already surfaced

1 in the preoperational test program. However, I think
2 the plant is still in a testing phase during that six
3 months during fuel load and commercial operation such
4 that that time period might require a few more QA
5 inspections and tests than there would be during a
6 normal year of commercial operation.

7 Q So you would expect the level of some of the
8 activities to drop after the first year following fuel
9 load?

10 A (WITNESS HUBBARD) Yes, sir. I mean there
11 will always be exceptions to that, Mr. Ellis. There are
12 major backfitting and plant modifications that would
13 come about, but I think in general your statement would
14 be true.

15 Q Mr. Hubbard, in response to Mr. Lanpher's
16 questions concerning Monticello and Prairie Island you
17 gave your views on the I&E and the NRC program. Again,
18 is it your testimony that the NRC has never validly
19 confirmed compliance with Appendix B prior to licensing
20 at any of the currently licensed plants in the country?

21 A (WITNESS HUBBARD) I am not familiar with all
22 of the plants in the country, Mr. Ellis, and so I can't
23 really draw a conclusion on that. If there was a
24 specific plant you had in mind, I might be able to
25 address that. However, I will, since my testimony did

1 discuss the I&E program generically, I would say that my
2 feeling and judgment generically is that the I&E program
3 has not been demonstrated to give a reliable indication
4 of the quality actually achieved during the
5 implementation of design and construction.

6 That is particularly true during design, as I
7 pointed out in in my testimony. It is also true, I
8 think in general, at manufacturing sites that there
9 hasn't been a lot of NRC I&E involvement at
10 safety-related manufacture sites and at construction
11 sites. The amount of review has varied from site to
12 site.

13 Q Well, let me turn the question around. Is
14 there any plant that you are familiar with that is
15 licensed where in your view the NRC has validly
16 confirmed compliance with Appendix B prior to licensing?

17 A (WITNESS HUBBARD) I can't think of an example.

18 Q What I was referring to, Mr. Hubbard, was your
19 statement on page 15,969. Let me give you a minute to
20 get that.

21 MR. LANPHER: Do you have a line number?

22 MR. ELLIS: Yes. Look at lines 7 through 15.

23 BY MR. ELLIS: (Resuming)

24 Q There you say, Mr. Hubbard: "However, as I
25 stated before, I don't think the NRC program is

1 comprehensive enough in what it would allow one to
2 extrapolate; that in fact the QA program has been
3 effectively implemented. I think the NRC I&E program
4 does give one some information on where the potential
5 problem areas are, but it doesn't provide enough
6 information that one could conclude that the program,
7 QA/QC program, has in fact been effectively implemented."

8 Based upon that statement isn't it fair to say
9 that it is your testimony that the NRC has never validly
10 confirmed compliance with Appendix B prior to licensing
11 of any nuclear plant?

12 MR. LANPHER: I object. It's repetitive. He
13 explained his position.

14 JUDGE BRENNER: Well, he is probing and giving
15 him that statement. I think it would have been more
16 efficient to do that in the first place, but I will let
17 him probe.

18 WITNESS HUBBARD: I think that the statement
19 at lines 7 to 15 is consistent with my previous
20 testimony. And the I&E program does provide some
21 information, but it has not provided enough information
22 that you can in fact demonstrate that the QA/QC program
23 during design, manufacturing and construction has been
24 effectively implemented.

25 BY MR. ELLIS: (Resuming)

1 Q Yes. I think you've just repeated that line,
2 but that wasn't the question that I put to you. Do you
3 remember the question or shall I restate it?

4 A (WITNESS HUBBARD) Would you please restate
5 it, Mr. Ellis?

6 Q Yes. Given what you have testified to and
7 what you have stated, isn't it fair to say that it
8 follows from that that it is your view the NRC has never
9 validly confirmed compliance with Appendix B prior to
10 licensing for any licensed nuclear power plant?

11 A (WITNESS HUBBARD) I think it is fair to say
12 that.

13 MR. ELLIS: No further questions.

14 JUDGE BRENNER: That was very good on your
15 time estimate, incidentally.

16 Mr. Bordenick.

17 MR. BORDENICK: I only have one question, or
18 at least I think it is just going to be one question.

19 JUDGE BRENNER: You said yesterday that you
20 would have at least one.

21 I'm sorry. Go ahead.

22 BY MR. BORDENICK:

23 Q Mr. Hubbard, is it your belief that the I&E
24 inspection reports contain all the sensory observations
25 and mental thought processes of a given inspector or

1 inspectors who prepared a given inspection report?

2 A (WITNESS HUBBARD) No. I'm sure there is
3 backup documentation that the inspector has that goes
4 into more detail, but the reports are a summary of the
5 conditions that were observed by the inspector during
6 the audit period.

7 MR. BORDENICK: As I said, I only had one
8 question and it has been asked and answered.

9 JUDGE BRENNER: Do you think that fully
10 responds to your question?

11 MR. BORDENICK: Yes.

12 JUDGE BRENNER: I think it leaves a gap
13 between the question and the answer. I'm not saying
14 it's not responsive, Mr. Hubbard. It just didn't
15 include everything.

16 Mr. Bordenick asked you if you believed the
17 inspection reports convey not only all the backup
18 documents, which is what you restricted your answer to,
19 but whether it includes information that the inspector
20 has applied in terms of his judgment, experiences and
21 knowledge, which may be nowhere in any writing or backup
22 documentation, but nevertheless, in the inspector's view
23 what he writes in the report is consistent with all that
24 he is applying to the process.

25 Maybe I misunderstood what Mr. Bordenick

1 meant, but I thought that was part of his question,
2 too. What do you think about that?

3 WITNESS HUBBARD: I think what you just stated
4 is probably in general an accurate statement.

5 JUDGE BRENNER: Judge Morris has some
6 questions, Mr. Hubbard.

7 BOARD EXAMINATION

8 BY JUDGE MORRIS:

9 Q Mr. Hubbard, we have been discussing the four
10 contentions related to quality assurance. Is it correct
11 that your views reflect either of two things: first,
12 whether or not there has been compliance with the NRC
13 rules, regulations, policies and practices; and second,
14 your professional opinion of what a good quality
15 assurance program should be?

16 A (WITNESS HUBBARD) I would answer yes. I
17 think my testimony has tried to address both points.
18 I've tried to talk or discuss in the testimony and the
19 answers to the questions how I feel what has been
20 implemented fails to meet the regulations. And in
21 addition to that I have tried to say what in my opinion
22 constitute the required discipline QA/QC program.

23 Q And do you view those two things as being
24 significantly different or approximately the same?

25 A (WITNESS HUBBARD) In general I would view

1 them to be quite consistent.

2 Q Then would you conclude that the bulk of your
3 testimony is directed towards lack of implementation to
4 what the NRC requires?

5 A (WITNESS HUBBARD) I would answer yes, Judge
6 Morris, leaving OQA side; that at design and
7 construction other than the area of important to safety
8 I have tried to look to address only what I thought were
9 failings in implementation. I have not tried what -- I
10 specifically tried not to go in and analyze the program
11 again against the Appendix B requirements. I have tried
12 to look at and see was, whether the program was
13 effectively implemented.

14 Now, on the OQA program it has been different
15 there, that I have made and assisted Mr. Dynner in
16 asking questions on the program itself.

17 Q Mr. Ellis this morning has asked whether or
18 not you thought any operating licensed plants -- well,
19 let me restate that.

20 NRC had not in fact really adequately
21 determined compliance with Appendix B before licensing
22 plants.

23 A (WITNESS HUBBARD) That is my opinion, Judge
24 Morris, so it would seem to me then that the decision to
25 license the plant would have had to primarily have been

1 made on the basis of the information provided by the
2 utility. In other words, I don't think the I&E program
3 by itself would have given the necessary information to
4 license the plant. That is my opinion about how the
5 weight I guess I would give to the I&E program versus
6 the weight of what I would give to whatever the
7 utility's observation of that program is.

8 Q Is it your opinion that Shoreham is any
9 different than the bulk of the other licensed plants in
10 this respect?

11 A (WITNESS HUBBARD) Well, Shoreham in some
12 cases might be better than some of the licensed plants
13 because there has been a resident inspector there since,
14 as I recall, about 1979, so there has been more I&E
15 involvement at Shoreham than at some of the plants
16 licensed in the early 1970s.

17 Shoreham has benefited somewhat from the
18 vendor inspection program that began in the 1974 period,
19 so in some ways I think there is more information about
20 Shoreham than at some earlier plants. However, at the
21 same time a lot of the Shoreham design began back in the
22 1968 time period, and so a lot of the remedial actions
23 that the staff has taken could have missed Shoreham. A
24 major portion of the design activities and a significant
25 amount of the manufacturing could have, and in my

1 opinion did occur, until a lot of the quality
2 requirements that are stated in today's ANSI standards
3 and some of the NRC programs were fully functioning. So
4 I think that Shoreham got some of the benefits but not
5 as much as some more recent plants.

6 Q But there are some other plants whose
7 construction period was approximately the same as
8 Shoreham's, isn't that true?

9 A (WITNESS HUBBARD) Yes. Diablo Canyon would
10 be markedly similar, starting design in the '66 to '68
11 period and still going for fuel load now.

12 Q You may have answered this question before,
13 and if so, I apologize for repeating. But have you
14 given any thought to the safety significance of some of
15 the more significant QA deficiencies that you believe
16 have existed at Shoreham?

17 A (WITNESS HUBBARD) I have not done that, Judge
18 Morris. I have been more interested in looking at the
19 pattern of the breakdowns and the repetitiveness; and I
20 talked about significance earlier. One of the aspects
21 of significance was the importance to safety.

22 Now, there would be one caveat to that remark;
23 that I think it is significant that there is no
24 documented program for items important to safety as
25 required by GDC 1.

1 Q Yes. I think we've covered that, but what I
2 was leading up to was whether you could give any
3 specific examples of QA deficiencies which if undetected
4 during the construction phase or the preoperational
5 phase or the startup phase would contribute to an
6 increment to risk during operation of the plant.

7 A (WITNESS HUBBARD) Philosophically I have a
8 very hard time with that question because I think QA is
9 a discipline process where you have to have attention to
10 detail to every step; and I personally don't believe
11 that with a great deal of certainty you can predict
12 which of the breakdowns in discipline are eventually
13 going to cause the problem that might result in an
14 accident.

15 But I think that the history has been that
16 after an accident there was shown that things that might
17 have been called minor contributed to that. I mean it
18 might be where instruments were placed on a panel was a
19 little bit misleading, or a needle stuck on a recorder,
20 and people of that sort. Or at TVA during the Browns
21 Ferry fire some of the drawings weren't up to date, and
22 it was also true at TMI, Three Mile Island. So you
23 didn't know as the water levels came up what systems you
24 were about to lose or what cables you were about to lose.

25 I think that the regulations say you have to

1 have the discipline, and that means you have to have the
2 discipline everywhere because you can't predict with
3 complete assurance where the problem is going to end up
4 being or what you are going to be called upon to use at
5 any point in time.

6 Q Would you agree that QA is just one of several
7 tools or activities which contributes to safety and
8 reliability of an operating plant?

9 A (WITNESS HUBBARD) Yes, I would, and that is
10 what I testified to; that I testified that the NRC said
11 that it was very much an important aspect of defense in
12 depth, and that is what I believe; that the regulations
13 require that each of the parts of the regulations be
14 implemented. You want quality assurance, and then you
15 want the other parts of defense. You want the good
16 containment. You want the fuel to be properly built.
17 You want each of those to take place. And if you don't
18 have that, well, for example, I've done probabilistic
19 risk assessments. If you can't assume that the quality
20 has been done at each of those steps, then it becomes
21 very difficult to do any sort of fault tree analysis or
22 analysis of that sort.

23 Q Well, with the concept of defense in depth in
24 mind, don't you consider the acceptance testing and
25 preop testing, the startup phase testing as important

1 ingredients in assuring the reliability and safety of
2 the plant?

3 A (WITNESS HUBBARD) I think they are important,
4 yes, Dr. Morris, but I think that there could not be an
5 overreliance on them because the preops and startup
6 tests are conducted primarily at the right atmospheric
7 conditions, so they don't talk about or they don't
8 really address upset conditions of environments.

9 They don't address the aging phenomena that
10 might occur. You've got new equipment. In general, the
11 preop tests are quite different than what I would call
12 qualification tests that would be done at a
13 manufacturing site where you would run the temperature
14 up and down, the humidity up and down, and see how the
15 various system parameters might change under all those
16 conditions.

17 So I think weight can be given to preop and
18 startup tests, but you have to recognize that this is
19 not during an earthquake or a flood or a tornado or a
20 hurricane or a lot of the other upset conditions. This
21 is taking things, new equipment, at fairly congenial
22 conditions and operating it and not operating it at say
23 the extremes.

24 Q So you would say all of those ingredients are
25 important?

1 A (WITNESS HUBBARD) I think all of the
2 ingredients are important. So I would give some weight
3 to preop and startup tests -- I think they are important
4 -- but I think that that is quite different than what
5 the design verification testing that is talked about in
6 Criterion 3 under the full sets of temperature, humidity
7 and other conditions.

8 Q Well, I'm not disagreeing with you,
9 understand. It is, in fact, the first time that the
10 integrated systems are operated and you get a chance to
11 observe whether they all fit together, isn't that true?

12 A (WITNESS HUBBARD) That is correct.

13 Q And in that sense it is a verification of
14 design again.

15 A (WITNESS HUBBARD) I would agree with you that
16 it is a verification of design within the limitations
17 that I have previously stated.

18 (Board conferring.)

19 Q Mr. Hubbard, can you tell me to what extent
20 your conclusions in your testimony are based on your
21 direct observation or direct knowledge of the situations
22 at the plant as opposed to knowledge you obtained from
23 reading documents?

24 A (WITNESS HUBBARD) My knowledge is more than
25 reading documents and at the plant. I've also attended

1 meetings with the LILCO people. I've observed them as
2 witnesses here. I've observed meetings with the NRC.
3 In other words, in forming my opinion it was not just
4 the two parts that were in your question. In terms of
5 observing in the plant, I spent only a few days in the
6 plant itself, which, though, I still did make some
7 observations that one can make.

8 I've gone through a number of plants, and one
9 of things I look at is cleanliness, amount of graffiti,
10 how tight it is packaged, things of that sort. And one
11 can get an impression about that very quickly.

12 Q When were your visits to the site?

13 A (WITNESS HUBBARD) I visited the site, as I
14 recall, in the 1977-78 period and then again in 1982,
15 possibly in '81.

16 Q Now, you've made similar visits to other sites
17 at similar stages of construction.

18 A (WITNESS HUBBARD) Yes, I have, both in this
19 country and in Europe and in the Scandinavian countries.

20 Q Could you make a comparison of Shoreham with
21 those other plants as to the general level of
22 housekeeping or any other attribute?

23 A (WITNESS HUBBARD) Well, I do have a personal
24 bias based upon my own judgment and experience that when
25 I walk through a plant and I see one that is free of

1 graffiti and it is clean --

2 Q I understand that.

3 A (WITNESS HUBBARD) But I feel that that has an
4 impact on management attitude. So part of when I
5 addressed your question earlier about management
6 attitude of LILCO --

7 Q Well, if we may back up --

8 A (WITNESS HUBBARD) Yes is the answer.

9 Q Yes what? You can make the comparison?

10 A (WITNESS HUBBARD) I believe I can make a
11 comparison. And in my subjective opinion that LILCO
12 level of graffiti and cleanliness is less -- well, there
13 is a greater amount of that at the Shoreham site than I
14 have observed at a number of other sites.

15 Q So in making your comparison you are saying
16 that the Shoreham site was less favorable?

17 A (WITNESS HUBBARD) That is correct.

18 Q And the reasons for that were observations of
19 graffiti and other aspects of housekeeping?

20 A (WITNESS HUBBARD) Yes. I observed -- I would
21 have not brought this up unless you asked because it is
22 subjective. But I observed the graffiti, I observed the
23 general lack of cleanliness in certain areas. And you
24 make some sort of a judgment about worker attitude as
25 you walk through, again partly just by what is scrawled

1 on the wall. And I hesitate to say that because that is
2 all very subjective.

3 Q Were there other aspects besides the ones you
4 mentioned?

5 A (WITNESS HUBBARD) I'm not sure what your
6 question is. Other observations on site?

7 Q Right.

8 A (WITNESS HUBBARD) Well, of course you make
9 some observations about how tight the plant is and how
10 easy it will be to maintain.

11 Q What do you mean by "tight," Mr. Hubbard?

12 A (WITNESS HUBBARD) Tight in the sense of how
13 much separation there is of equipment and how easy it
14 will be to maintain. Is there a crane over a lot of
15 large pieces of equipment so you could do maintenance
16 quite readily. Is it installed into the plant? And I
17 think one can observe that Shoreham equipment is closer
18 together. There is not a lot of space to do maintenance.

19 Now, there may be adequate space, but I would
20 compare it to a plant like Palo Verde that has -- well,
21 Palo Verde is a PWR, but Palo Verde has more space to do
22 maintenance.

23 Q Isn't that true generally of PWRs?

24 A (WITNESS HUBBARD) Not necessarily.

25 Q And other than the small containment design,

1 but in comparing the BWR Mark II containments, aren't
2 they all about the same?

3 A (WITNESS HUBBARD) I couldn't really make that
4 comparison. I haven't been inside the Zimmer plant.
5 Shoreham was scaled up from a smaller design, a smaller
6 rating in the 500 megawatt range. And, for example, one
7 of the audit reports that we reviewed in this hearing
8 from Stone and Webster, the engineering assurance audits
9 talked about how things had to be packaged tighter.
10 Those may not be the exact words, but packaged tighter
11 because of the scale up. There just wasn't the space.
12 They had to make do with the space available. But these
13 are all subjective impressions one gets.

14 I never really answered your first question.
15 Yes, I did review a great deal of documents in addition
16 to the couple of days at the site, and also I attended a
17 number of meetings where I gained impressions.

18 Q In speaking of your subjective judgment in
19 relation to graffiti, have you been in the New York
20 subway system?

21 (Laughter.)

22 A (WITNESS HUBBARD) Yes, I have.

23 Q Do you find that a cultural difference from,
24 for example, the BART system?

25 A (WITNESS HUBBARD) Yes, I do.

1 Q I won't ask you if there's any relationship to
2 what goes on in the construction site.

3 (Laughter.)

4 Q Would you turn to page 28 of your testimony,
5 please? This section, IV.A.7, winds up with your
6 conclusion that Criterion 3 was not complied with where
7 Criterion 3 relates to the correct translation of
8 applicable regulatory requirements into drawings. And
9 the nine items that are listed relate to deficiencies in
10 the installation of certain equipment or parts of
11 equipment, is that correct?

12 A (WITNESS HUBBARD) No, I don't believe that is
13 correct. I think you quite properly pointed out that
14 the more likely explanation of how these occurred or
15 these discrepancies, the nine occurred, is a lack of
16 interface control which is also covered by Criterion 3.

17 And so in answer to your question, I don't
18 look upon these as installation problems. I look upon
19 them as problems in controlling interfaces and design
20 review that is covered by Criterion 3; that as the
21 drawings were generated which resulted in these
22 installations there was some breakdown in the design
23 process that allowed these nine observations to occur.

24 Q Well, not for focusing on any particular one,
25 but if you look at them all, isn't it true that some of

1 them may have resulted from the fact that there was no
2 specification in the design for what should have been on
3 the label, for example?

4 Isn't it true that the workmen could have
5 improperly installed something for which the design was
6 adequate? Or, in the third case, isn't it true that it
7 might have been a mistaken inspector finding due to lack
8 of complete information?

9 A (WITNESS HUBBARD) I think you are correct on
10 that. I had assumed that the mimic was incorrect
11 because it was shown incorrectly on the drawing and that
12 the inspector had inspected to the drawing. I would
13 have thought that if it were an inspection problem, then
14 it would have been in the next or one of the other
15 categories where the difference between the as-built
16 plant and the as-built drawings. So that is why I
17 assumed that these were -- these being items a) to i) --
18 had to do with the design process, not the inspection
19 process.

20 Q So that was your assumption?

21 A (WITNESS HUBBARD) That was my assumption, yes.

22 Q Mr. Hubbard, when a QA deficiency is
23 identified is it your opinion that that ought to be
24 rectified promptly, or do you think, recognizing that
25 there probably will be more than one deficiency

1 discovered in the space of the week, that it would be
2 normal for management to schedule correction of those
3 items in a cost effective way?

4 A (WITNESS HUBBARD) That is a very difficult
5 question to answer, Judge Morris. Yes, I would expect
6 the problems that are revealed in the QA program to be
7 corrected promptly. At the same time, I would
8 acknowledge that promptly can be different for various
9 problems. You take one as simple as this item we spent
10 so much time on, the annunciator with seemingly
11 contradictory label, well, one could probably go out and
12 have a new label made relatively quickly if that were
13 the only problem. But then a QA program, you would want
14 to say well, why did what occurred, why did this
15 happen? Is there a chance or a likelihood that there
16 are other annunciators that have this condition.

17 And so in the context of promptly I think you
18 would have to also initiate the appropriate corrective
19 action to see that you've really addressed the problem.
20 We talk a lot about symptoms versus root causes. The
21 symptom would be there is one bad label.

22 Now, that doesn't say what the root cause of
23 that might have been. Maybe it is an isolated event; I
24 don't know.

25 Q So even in the simple case of an improper

1 label it might take significant time to carry out the
2 steps you've just described to really study the
3 situation and study its implications and develop an
4 adequate corrective program and then to implement it.

5 A (WITNESS HUBBARD) Well, yes, that is true,
6 and there is a way to handle that which LILCO does not
7 do; that on the nonconformance report, say you find
8 something that is a nonconformance and you write it up,
9 there is -- for example, the form used at General
10 Electric when I was there had a place where you put in
11 is a corrective action request required, a CAR. And so
12 what we could do on some things like that, we could go
13 ahead and correct the initial deficiency on the
14 nonconforming report and close it out, and then as part
15 of the corrective action system go ahead and look into
16 the more generic implications, if we think there is some
17 reason to do that.

18 And one of the reasons that I would suggest on
19 LILCO's deficiency report is to add a place. We could
20 put a corrective action in so you could have to make
21 that decision each time you resolve a deficiency of is
22 corrective action something that is appropriate. It is
23 a good discipline to have that there and have to make a
24 decision every time on a deficiency report.

25 Q You say that is not provided for on the form?

1 A (WITNESS HUBBARD) That is correct.

2 Q But does the Shoreham system preclude that
3 kind of program?

4 A (WITNESS HUBBARD) Judge Morris, the Shoreham
5 program doesn't either include it or preclude it. I
6 think a stronger program would have that box right there
7 on the deficiency report to assure that attention is
8 given to the need for corrective action, just part of
9 what you routinely do when you have a deficiency.

10 Q Mr. Hubbard, do you consider the FSAR as part
11 of the design control process, or do you consider the
12 FSAR solely a licensing document?

13 A (WITNESS HUBBARD) I consider it as part of
14 the design control process, and I believe LILCO does,
15 too. If you turn to LILCO's prefiled testimony at pages
16 96 to 98, there is a description of the Stone and
17 Webster control and design changes, and that is where
18 the E&DCR form is mentioned, at page 97 and at page 98.

19 Again, the quote in the LILCO testimony,
20 "Other change control mechanisms ensure that proposed
21 changes are evaluated for possible impact on the
22 commitments in the FSAR." And that is also shown on
23 Attachment 20. So both Attachments 18, which is the
24 E&DCR form, and Attachment 20, which is the FSAR change
25 form, are described in LILCO's prefiled testimony as

1 part of their design change control procedures.

2 I also reviewed Stone and Webster procedure
3 6.3, which is the Stone and Webster engineering
4 assurance procedure for the preparation, review,
5 approval and control of the E&DCRs. And the information
6 on block 21 which has to do with the control of the SAR
7 says review the E&DCR for conformance to applicable
8 licensing documents, including licensing reports, EAP
9 2.9, and licensing commitment list EAP 2.12. If the
10 E&DCR differs from the licensing document, initiate the
11 change request according to EAP 2.10 and process in
12 accordance with EAP 2.9 or 2.10 as appropriate.

13 And then at the bottom there is a note that
14 says, "Block 21 SAR change blocks shall be interpreted
15 to mean all licensing documents, not just the SAR. When
16 a licensing document other than the SAR is affected, the
17 yes block shall be checked."

18 So it seems to me that LILCO itself has
19 included the SAR and changes to the SAR in their
20 description of the design change control process.

21 Q Which comes first, design or the licensing
22 document?

23 A (WITNESS HUBBARD) That depends. At the PSAR
24 stage, the PSAR comes before the design, so in a number
25 of cases -- at the FSAR stage my understanding always

1 was the intent is to document what was really designed,
2 but there is also a comparison being made to the
3 commitments in the PSAR to say that those commitments
4 have indeed been fulfilled.

5 So I think it is an iterative process; that
6 the more general criteria are set forth in the FSAR and
7 the details are set forth in the various hierarchy of
8 design documents. But the point is they are supposed to
9 be consistent.

10 Q Well, I would agree that at the PSAR stage
11 particularly the design is not complete in all details,
12 but wouldn't it be impossible to submit an FSAR without
13 a conceptual design?

14 A (WITNESS HUBBARD) Yes.

15 Q So isn't it also logical to think of a system
16 -- supposing there were no licensing at all, no
17 licensing documents, then design would proceed exactly
18 as it does today, wouldn't it?

19 A (WITNESS HUBBARD) I really don't understand
20 your question.

21 Q Well, let me put it this way. There are
22 certain design documents today. There are drawings,
23 different kinds, blueprints. These are used to
24 construct the plant, am I right?

25 A (WITNESS HUBBARD) That is correct.

1 Q Would these differ if there were no licensing
2 application?

3 A (WITNESS HUBBARD) They would differ in terms
4 of the amount of control. Your question is like saying
5 if there were no ASME code would the design of the
6 pressure vessel be the same. It might be, but the FSAR
7 or the license documents and the codes and standards are
8 part of the commitments.

9 So I don't know how the design might be
10 different if there were no licensing documents. They
11 could be.

12 Q Well, the FSAR certainly is supposed to
13 reflect the design of the plant, and at the construction
14 permit stage it is somewhat conceptual. At the
15 operating license stage it is supposed to reflect the
16 as-built plant. Do you agree?

17 A (WITNESS HUBBARD) That is my understanding,
18 with the bridge also that they are supposed to, I
19 believe, track the PSAR commitments to demonstrate that
20 in fact they have been fulfilled.

21 Q And, therefore, that the FSAR must be changed
22 if changes in design are made.

23 A (WITNESS HUBBARD) Yes, sir.

24 Q And isn't this the system that is described on
25 page 98, that if there is a change in the design for

1 whatever reason that there is a mechanism for making
2 sure that the FSAR reflects that change?

3 A (WITNESS HUBBARD) That is one reading. The
4 other reading is that it is cautioning people that if
5 they make a change that is inconsistent with the SAR,
6 they had better be ready and have a pretty good
7 justification for that as part of the checks and
8 balances in the design process. That SAR is a very
9 important document. That is why there is a block on the
10 EEDCR form so that it keys everybody that if a designer
11 is doing something contrary to that FSAR, it needs --
12 the FSAR needs to be changed.

13 Q Changing the subject, in preparing your
14 testimony you've reviewed a great many allegations of
15 nonconformance discrepancies and so forth in the QA
16 program. Have you tried to make any extrapolation based
17 on that population to the effects on safety of the
18 operation of the plant, statistically or otherwise?

19 A (WITNESS HUBBARD) No, I have not in a formal
20 sense.

21 Q Changing the subject again, it is popular
22 these days to talk about peer reviews. Have you
23 discussed your prepared testimony with others in the
24 nuclear field outside of MHB?

25 A (WITNESS HUBBARD) Yes, I have. That is a

1 very broad question and well, yes, I've discussed my
2 views with Mr. DeYoung, Mr. Vollmer, Mr. Denton. I've
3 discussed it with Mr. Haass. I mean I'm on IEEE
4 committees where I guess one would say I'm part of the
5 industry still writing the IEEE standard.

6 So, yes, I've had a lot of chances to discuss
7 my views.

8 Q Well, I was focusing specifically on your
9 prefiled testimony.

10 A (WITNESS HUBBARD) As Mr. Ellis pointed out,
11 some of the views expressed in my prefiled testimony are
12 views that I have had for a long period of time. Some
13 of the ones that set context -- and I have had a chance
14 to discuss those, but I have not discussed this
15 particular testimony.

16 Q Well, in particular have you discussed the
17 conclusions you've reached in your testimony with
18 knowledgeable people outside of MHB and the staff?

19 A (WITNESS HUBBARD) Well, yes, I did discuss it
20 with Mr. Bland and Mr. Inskeep when they were being
21 added to the panel and before the scheduling conflict
22 came up. I mean they looked it over and were in general
23 agreement after they looked over some of the same
24 documents I had.

25 It is hard to answer, though. In peer review

1 with testimony you just don't get a lot of chance to do
2 that. I guess what we've been doing the last couple of
3 days is a little bit of peer review.

4 Q Well, I guess I am plowing new ground in terms
5 of a concept like this, but sometimes my mind goes off
6 in directions that haven't been explored before.

7 You mentioned yesterday that you had received
8 a copy of the EG&G report. That's EG&G-A-6109, the
9 title of which is "Identification and Ranking of Nuclear
10 Plant Structures, Systems and Components and Graded
11 Quality Assurance Guidelines -- Draft."

12 I'm not going to inquire or ask questions
13 about the report itself, but it does highlight some
14 items that give me a way of exploring your views.

15 Have you read the first 17 pages or so of the
16 report?

17 A (WITNESS HUBBARD) I have only scanned the
18 report. We, MHB, are doing a study for the Swedish
19 government in this area, and so I and people at my firm
20 have a continuing dialogue with Mr. Haass and Mr. Belke
21 at the staff who have been funding these sorts of
22 reports. And we intend to review it separate from this
23 proceeding as part of our general work for the Swedish
24 government. The Swedish government agency we are
25 working for is the equivalent to the NRC, the SKI. And,

1 in fact, that is how I originally knew this particular
2 document existed, because we were keeping track of the
3 status of it for SKI.

4 Q Would you agree with the conclusion which I
5 think is reached in that report that no new requirements
6 would be needed to implement a graded approach to
7 quality assurance?

8 A (WITNESS HUBBARD) That doesn't seem to agree
9 with my experience. As I testified on 7B, my experience
10 has been that since the 1974-75 period, people have been
11 talking about a graded quality system, and in fact, the
12 first draft of the NRC reg guide in this matter was
13 about in 1975, and there was the IEEE committee that was
14 formed and looked at this area.

15 And I think one of the difficulties in
16 reaching a regulatory guidance after all of these years
17 of discussion has been that it is going to mean some
18 change. And so without knowing more how the EG&G people
19 arrived at that conclusion that I think that could be an
20 oversimplification and most probably is.

21 Q Well, in distinguishing between requirements
22 and implementation is your conclusion the same for both?

23 A (WITNESS HUBBARD) I may not have answered
24 your previous question then correctly. In terms of
25 requirements I think all of the requirements are already

1 in existence. The problem is with how those are
2 implemented. So if I didn't answer your previous
3 question correctly, I'm sorry.

4 Q My original question was limited to
5 requirements only.

6 A (WITNESS HUBBARD) Thank you for clarifying
7 that.

8 Q Would you agree that such a program would
9 cover the class of "important to safety?"

10 A (WITNESS HUBBARD) I looked at the EG&G tables
11 briefly to see if like control systems were included as
12 important to safety, and in general it looked to me like
13 they were in the second category or category 2. So I
14 had a few I wanted to check immediately just to see
15 where they came out, and it looked like they had done a
16 fairly representative job on those, the ones I checked.

17 But I have to say that my review of this EG&G
18 report has been very limited. It has been more out of
19 just professional curiosity.

20 Q I recognize your situation on this, and as I
21 say, I'm not trying to cross examine you on that report
22 but just as a stimulus to getting your views. One of
23 the things that they mentioned was that the consensus of
24 those that they canvassed was that the graded quality
25 assurance program should not tend in the direction of

1 the checklist end of the spectrum. And they go on to
2 say that QA rigor should decrease with lessening
3 importance to safety.

4 Do you agree with that concept?

5 A (WITNESS HUBBARD) I thought there were two
6 parts to your question.

7 Q There were, but they are really quite similar.

8 A (WITNESS HUBBARD) The first part is I thought
9 they said there was a difference of opinion about
10 checklists. Some thought they were a good idea and some
11 thought they weren't.

12 Q Yes. And then concluded that the consensus
13 was --

14 A (WITNESS HUBBARD) And I think that I would --
15 my view would be more that -- well, that checklists are
16 a good idea.

17 In terms of the second part of your question,
18 which I believe was decreasing requirements --

19 Q Decreasing rigor.

20 A (WITNESS HUBBARD) Decreasing rigor.

21 Q With lessening importance or less importance
22 to safety.

23 A (WITNESS HUBBARD) I would have to go back and
24 see what they mean by the word "rigor." When I looked
25 through it it seemed to me that they had decreased

1 requirements. And if you mean requirements in the terms
2 of rigor, yes. But it seems to me that whatever you
3 include in a program you would expect people to do, and
4 so you have your debate when you set up the program.

5 I can remember when we at GE were writing the
6 QA Manuals and procedures we would have stormy meetings
7 with our interfaces when we were trying to decide what
8 the requirements would be, and there was give and take
9 on that. But once those requirements were written up,
10 then there had to be a commitment to meet them.

11 So to me the debate about rigors should go on
12 prior to issuing the procedures and policies, not
13 afterwards.

14 Q And in setting up those requirements and the
15 degree of rigor, can that be done by the quality
16 assurance organization itself?

17 A (WITNESS HUBBARD) I think it could be done
18 unilaterally by QA. My personal preference is for
19 getting the people involved who are going to be
20 implementing it so you reach accord with them. You sit
21 down and you talk about it and get it documented and
22 down so that they understand why you're doing it and you
23 understand what their problems are, and then you jointly
24 develop the policies and procedures.

25 My experience on unilateral QA is that that is

1 very difficult to get acceptance.

2 Q Well, isn't it a fact that probably there are
3 experts who can better determine the importance to
4 safety than the QA organization solely?

5 A (WITNESS HUBBARD) Well, that is why you would
6 involve the engineering people in some of this
7 disciplined procedure. But if your question is do you
8 let each engineer unilaterally decide for himself what
9 is important, I don't think that is a program. I think
10 you have to have a program that is set up with checks
11 and balances so you have some uniform control of
12 engineering so that they can make their judgments, but
13 those judgments can be made in the context of an overall
14 program.

15 Q That wasn't the question I asked. Do you have
16 the report handy?

17 A (WITNESS HUBBARD) Yes, I do.

18 Q Would you turn to page 4, please? At the top
19 of the page there are five objectives -- I will use that
20 word -- listed. Have you had a chance to consider those
21 five?

22 A (WITNESS HUBBARD) No, I have not, Judge
23 Morris.

24 Q Would you turn to page 11, please? In the
25 third paragraph the second sentence says in part that

1 this objective is met partially by the fact that new or
2 different requirements are not being imposed.

3 Do you find this an expected result or would
4 you have expected the opposite?

5 A (WITNESS HUBBARD) Well, I would really have
6 to understand what they mean by the word "requirements,"
7 because if they mean the requirements they have here are
8 the ones that are in the regulations and the ANSI
9 standards, I would agree that the requirements have been
10 around for a number of years. But I would think that in
11 terms of implementation of those requirements there
12 would be a change.

13 Q And the last sentence of the next paragraph
14 reads, "Individual parts of component systems or
15 structures may be placed into a lower QAL, quality
16 assurance level, as determined by the user's judgment."

17 Would you accept this?

18 A (WITNESS HUBBARD) Yes, I accept that point of
19 view, and, in fact, I guess I am a proponent of that
20 point of view. And that is why in my prefiled testimony
21 I suggested that there be a classification of
22 characteristics of parts of safety-related items; that
23 if you -- what, we will say a pump -- once you say well,
24 now, how do the parts of the pump, what quality
25 standards did they have to meet, well, it seems to me

1 there is a rational way for doing that which is the
2 engineering and QA people to get together and classify
3 the parts of the pump which are critical, major and
4 minor, and then based on that establish the requirements.

5 So I think there are techniques for doing
6 that. Likewise with something like a printed circuit
7 board. I don't think you can take the position that
8 nothing on the board has anything to do with safety but
9 the board is safety-related.

10 And so if you are going to get into the parts
11 of equipment, I think then the way to do that is to have
12 some sort of a classification of characteristics system
13 with a maximum input from the engineering people.

14 Q I am done with this document now.

15 In a situation where a clear violation of a QA
16 requirement -- for example, Appendix B -- or a QA Manual
17 requirement is perceived, what criteria should be
18 considered in a QA or OQA recommendation to stop work?

19 A (WITNESS HUBBARD) I am sorry, Judge
20 Carpenter. I really have not thought out the exact
21 criteria that an OQA engineer would use in deciding to
22 shut down the plant. I mean obviously one part would be
23 the importance to safety of the problem. You mean if
24 you found, oh, a pipe was cracking, you might say well,
25 I don't want the plant started up until we -- I want it

1 shut down until we find the extent of this particular
2 cracking or a nozzle crack or something of that sort.

3 You could also have a volume. You could get
4 some repetitive findings. I mean something -- there
5 might be something here or there that leads you to
6 believe that, oh, for example, like in calculations you
7 might be back reviewing some calculations and found that
8 some calculations had not been properly controlled which
9 made you believe that, for example, all of the thermal
10 calculations for environment might be incorrect for a
11 particular area.

12 I think there is much to be said for that in
13 the manufacturing end. You can go ahead and build a
14 prototype and really test it out and then go into
15 production, or you can just start building them, and
16 then you get ten built and you find you've got some
17 problems. Then you have to modify all ten of them.

18 So I am not at all implying you have to have a
19 standardized plant to have QA discipline.

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1 You would have some concern that if you
2 happened to have a pipe break in that particular area or
3 whatever the condition was, that the system would not
4 work as anticipated. I mean again there would be things
5 like -- there is really two parts of it, I think, that
6 you have to have a procedure set up by which the OQA
7 person can make that decision, I mean he has to have the
8 authority to do it, but then he also has to have the
9 required information to make a serious decision like
10 that.

11 I mean I know it was serious to me if I would
12 say that we had to scrap a million dollars worth of
13 material because it wasn't right or we had to send
14 production workers home because we didn't have material
15 for them to use. But I don't think you can write that
16 into a procedure, what the QA person might have to
17 decide, but you can sure give the QA person the
18 responsibility which I think is required and then the
19 authority to do that, to make that decision.

20 Q My question was rather broad and I
21 deliberately used the word "stop work," which would
22 include shutdown of the plant as we discussed earlier.
23 But if we go back and think first of -- and I will
24 change the word "criteria" -- what considerations would
25 the OQA person consider during construction, not

1 operation of the plant, as a subset of the general
2 question?

3 A (WITNESS HUBBARD) I got off the track a
4 little because of the word "OQA." I was thinking of
5 operations. I mean during construction you would have
6 -- I mean the classic would be that you would feel that
7 like cables might not be being separated properly. You
8 would have some instances of that where you would say
9 let's stop work on cable pulling until we are sure that
10 we have the right instructions here.

11 I think part of a QA function is to be sure
12 that you are not building nonconforming material, and
13 that is why the QA people do have the gates that are
14 mentioned by LILCO. You could wait and do all of your
15 inspection and test at the end. But then it is very
16 expensive and you find the problem, so there is an
17 economic incentive to find a problem before you build a
18 lot of nonconforming material.

19 So often in process stop work is really to
20 reduce the cost of nonconforming material that you are
21 building because if you build it nonconforming and then
22 have to rip it out and rework it or scrap it, that is
23 expensive, and I would call that a breakdown of the QA
24 program in the sense of not finding something at the
25 right point in time.

1 Now, that might not violate a regulation, but
2 I think the QA has responsibilities other than to
3 regulation, and one is to find nonconforming material at
4 the right time so that you don't build a lot of
5 nonconformances in.

6 Q You expressed your opinion, I think, somewhat
7 beyond the question that I asked, Mr. Hubbard. I am
8 trying to focus on what considerations need to be given
9 to stopping work, and I wanted to explore this during
10 construction and I want to explore it in terms of what
11 the QA person considers, and then I want to go to the
12 construction manager, for example, during construction,
13 what would he consider, and would the things be
14 considered be somewhat different or would they be the
15 same. In the latter part I am thinking of the case
16 where the construction manager would protest the
17 recommendation to stop work.

18 A (WITNESS HUBBARD) Well, a number of examples
19 would come to mind, and I'm sure on the plane tonight I
20 will think of the right ones; but, for example, the
21 engineering manager is responsible for getting drawings
22 out on a certain date. He has commitments. One way to
23 meet those commitments is to issue the drawing with the
24 words "later" in a lot of places. So he met his
25 requirement, but there is a lot of later, and the QA

1 manager or the QA people might look and say, look, there
2 are too many lateres, the purpose of that drawing was to
3 get information to Purchasing that we could buy
4 materials, so we are going to stop work in that area
5 until you get your engineering done.

6 So you would have a difference of opinion with
7 the engineering manager. He was trying to meet his
8 engineering dates, and you are saying, well, you tried
9 but there are too many lateres there. The procurement
10 people --

11 Q Let's stop there for a moment. Supposing that
12 situation exists. How does it get resolved?

13 A (WITNESS HUBBARD) Well, in one case the
14 engineering manager is going to say, well, you are
15 right, there are really too many lateres on that
16 document, I'm going to go back and fix it. In other
17 cases he might say, well, in my judgment you needed some
18 advance information and make use of this as you can, I
19 know it is not as efficient. And you might decide,
20 okay, we will go ahead and do it.

21 I mean that same sort of a decision goes to
22 the construction manager. He has got people there on
23 site, and maybe he would like to go ahead and keep them
24 occupied. He has got a partial engineering release, so
25 he looks at it and he says, well, this might change but

1 I will take the risk, I will go ahead and build a wall
2 and I may have to rip it out later on because the
3 engineering is incomplete, or I may have to put a hole
4 in or a number of other things. But he would decide
5 that because if he didn't go ahead, he would have to
6 send people home. He would continue construction.

7 The QA manager might disagree with that, that
8 he is going ahead and building without having all the
9 required information, because I think you know that once
10 the money has been spent to build something, then it
11 makes it harder to say to rip it out. You are always
12 faced with the reality that we have spent whatever
13 amount of money. It is like if you bought the wrong
14 pipe, if you got a million dollars of it in inventory.
15 Part of the QA decision has to be that if you say it
16 cannot be used, that you are going to take a million
17 dollar loss on scrapping that pipe.

18 I have a very hard time with that particular
19 question you have asked, Judge Morris, because I feel
20 like I am rambling, but I think at each step in the
21 process, from engineering right on through, and I can
22 come up with similar examples where there would be a
23 conflict.

24 Q Well, I am afraid the answer has been somewhat
25 rambling and we haven't gotten to the situation, for

1 example, during operation when there is a recommendation
2 to shut the plant down and a dispute between the, say,
3 plant superintendent and the quality assurance
4 representative. Again, if you can, what considerations
5 should be given in, first, making the recommendation and
6 in, second, deciding whether or not to go along with it?

7 A (WITNESS HUBBARD) Well, I will try a very
8 simple one. Go back to my previous example. The QA
9 person finds a crack on a nozzle that is safety related
10 and he is concerned about it and he wants to shut the
11 plant down now. The plant manager agrees that it is a
12 potential problem; however, this is the summer and the
13 air conditioning units are all on and he needs power for
14 30 more days because some fossil units are shut down.
15 So he says, while I agree with you that that is a
16 potential problem, in my judgment it is not enough of a
17 problem for the next 30 days, and in any case, we need
18 the power for the next 30 days so we are going to keep
19 it up for 30 days, keep the unit running.

20 Now, he has different considerations than the
21 QA person.

22 Q Would you agree with the concept that if there
23 were a situation which was flagged by QA which led to a
24 noncompliance in some fashion, that the plant
25 superintendent, recognizing that situation, might

1 propose what I would call compensatory actions that
2 could be taken to either maintain a risk level as is or
3 to reduce it and therefore continue operation?

4 A (WITNESS HUBBARD) Clearly, Judge Morris, that
5 could be the case. You would say, well, let's go do 50
6 percent power, and in some cases that might reduce the
7 risk. He could say, well, let's do in-service
8 inspection, we will go inspect that weld every day, I
9 will assign a man to stand there and watch it. But the
10 point I am trying to make is that there can be a
11 different consideration by the plant manager than by the
12 QA engineer in terms of the significance of a particular
13 finding.

14 JUDGE MORRIS: Give me just a moment.

15 [Board conferring.]

16 JUDGE BRENNER: We are going to take a break
17 in a moment. We are not going to finish Mr. Hubbard
18 today, based upon the time we normally plan to stop.
19 That is a guesstimate on my part and that may be wrong,
20 but I am basing that also on the fact that you said you
21 had about an hour of follow-up questions, redirect
22 questions, Mr. Lanpher, on the CAT inspections for Mr.
23 Hubbard. Is that still your estimate?

24 MR. LANPHER: No, my estimate is quite a bit
25 less than that. We went over it last night and reduced

1 some, and certain of the questions that have come up by
2 the Board this morning have covered exactly the items
3 that we were planning to cover.

4 JUDGE BRENNER: On the CAT inspections?

5 MR. LANPHER: Yes, some of the ones that Judge
6 Morris has brought up, so I expect considerably less
7 than an hour.

8 JUDGE BRENNER: Well, let me ask this
9 question. If we finish with Mr. Hubbard today, does
10 that mean he won't be here next week anyway? I mean
11 does it affect his schedule to that extent or is he
12 going to be here next Tuesday in any event?

13 MR. LANPHER: He will not be here next Tuesday
14 if he is finished today.

15 JUDGE BRENNER: And he won't be here next week?

16 MR. LANPHER: He is going to be in his office
17 working on Torrey Pines.

18 JUDGE BRENNER: That is what I thought and
19 that is why I asked the question. We are willing to run
20 closer to a normal day today in order to assist Mr.
21 Hubbard in his schedule if that turns out to be
22 necessary. Of course, we will take a lunch break if
23 that is the case and we will make it a fairly short
24 lunch break.

25 MR. LANPHER: Can I talk to Mr. Hubbard during

1 the break?

2 JUDGE BRENNER: Yes, and the other parties can
3 talk about that also, but I am very set on trying to
4 start the Staff witnesses on Tuesday, and while you
5 think about it, consider the fact that what we were
6 going to propose for the week of January 4th is that we
7 not have a hearing that week if we finish the Staff
8 testimony before Christmas. That is a little incentive
9 plan, and the reason I mention that now is starting
10 today it is not too soon to start thinking of the
11 ramifications, and in fact we were thinking about the
12 ramifications every day, as all of you have, of the
13 schedule. We would not accelerate Torrey Pines, is what
14 I am saying. We would keep that schedule as already set
15 and leave January 4th as a week that we are not going to
16 hearing.

17 As long as this hearing has lasted, it seems
18 we have pulled ahead at this stage of the review on
19 contentions that we have known to have been deferred due
20 to pending work by LILCO and Staff review, coming back
21 to our discussion last April, and the Board said then
22 time has a way of moving on, and time in fact has moved
23 on, and based upon the current schedule and the Staff
24 review, there is no way to accelerate any of those items
25 to as early as the week of January 4th.

1 That was our preliminary view and the parties
2 apparently share that view, based upon the report, at
3 least, in the give and take of the discussions.

4 MR. LANPHER: Judge Brenner, could I prior to
5 the break, just to help in our discussions of
6 considerations in terms of the timing today --

7 JUDGE BRENNER: What I am saying is if there
8 was something we could litigate January 4th, we would do
9 it.

10 MR. LANPHER: I am talking only in terms of
11 completing Mr. Hubbard. What is the Board's best
12 estimate of the amount of examination it has?
13 Obviously, Judge Morris has done some and has more.
14 What are we talking about, a couple of more hours?

15 JUDGE BRENNER: No, but at least a half-hour
16 that I know of, not counting what Judge Morris has left,
17 or approximately a half-hour that I know of. We have
18 got at least an hour and probably more. That is what
19 happens. Everybody thinks they are the only ones left
20 questioning and they forget about leaving time for us.
21 Once in a while we have some questions.

22 MR. LANPHER: Judge Brenner, we were not
23 complaining. I just wanted the information.

24 JUDGE BRENNER: I know you weren't. I said it
25 because it was something I said yesterday, and like I

1 think Mr. Hubbard said yesterday, that what you are
2 supposed to do in QA is plan what you are going to do,
3 do it, and then tell people you have done it, and it is
4 very close to advice to lawyers as to how to try to
5 prepare for trials, especially before juries: tell them
6 what you are going to do and then do it.

7 In any event, we are willing to make the
8 accommodation for Mr. Hubbard if we can work it out, and
9 I don't propose to run until 5:00, necessarily. I don't
10 think that will be necessary. But it is my feeling that
11 another hour to two hours beyond what we have previously
12 planned for today may well be necessary, and we are
13 willing to do it.

14 Let's take a 15-minute break and come back at
15 10:25.

16 [Recess.]

17 JUDGE BRENNER: Okay, we are back on the
18 record. Sometimes we spend more time talking about what
19 we are going to do than doing it; but what are we going
20 to do today?

21 MR. LANPHER: Judge Brenner, Mr. Hubbard has a
22 5:00 plane, which means he would have to leave, his car
23 would have to pull out by 3:30. He is willing to stay.

24 JUDGE BRENNER: That is a judgment you are
25 making. You understand that if we went that far and

1 didn't finish, his wanting to catch that plane would
2 mean he would have to come back on Tuesday.

3 MR. LANPHER: That is right, and if we are
4 close at that point, he is willing to stay overnight.

5 JUDGE BRENNER: Hopefully not in this room.

6 [Laughter.]

7 MR. LANPHER: I have talked with Mr. Ellis. I
8 think we, depending upon other Board questions, we may
9 be a little more hopeful than the Board on finishing up
10 prior to that time.

11 JUDGE BRENNER: Well, you know things I don't
12 know, and I wanted to be realistic. If we do better
13 than that, that is fine. I don't want to run up until
14 1:00. Wouldn't we be better off just breaking for lunch
15 at 12:00 and taking an hour?

16 MR. LANPHER: I think that is probably fine.

17 JUDGE BRENNER: Is that all right with the
18 other parties?

19 MR. ELLIS: Yes, we are willing to do whatever
20 will expedite and finish Mr. Hubbard so he can go back.

21 MR. BORDENICK: We are totally flexible.

22 JUDGE BRENNER: Yes. You see, the Board
23 believes it would just be an unnecessary imposition to
24 require Mr. Hubbard or any other witness in the same
25 situation to have to go across country for just another

1 hour or two at the most to finish up his testimony, and
2 we also have in mind the fact that he is busy on the
3 case, and we knew about the Torrey Pines filing date,
4 and one reason we set the filing date for other parties
5 of the 21st rather than 14th as proposed by LILCO was we
6 knew he would be on the stand into this week. Back when
7 we made that decision, we didn't realize it would be all
8 of this week.

9 MR. ELLIS: Judge Brenner, may I mention one
10 unrelated thing, and I do it sort of out of place. I
11 know it would be more appropriate when we get to it
12 later, but I may be one of the first to leave the room
13 when we finish Mr. Hubbard. I mentioned to you that we
14 were not able to get the office space in Hauppauge, and
15 that is not true now. I have learned that. I went back
16 upstairs and told them to renew efforts. Those efforts
17 have been fruitful, and therefore, if the Board is
18 successful in obtaining the Hauppauge hearing room, that
19 would be our preference.

20 JUDGE BRENNER: All right. We don't know if
21 we will be successful in obtaining Hauppauge hearing
22 space at all or for the sufficient minimum amount of
23 time so that we don't have to go back and forth more
24 often than we would like to in terms of carrying
25 materials and so forth. And in addition, if we are

1 talking about the week of January 11th rather than the
2 week of January 4th, and we won't know that for sure
3 until the week before Christmas, that may make a
4 difference on what is available when.

5 So there are a lot of uncertainties, but you
6 have removed one of them, and we appreciate that.

7 All right, let's go back to Judge Morris'
8 questions.

9 BY JUDGE MORRIS: (Resuming)

10 Q Mr. Hubbard, would you turn to page 42,
11 please, of your prefiled testimony? Do I conclude
12 correctly that when you wrote this testimony, that it
13 was your conclusion that the plant would not and could
14 not be constructed, designed and constructed in
15 accordance with the requirements of the FSAR and
16 commitments to the NRC?

17 A (WITNESS HUBBARD) No, not in the sense of
18 would not and could not. My testimony says that in my
19 judgment it has not been demonstrated that it was.

20 Q Is that your conclusion today?

21 A (WITNESS HUBBARD) That is my conclusion and
22 that is why I recommended that independent design review
23 and physical inspection as a method to demonstrate that
24 it either was designed and constructed or was not, as
25 required by the regulations and the FSAR commitments.

1 Q So that you believe that those actions would
2 correct some deficiency that you see now?

3 A (WITNESS HUBBARD) Yes, I do.

4 Q Could you characterize the deficiencies that
5 you see now that would be corrected by those activities?

6 A (WITNESS HUBBARD) I see the deficiency is
7 there is uncertainty about how well the QA program was
8 implemented during design and construction, and that by
9 having an independent design review -- and I suggest the
10 design review of at least three systems, and possibly
11 four, looking at air, electrical and piping systems, and
12 also by doing a construction inspection, that then one
13 has a basis for deciding that the QA/QC program was or
14 was not effectively implemented. That would also make
15 up for the deficiencies in the NRC's I&E program that I
16 pointed out.

17 Q Mr. Hubbard, have you examined the I&E
18 inspection manual?

19 A (WITNESS HUBBARD) Yes, I have to some degree.

20 Q Do you know whether there is a specific plan
21 for the inspection of Shoreham, whether there has been
22 and is?

23 A (WITNESS HUBBARD) Well, I have a computer run
24 that Mr. Bordenick provided from Mr. Gallo which shows
25 the modules of the I&E manual that have been utilized

1 over time, and I did look at that briefly.

2 Q At Shoreham, are you saying?

3 A (WITNESS HUBBARD) Yes. This is the
4 Shoreham-specific list of the I&E modules which had been
5 implemented.

6 Q So this is past tense?

7 A (WITNESS HUBBARD) Yes. Well, it was helpful
8 to see which modules that I&E had implemented in at
9 least computer language, some amount of what percent of
10 it they had implemented.

11 Q Are you familiar with what is planned from the
12 time you receive that snapshot until the time the plan
13 is fully constructed?

14 A (WITNESS HUBBARD) No, I am not.

15 Q At about what time did you receive that
16 snapshot?

17 A (WITNESS HUBBARD) Sometime, as I recall, in
18 late October, early November.

19 Q Of this year?

20 A (WITNESS HUBBARD) Of this year, yes.

21 Q At the bottom of page 53, the third line from
22 the bottom, you state that the Staff has developed no
23 requirements for compliance with GDC-1. Is it your
24 conclusion that GDC-1 in itself is not a requirement?

25 A (WITNESS HUBBARD) No. I believe GDC-1 is a

1 requirement. Possibly a better word instead of
2 "requirements" would have been "measures." They haven't
3 developed the measures to say what would be GDC-1
4 compliance. But the cited words come from, I believe,
5 the NRC Staff testimony where when they were using the
6 context of requirements, I think Mr. Haass' view was
7 that -- well, there were questions of Mr. Haass about,
8 well, weren't the QA requirements Appendix B, and the
9 decision would be made, how many, if any, of the
10 Appendix B requirements would apply to an item important
11 to safety.

12 So my view is the QA requirements do exist but
13 then a decision needs to be made how to apply those.

14 Q Well, doesn't the Staff testimony state that
15 it is a requirement but that the program developed by
16 the applicant need not be reviewed by the Staff?

17 A (WITNESS HUBBARD) That is not my
18 recollection. I thought Mr. Haass testified that there
19 needed to be a commitment to have a program but the NRC
20 had no criteria by which to review that commitment;
21 hence, they didn't review it. But that is only my
22 recollection.

23 Q Well, I read that testimony yesterday, so the
24 words will speak for themselves.

25 Is it your conclusion that LILCO has no

1 quality assurance requirements for nonsafety-related
2 equipment and components and structures?

3 A (WITNESS HUBBARD) No.

4 Q Have you tried to ascertain what that program
5 is?

6 A (WITNESS HUBBARD) Yes.

7 Q How did you do that?

8 A (WITNESS HUBBARD) First I looked if there was
9 any description of a program in the FSAR, and I couldn't
10 find it there. Then I went to the QA manual and the
11 statement of QA policy -- I will call it the
12 OQA manual -- and I couldn't find a program there, with
13 the caveat, of course, that we discussed, that, for
14 example, there is a separate program on fire protection
15 and there are some others at a plant, but there is not a
16 systematic program.

17 Then I went to the OQA procedures to see if
18 they discussed both safety related and important to
19 safety, and I found no program there in a systematic
20 manner. So I have not been able to find that there is a
21 systematic program that starts from the top management
22 and filters all the way down, nor is there such a
23 commitment made in the FSAR.

24 Q In your exposure to other plants, have you
25 ever observed such a systematic program?

1 A (WITNESS HUBBARD) I have never looked for it
2 in other places. I did notice in the Stone & Webster
3 manual, for example, that they do talk about Category 1,
4 2 and 3, and that they do have differing requirements
5 for Category 1, 2 and 3. So that is why I limited my
6 comments here to the LILCO QA manuals.

7 Q Have you had an opportunity to discuss that
8 specific question with any of the LILCO staff?

9 A (WITNESS HUBBARD) Oh, I think I would answer
10 yes and no. We have been discussing this matter
11 literally for years.

12 Q I mean specifically the lack of a systematic
13 program on paper for quality assurance applied to
14 nonsafety-related structures, systems and components.

15 A (WITNESS HUBBARD) I believe the answer would
16 be yes, we have made our views pretty clear for a long
17 time.

18 Q And what sort of response did you get?

19 A (WITNESS HUBBARD) Well, I think the response
20 is shown in the prefiled testimony and the manuals.

21 Q Well, can you answer my question?

22 A (WITNESS HUBBARD) I hate to say what I think
23 they are responsive because I think it is more
24 appropriate for them to say what they are responsive
25 to. I don't like to characterize that. But it seems to

1 me that the view --

2 Q Excuse me, Mr. Hubbard, just a moment. I don't
3 want to make it difficult for you, but did they respond
4 that we don't have a program, or we do have a program
5 and it consists of the following things?

6 A (WITNESS HUBBARD) I believe their view is
7 that they do -- have applied their own judgment on
8 things that are important to safety but not safety
9 related. I don't call it a program. I mean I don't
10 think they ever said that there was a program. I think
11 they may have said, well, don't we do some things? And
12 that is why I have tried to use the words "systematic
13 program." I mean people make individual judgments just
14 like when you go buy a car or anything else. I mean you
15 buy something or build something and you make some sort
16 of a judgment, but it is not done in a systematic,
17 programmatic way.

18 Q Have they said to you that they believe that
19 they have achieved the intent of such a program even
20 though it is not written down?

21 A (WITNESS HUBBARD) No, they have not.

22 Q Do you have any basis for knowing or believing
23 that that is what they think?

24 A (WITNESS HUBBARD) I wouldn't want to
25 speculate on what they think. I mean it is clear to me,

1 having been here in front of this Board all of these
2 months, if I were LILCO I would have changed the QA
3 manual by this point in time and said what it is I'm
4 doing if I thought I had a systematic program; and I
5 frankly am surprised they haven't, and I keep thinking
6 that one of these days soon we are going to get a change
7 in the manual that says here is what we have been doing
8 and, by the way, we have been always doing it.

9 Q Mr. Hubbard, we are trying to assist you to
10 get away from here earlier. You can assist also by just
11 answering the question.

12 MR. LANPHER: Judge Morris, I think he is
13 attempting to answer the question. They are broad
14 questions and they are hard, and he has indicated
15 unwillingness to surmise what people are thinking but
16 you persisted in asking him. I think he is trying very
17 hard, so I don't think that criticism is fair of the
18 witness.

19 JUDGE BRENNER: Maybe I will jump in. He is
20 trying very hard to say what he wants to say, which ^{or}
21 sometimes is what the question is asking and sometimes
22 is quite a bit beyond what the question is asking, and
23 sometimes he answers the question in the third paragraph
24 instead of in the first paragraph. So there are
25 economies that can be had in his answers, even taking

1 into account the correctness of your statement, which I
2 interpret as saying some of these questions are not very
3 easily answered, which I will accept and say that my
4 comment, I think, is accurate, even accepting the
5 accuracy of your comment.

6 JUDGE MORRIS: I won't respond, Mr. Lanpher.

7 BY JUDGE MORRIS: (Resuming)

8 Q Mr. Hubbard, frequently in your testimony or
9 in the contentions themselves the word "inadequate" is
10 used. How do you judge whether or not something is
11 adequate or inadequate, just being very general and
12 trying to limit it to the specific contentions as stated?

13 A (WITNESS HUBBARD) When I use the word
14 "adequate" or "inadequate," that is my judgment of that
15 particular aspect, and if I say adequate compliance,
16 then I misspoke. Either something is in compliance or
17 not. There is not adequate compliance. Something
18 either meets it or it doesn't.

19 Q Turning to page 53, line 3, or starting at
20 line 2, the sentence says, "Thus, the Staff can provide
21 no assurance that the design QA/QC requirements have
22 been complied with as required by the regulations. Is
23 that meant to imply that there is zero assurance?"

24 A (WITNESS HUBBARD) No.

25 Q What does it imply?

1 A (WITNESS HUBBARD) I think I go back to page
2 61 or page 60 where I state that the NRC Staff has
3 conducted virtually no in-depth review of the
4 implementation of the design process at G.E. and Stone &
5 Webster, and I say that in the context of the quotes
6 from the NRC Staff that are set forth in footnote 57.

7 Q So this is a case of a judgment of inadequacy;
8 is that correct?

9 A (WITNESS HUBBARD) That is correct.

10 Q Changing the subject, you mentioned yesterday
11 that you had some knowledge of quality assurance
12 programs in the space or aerospace programs, perhaps
13 weapons programs as well. Could you tell us what
14 exposure you have had to such programs?

15 A (WITNESS HUBBARD) Yes. When I first started
16 working for General Electric, I worked as an engineer at
17 the Light Military Electronics Department at General
18 Electric. This was a three to four-month assignment but
19 I was designing equipment for ground support for the
20 F-105 jet, and so working there I had the design manual,
21 and, for example, part of the quality process there was
22 you could only buy components that had mil spec
23 pedigrees that were listed in the approved vendor
24 books.

25 So doing my engineering, I had quite a list of

1 components, things all the way from resistors,
2 capacitors and diodes up to motors and so forth that had
3 a pedigree. They had been through a design and a
4 qualification and quality audit, so there was a very
5 disciplined engineering plan for the military.

6 Later on I worked at G.E. in Philadelphia in
7 engineering at the switch gear department, but as part
8 of that I designed equipment that went to Lawrence
9 Livermore Lab and Argonne National Laboratory for the
10 accelerators and various machines of that sort. And as
11 part of my engineering responsibilities, I had to do
12 reliability analysis to compute the mean time between
13 failures, so I went to the G.E. Missile and Space
14 Vehicle, the Apollo group out at Valley Forge and worked
15 with them and got their manuals and had them come and
16 help me, and then did a reliability analysis myself for
17 the equipment we, G.E., were providing to Argonne and
18 Lawrence Livermore.

19 While I was manager of QA at G.E. in San Jose,
20 we built components for the nuclear submarines, for
21 example the nuclear sensors, so I went through the
22 qualification program that one goes through with
23 Westinghouse and Knowles Atomic Laboratories to build
24 atomic submarines. This was with Pettis and PAD,
25 Westinghouse PAD, to qualify components for the

1 submarine, and with Knowles Atomic Laboratory for some
2 of the Mayo group there for some of the land-based test
3 facilities for the Navy.

4 I also reviewed various documents that
5 compared 10 CFR 50, Appendix B, to other programs, like
6 again while I was at G.E. in San Jose, we built the
7 electronics for, I believe it is, the SM1 reactor, which
8 was Army mil spec. This was in the 1964-65 period. I
9 then had more discussions because I hired people from
10 the G.E. Apollo program to work for me in the Quality
11 Assurance Department at G.E., and, oh, I had one man
12 from Honeywell who had managed 340 people in some of the
13 missile programs as one of my managers, and he explained
14 to me a lot of the philosophies of those particular
15 programs.

16 And then, of course, I have had discussions
17 with Mr. Bland and Mr. Inskeep recently on the missile
18 and space programs.

19 Q What do you see as the principal differences
20 between if we can characterize them as the non-nuclear
21 QA programs versus the nuclear QA programs?

22 A (WITNESS HUBBARD) I think the non-nuclear
23 ones have had more discipline. For example, this whole
24 idea of buying commercial grade in the nuclear industry,
25 that wouldn't fly. That would not be a part of the Army

1 or the Navy or the aerospace program. You wouldn't say,
2 well, since I can't get a Navy-qualified valve, we will
3 just go buy a commercial one. When you talk about
4 components like transistors, resistors, you don't buy
5 them at a radio warehouse, you get them to a mil spec
6 warehouse.

7 So the engineering discipline in the front is
8 greater. There is also a greater degree of testing or
9 qualification before you go into production and greater
10 control over that. And there is also more third party
11 inspection. For example, on a submarine detector, you
12 build a couple of prototypes and then you give them to
13 the Navy and they independently check them out. They
14 give them back to you and then you are allowed to start
15 building them on a production basis.

16 So the NRC does not have that involvement. I
17 mean generally they don't even witness the prototype
18 testing that is done by the manufacturer. You send in a
19 report. Well, there is quite a difference in that.
20 Likewise, the Navy program is somewhat similar to the
21 ASME program. When you are ready to ship equipment --
22 well, the Navy has had hold points and they have also
23 witnessed your tests, and I would say Admiral Rickover
24 doesn't allow you to ship something until his people
25 sign off that it is ready to be shipped, and it had

1 better be right, and they know that.

2 The NRC doesn't have that and many utilities
3 do not do that.

4 Q Isn't there a significant difference between
5 the NRC role and Admiral Rickover's role, in that
6 Admiral Rickover is buying what he is going to use,
7 whereas the NRC is a regulatory body?

8 A (WITNESS HUBBARD) One could say that. But
9 then --

10 Q Well, isn't it true?

11 A (WITNESS HUBBARD) Well, I think the NRC could
12 have seen that somebody does that. The NRC is totally
13 dependent upon the manufacturer to do that or that the
14 utility voluntarily goes in and does any witnessing that
15 they feel is necessary. There is a different degree of
16 discipline. And the last one, I guess, would be in
17 field feedback. Since things have more pedigree going
18 in, then you can then have a better program of what I
19 call Criterion 19, of feedback of operating information
20 to see what changes need to be made.

21 Q It is true, isn't it, that the aerospace
22 programs and the military programs are not error free?

23 A (WITNESS HUBBARD) That is correct.

24 Q I am turning to page 91, Mr. Hubbard, where
25 you discuss the guiding principles for the protocol for

1 the audit of LILCO, in which your proposal, as I
2 understand it, would involve three parties: independent
3 body, LILCO, and representatives of the County. Is that
4 correct?

5 A (WITNESS HUBBARD) That is correct. I also
6 said the Board should have a meaningful role.

7 Q In the Torrey Pines and Teledyne work for
8 LILCO, this situation doesn't exist. However, do you
9 know to what extent LILCO has played a similar role,
10 what the protocol would call for in terms of weekly
11 reviews and projections as the studies were going on?

12 A (WITNESS HUBBARD) I am not aware of that.
13 The look-aheads that I have in my testimony were to give
14 all parties an opportunity to witness work being done.
15 For example, on Torrey Pines you had 50 people out in
16 the plant looking at as-built. It would seem to me if
17 you have said a week in advance we are going to have
18 this team looking here and this team doing that, then
19 various of the parties might say, okay, that makes
20 sense.

21 Like the NRC would say I would like to go take
22 a day's look at that, just you see how it is being done,
23 what the checklist looks like and so forth. Likewise, a
24 look-ahead report would help if there were a meeting,
25 that there were, for example, some potential findings,

1 and maybe I'm not using the right word, but there is
2 going to be a meeting to go over a potential finding to
3 see if it maybe ought to be a finding, and they might
4 want -- they the NRC or the County or anybody else --
5 might want to sample some of those meetings to see what
6 the procedure was, how it was done, how thorough and so
7 forth.

8 So that was the idea, that without being
9 burdensome to the reviewer, be it Teledyne or Torrey
10 Pines, if they told everybody a week in advance what
11 they were planning to do, which would help LILCO's
12 schedule and it would also help because they would come
13 in and do a brief inspection, and then when it is
14 completed, they would say, yes, I have observed it and
15 this is my comments on it.

16 Q Would the protocol envision any feedback to
17 the investigators during the process of the
18 investigation?

19 A (WITNESS HUBBARD) The protocol I had
20 recommended is in the third paragraph where I talked
21 about an equivalent relationship, to review and comment
22 on work scope, acceptance criteria, things of that
23 sort. What I was looking at is you put the independent
24 auditor up here at the top as a block, and then all of
25 the parties would be focusing in on that, and if

1 somebody said, well, we want to have the right to review
2 the work scope, then all parties would review the work
3 scope. If there was a need to send out the acceptance
4 criteria for comment --

5 Q Excuse me. Would there be input at that time
6 from the group to the investigator?

7 A (WITNESS HUBBARD) Yes, there would, so that
8 the investigator would seek input from all parties
9 simultaneously so that any reports would reflect
10 everybody's view at the earliest possible time.

11 Q And do you have an opinion about whether that
12 would be more or less independent than the current
13 Torrey Pines and Teledyne investigations?

14 A (WITNESS HUBBARD) I think it would be more
15 independent.

16 Q In what sense?

17 A (WITNESS HUBBARD) Well, right now both the
18 NRC and the County are precluded from participation in
19 the audit all together, so any comments we have are
20 going to be after the fact. We have not witnessed any
21 of the actual work taking place, so we can't have an
22 opinion that it is adequate or inadequate. We will have
23 to just make a judgment. So I feel a real opportunity
24 has been missed.

25 Q Well, in a different vein, hasn't the

1 investigator been more independent in not having that
2 surveillance and input?

3 A (WITNESS HUBBARD) That is not correct. On
4 the Torrey Pines review my reading is that LILCO and
5 Torrey Pines have had discussions about the work. The
6 Teledyne review, at least in theory, appears to be a
7 little more insulated, but obviously there have been
8 meetings where information is transferred. And I think
9 that the structure that has been adopted by LILCO for
10 Torrey Pines and Teledyne doesn't meet the real
11 independence criteria that is being done. Well, I have
12 said it.

13 Q Well, what I was seeking was what you just
14 told me, was whether or not there were these kinds of
15 discussions between LILCO and the investigators during
16 the course of the investigation, because I think we had
17 some LILCO testimony, at least at some level within the
18 LILCO organization, where they had no contact whatsoever.

19 A (WITNESS HUBBARD) That is correct, but we
20 also had the testimony that once -- whatever it is
21 called, and I don't want to call it a potential finding
22 because I would have to go back to the nomenclature --
23 but once something is written up, it is given to LILCO,
24 they review it, comment on it, give it back, and then it
25 is put through the process, and then the time that the

1 Torrey Pines report was received, even the corrective
2 action had been agreed upon and may, in fact, have even
3 been implemented. So there have been a number of
4 exchanges of information between LILCO and Torrey Pines
5 before the report was issued.

6 And I don't mean to impugn the independence of
7 Torrey Pines at all, but I would have thought that it
8 would have been a better protocol to have gotten input
9 from everybody that is interested in this
10 simultaneously. In fact, it might even be not to the
11 County's best interest because, knowing in advance what
12 the County's comments were, they could have possibly
13 resolved them in the final report, so you would have
14 gotten a report that had everybody's comments in it and
15 Torrey Pines' resolution of it, which we might not have
16 liked but we would have already had them resolved.

17 Q Are these discussions documented?

18 MR. LANPHER: Judge Morris, which discussions?

19 JUDGE MORRIS: Discussions between Torrey
20 Pines and LILCO during the course of the investigation.

21 THE WITNESS: I don't know. Some of it surely
22 is documented, but the flow-back, the response to, for
23 example, potential findings, but I'm sure there are also
24 other parts that were not documented.

25 BY JUDGE MORRIS: (Resuming)

1 Q The initial findings are documented, are they
2 not?

3 A (WITNESS HUBBARD) To the best of my
4 knowledge, yes.

5 Q And the disposition is also documented?

6 A (WITNESS HUBBARD) To the best of my
7 knowledge, yes.

8 Q Now on a different subject, have you ever been
9 a part of an organization that was audited by the GAO?

10 A (WITNESS HUBBARD) No, I have not.

11 Q So you are not familiar with their techniques.

12 A (WITNESS HUBBARD) I am familiar with their
13 techniques because I have done work for GAO.

14 [Pause.]

15 Are you waiting for me to answer?

16 Q No. You gave me a piece of new information
17 that I am trying to digest, namely, that GAO contracted
18 for assistance. I wasn't aware of that. I take it you
19 were not involved in the GAO review of the NRC.

20 A (WITNESS HUBBARD) Not directly. However, I
21 did talk to the other engineers who are consultants for
22 GAO who were involved in that, but I didn't talk to them
23 until after the review was completed.

24 Q In 1976 did General Electric in the
25 department that you managed have a systematic program

1 for quality assurance on nonsafety-related items?

2 A (WITNESS HUBBARD) In my opinion, no.

3 Q Do you know whether they do today?

4 A (WITNESS HUBBARD) I don't know.

5 BY JUDGE BRENNER:

6 Q We are going to go to Judge Carpenter in a
7 moment, but I would like to get one clarification on
8 your answer about your involvement or lack thereof on
9 the GAO report of the NRC. I take it you meant the
10 report excerpts of which have been marked LILCO Exhibit
11 50?

12 A [WITNESS HUBBARD] Yes. That is EMD's 78-80.

13 Q You said you discussed the matter with the
14 engineers involved with GAO after -- I forget what word
15 you used, but it was other than "report." I think you
16 said after their review or something.

17 A [WITNESS HUBBARD] I meant to say after the
18 report was issued. And to put it into context, I have
19 been involved in the Diablo Canyon proceeding for years,
20 and so one of the plants that was looked at was Diablo
21 Canyon, and I did talk to GAO personnel and also to an
22 outside consultant they had hired about their views of
23 Diablo Canyon; plus, as I recall, I participated in
24 Freedom of Information Act requests to get their notes
25 as they related to Diablo Canyon, as well as some NRC

1 correspondence as it related to Diablo Canyon.

2 Q But your discussions and involvement with the
3 people doing the GAO report was after the report was
4 issued?

5 A (WITNESS HUBBARD) That is correct.

6 Q Who did the work for them under contract?

7 A (WITNESS HUBBARD) I can't recall the
8 gentleman's name. He is an individual engineer in
9 Kentucky. It is not a firm like SAI or EDS or
10 something. It was a single individual contractor.

11 Q Even single individuals have taken to assign
12 three letters to their firm name.

13 [Laughter.]

14 A (WITNESS HUBBARD) I mean this was one
15 contractor I talked to. There may have been others.

16 JUDGE BRENNER: Thank you.

17 BY JUDGE CARPENTER:

18 Q Mr. Hubbard, I have only a few questions, and
19 they also, unfortunately, are broad. In the sense of
20 having sat and listened now for more than a few days, I
21 am trying to step back and look at the forest and not
22 just the trees for a minute.

23 I believe yesterday you make a remark that
24 while you were at G.E., the people that you reported to,
25 you used the expression "what do you have to do to get

1 the static down," and I think that is a very graphic,
2 understandable term. Moving from that notion of static
3 to an equivalent term of noise, would you say that in
4 your mind they are roughly equivalent?

5 A (WITNESS HUBBARD) Yes. I talked about the
6 noise level or static level.

7 Q The reason I went to noise was to go over into
8 garden variety communication theory and Mr. Haass' point
9 that QA should be a tool, not a papermill but a tool,
10 and I want to explore a little bit the difference
11 between observing noise so that I know the system is
12 functioning -- I am used to being in a fairly risky
13 environment at sea, and I want to hear the static, I
14 want to hear the noise on the radio so that I know if
15 there is signal, I will hear it, and this is what I am
16 trying to distinguish. I am speaking about very broad
17 terms, and I think you see what I am trying to focus on
18 is I can't avoid the noise if I am going to have a
19 system in which I can receive signals. That is where I
20 want to start from, that the noise is unavoidable.

21 Would you agree that that is a fair
22 description in very loose terms, that the QA program
23 inherently produces a lot of noise?

24 A (WITNESS HUBBARD) Not necessarily. I would
25 like to define the noise for the sake of just

1 communicating here maybe in two ways. One, noise level
2 would be warranty costs. That is something that, as
3 your warranty costs go up, there was at G.E. what was
4 called a quality cost system, and an example would be
5 you can spend money to prevent a problem from happening
6 and then you can also spend money doing inspection and
7 tests, those sorts of things, before you ship a product
8 or during the time you are manufacturing it. So those
9 are costs, one set of costs.

10 Another, if you don't do a good job on that,
11 you get two other costs. One is warranty costs, and a
12 second is what you might call rework or scrap or both,
13 where rework and scrap have to do with cost for having
14 done something wrong. And as a quality manager, one of
15 the things you do is juggle those costs. You look, and
16 if your warranty costs are going up, then you can afford
17 to add a couple more inspectors and testers, or you can
18 make a decision that it makes more sense to do that. So
19 that is one way that what is done. To measure the noise
20 level, you look at what your costs are for prevention
21 and appraisal and internal and external failure costs.

22 Q No, I think you are going beyond what I was
23 implying by noise. You are now interpreting the noise,
24 or interpreting the level of the noise; and I was asking
25 first of all the question: isn't a certain noise level

1 inherent in a QA program?

2 A (WITNESS HUBBARD) Well, I will go to another
3 example.

4 Q Let me get more specific. Turning to page 81
5 of your prefiled testimony, you make reference to
6 critical defects, major defects and minor defects, and I
7 am trying to get your help to see whether I perceive
8 correctly; that I expect to see, if the system is
9 functioning, I expect to see reports of minor defects
10 with a fair frequency, and I am not going beyond that in
11 terms of interpreting what an acceptable level of the
12 noise is. Is that a reasonable concept?

13 A (WITNESS HUBBARD) Not entirely.

14 Q Can you help me with what is unreasonable
15 about it?

16 A (WITNESS HUBBARD) Yes. The minor might be
17 more used to establish a sampling frequency. You would
18 say I am willing to sample this less frequently. So it
19 might have more to do with frequency. Like a critical
20 defect, you would maybe want to do 100 percent
21 inspection of what I call a critical characteristic.
22 You just absolutely had to be sure that that was right.

23 Well, on something that was minor, you might
24 be willing to look at 10 out of 100 and make a judgment
25 knowing there was some possibility you were wrong. So

1 that would get into the degree in which you apply the
2 program.

3 However, you are right in the other point,
4 that if I were doing an audit and I were auditing, say,
5 like a control panel that I had certain critical
6 characteristics, certain majors and minors, when I
7 graded how well my people had done in testing and
8 inspecting the panel, if they had missed a critical
9 characteristic, that would be more demerits than if they
10 had missed minor.

11 So we actually would use this system and we
12 would take a production control panel that had already
13 been inspected and tested and give it to another set of
14 inspectors and testers and have them redo it, and in
15 advance we would assign critical major and minor to the
16 things they might find and issued and said demerits for
17 each. So if you missed one critical, you might get
18 three demerits. It might take missing five minors to
19 get three demerits, but we had made a judgment on that
20 in advance.

21 Is that helpful?

22 Q Yes. But also I think you suggested a
23 critical defect gets to be what I would call a signal
24 that might trigger a stop-work order or a complete
25 review of that whole activity vis-a-vis a minor defect,

1 which might lead to improved training program, et
2 cetera, increased audit frequency, et cetera, so that
3 the grades do go from noise to signal in terms of action
4 versus attentiveness.

5 A (WITNESS HUBBARD) That is not true in all
6 cases. I might have a lot of minor characteristics not
7 being done right, we will say, in purchasing. I have a
8 general feeling that the purchasing people aren't
9 controlling documents very well. I might have and I
10 might decide as a matter to get their attention and to
11 shock the system a little bit that I would make a
12 decision there are going to be no more purchase orders
13 until this gets straightened out.

14 You would say, well, there wasn't any one
15 major problem, and I would say that is right but there
16 were too many of these minor ones so I am going to shock
17 the system and I'm going to make a point that is going
18 to get their attention, and I have done that.

19 Q That is where I have some problem of
20 translating that, sort of. I follow you, I think, quite
21 accurately, and I certainly agree with you that that
22 would be reasonable. Where I am having trouble is
23 looking back at the construction practices at Shoreham,
24 and you frequently refer to the need to carry out the
25 program in a controlled manner, and the appearance of

1 lack of control in certain respects, I think, derives
2 from the fact over the long period there have been
3 changes in design criteria and just a remarkable number
4 of change orders and changes in details of design over
5 the period of time.

6 Is that a fair impression by me? Because once
7 again, I'm trying to look at the forest?

8 A (WITNESS HUBBARD) I don't think you have
9 enough evidence to look at why there are so many change
10 notices. Change notices can be because of regulatory
11 changes, change notices can be because the design wasn't
12 completed when it was originally done, change notices
13 can be because the design was originally done
14 incorrectly, change notices can occur because the people
15 in the factory or at the site built it differently than
16 in the drawings but it is still all right so you just
17 change the drawings. There are innumerable reasons why
18 you can have change notices, and that is one of the
19 things that you do as a QA manager, is you look at why
20 these are occurring.

21 Q Well, that is why I asked you the question as
22 to what your perceptions were, whether a fair percentage
23 or significant percentage of these changes derive from
24 either changes in regulatory requirements or
25 interpretations of regulatory requirements over the ten

1 years or so.

2 A (WITNESS HUBBARD) Well, I did pull a sample
3 of E&DCRs to look at to try to make that judgment, and
4 the information didn't lend itself to making that
5 decision. I could give you a subjective view that a
6 number of the E&DCRs that I did review had to do with
7 correcting -- well, to accepting what had been done in
8 the field. It wasn't quite done to the drawings, but it
9 was accepting work that was done. There were a large
10 number of those. But I wouldn't want to say I made a
11 complete analysis of the E&DCRs because I haven't. I
12 just took a sample of them to get a feel over time for
13 what was being written on E&DCRs.

14 Q Do I have the correct perception that to go
15 towards your level of control that you think is
16 desirable would really require going to standardized
17 plant design so that much of the design was carefully
18 reviewed, at cetera, before anything started? That is
19 the only way I know to avoid these "I had to build it
20 this way, let's see if it's all right" sort of documents.

21 A (WITNESS HUBBARD) That is absolutely not the
22 case, Judge Carpenter. I was at the Palo Verde project
23 in Arizona, and the man running that, Ed van Brundt, who
24 had run the Millstone plant or project when I was
25 involved at G.E., and we were talking about how this one

1 was going better than the Millstone BWR. And he said,
2 "Dick," he said, "the difference is," he said, "here I
3 made sure the engineering was done before we started
4 construction." He said, "I held up construction much
5 later in the project and took a lot of static for it,
6 but," he said, "this time we didn't put up walls and rip
7 them down, put them up, rip them down." He said, "I
8 made a decision that we were going to get the
9 engineering complete and then we're going to build it.
10 And," he says, "I poured in 7000 people to build it.
11 But," he said, "I went with complete engineering."

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1 I think there is much to be said for that in
2 the manufacturing end. You can go ahead and build a
3 prototype and really test it out and then go into
4 production, or you can just start building them, and
5 then you get ten built and you find you've got some
6 problems. Then you have to modify all ten of them. So
7 I am not at all implying you have to have a standardized
8 plant to have QA discipline.

9 Q Well, I wasn't implying the extreme, and your
10 example was sort of a halfway in the sense of going
11 further with the design and engineering before starting
12 construction.

13 Well, I guess that framework -- I would like
14 to ask, I presume you are quite familiar with the
15 details of the numerous Stone and Webster LILCO audit
16 findings that have been admitted into evidence.

17 A (WITNESS HUBBARD) I am generally familiar
18 with them, yes.

19 Q Would you say that you've reviewed them
20 carefully?

21 A (WITNESS HUBBARD) I think I've reviewed
22 them. I might have liked to have had more time to
23 review them when you use the word "carefully," but yes,
24 I reviewed them.

25 Q Well, I want to try to lay a foundation for

1 the next question which is I would like your help. Can
2 you direct my attention to any of those findings which
3 require corrective action that you feel hasn't been
4 taken in order to avoid undue risk to the public if this
5 plant operates?

6 A (WITNESS HUBBARD) Yes, Judge Carpenter. I'm
7 going to have to give somewhat of a circular answer to
8 your question because it accepts a hypothesis that you
9 can fix anything at some point in time, and there is
10 that part that is built into your question.

11 Q No. I'm asking you do you see an action item
12 for this Board, something that we can do as a result of
13 this extensive testimony?

14 A (WITNESS HUBBARD) Yes. It seems to me there
15 has been indications that there was a lack of discipline
16 in having procedures; that things were done before
17 procedures existed. And there are numerous cases of
18 that, of Criterion 5.

19 There is evidence that indicates E&DCPs,
20 particularly that Courter had control problems. There
21 is indication that Criterion 13 on the general
22 maintenance of storage over time had problems. There is
23 a great deal of information that suggests that what is
24 in the FSAR is different than the as-built plant. There
25 is information that suggests that the electrical cable

1 separation, the cables were built and the separation
2 criteria were still being worked out.

3 There is some evidence which suggests that
4 welding, that the number of welding defects went up
5 straight with the number of additional welders, which
6 would indicate you didn't have a learning curve in the
7 sense that as you got more welders on, the control
8 program was better, so you reduced the number of defects
9 per welder. But that that sort of reduction in defects
10 didn't take place.

11 So you look at all of that together and then
12 to look at design, you look at it and you say well,
13 really there hasn't been much NRC review of detailed
14 design implementation. So it would seem to me as a
15 Board that you are left with saying, well, I need some
16 sort of an independent review of this because there is
17 conflicting evidence. And one way to do that is with
18 the review that I have suggested.

19 And in some ways the Torrey Pines and Teledyne
20 review may provide that information to the Board.
21 However, you would then have to look at the scope and
22 the independence of what they've looked at. My personal
23 view is that Torrey Pines and Teledyne are
24 extraordinarily important in providing a view of how
25 well the program has in fact been implemented, again

1 with the caveat on scope and methodology and so forth.

2 And I guess the final thing I would try to say
3 is I have tried to discuss remedies that I think are
4 practical, that I'm not saying you need to tear anything
5 down or do destructive testing or anything of that
6 sort. And it is like the testimony on surveillance or
7 the storage areas. I have tried to look at what well,
8 what can we do now to get some assurance, or the
9 requisite amount of insurance. And we have also made
10 proposals on the OQA of how those procedures could be
11 made more detailed. So I think prospective actions can
12 be --

13 Q My question had to do with the Stone and
14 Webster and LILCO audit findings during construction. I
15 quite agree with the OQA, and that is one of the
16 problems I have with running contentions together and
17 jumping back and forth which seems to be popular. In my
18 mind it doesn't work that way. I think about a question
19 and try to resolve that question and go on to the next.

20 So let me go back to the specific question
21 which had to do with all of these findings that we've
22 looked at. And I just wanted to see whether you saw
23 something as an action item that I hadn't thought of,
24 and that is why I was probing a little bit a license
25 condition or what have you. And that doesn't occur to

1 me.

2 A (WITNESS HUBBARD) That doesn't occur to me,
3 and that is why I would rely heavily on an independent
4 design review and physical inspection.

5 Q One last question. You have referred to
6 welding and a learning curve and so on. You've used the
7 word breakdown, quality assurance and quality control.
8 I would like your help as to your reaction to the
9 reports that were in the quality assurance department
10 reports, the management quarterly reports to Mr. Gerecke
11 which point out that the rejection rate for welds at one
12 point in time in the construction process was 80 percent
13 and had decreased to 20 percent.

14 I think that supports your remarks about
15 learning curves, but I don't conclude that the quality
16 assurance was breaking down when the rejection rate was
17 80 percent. I read that as a pretty adamant position
18 about trying to maintain quality.

19 Is that a fallacious interpretation?

20 A (WITNESS HUBBARD) I think so because if I
21 were the QA manager and I was rejecting 80 percent of
22 the welds, I should have stopped work and get the
23 welders trained so I don't have to reject 80 percent.
24 That's very expensive.

25 Q I think the cost of the plant shows it.

1 A (WITNESS HUBBARD) And so that is why you have
2 a total QA program, including things like training and
3 special process control. Criterion 9 goes to special
4 processes. That in general before you do welding you
5 qualify the welder; you qualify the welder to that
6 process which has also been qualified, and then you let
7 him have at it.

8 But what I was referring to in the trend
9 reports I saw or I recollect, which seems to be a little
10 different than yours, I saw that the trend of rejections
11 was staying -- well, was going up. And the explanation
12 was well, they're going up because the number of welders
13 has gone up, and they are tracking the number of
14 welders, and actually they would have tracked the trend
15 of nonconformances versus people to show that they were
16 tending to track each other. And there was the
17 implication that that was acceptable, and I was trying
18 to reflect that I don't find that acceptable. I would
19 want the rate to go down as the number of people
20 increases.

21 Q Well, I say the report did say that the rate
22 went down, but it was after some period of time and at
23 the end of the construction.

24 Thank you very much for helping me with these
25 overall perceptions.

1 BY JUDGE BRENNER:

2 Q I have a few questions, Mr. Hubbard, and I
3 don't think I will take too long.

4 You mentioned that when you were at GE you
5 were involved on a committee that criticized design, and
6 I think that came up yesterday. I don't have a good
7 picture in my mind of any involvement by you in design
8 control measures of the type you have been focusing on
9 -- as verifying design control measures I should say --
10 of the type that you have been emphasizing as being
11 important, in addition to a physical inspection that is
12 a verification of whether the design concepts were
13 actually translated correctly into the implementing
14 documents which in turn, for your construction, would be
15 made to.

16 Could you help me with that? How were you
17 involved in verifying or checking the adequacy of
18 translating a design to the implementing documents, the
19 action documents?

20 A (WITNESS HUBBARD) Yes, sir. A customer would
21 come in to audit something we were shipping, and he
22 would bring with him his purchase order which is very
23 equivalent to the safety analysis report. In other
24 words, that describes what the man thought he bought or
25 the company.

1 Now, the item was not designed using the
2 purchase order necessarily. From the purchase order
3 then there were various drawings made, mechanical
4 drawings, possibly electrical. Then those were submade
5 into part drawings and wiring diagrams and so on and so
6 forth. So there is quite a hierarchy that comes from
7 this purchasing order. And I would be inspecting at the
8 end and testing to the GE drawings, not to the purchase
9 order.

10 And now here comes the man in at the end
11 saying well, this is what I bought; let's see if it
12 meets all of my criteria. Well, that would say that I
13 had to be confident that the design process, the process
14 of taking what was in the purchase order -- from our
15 standpoint here it is like what is in the safety
16 analysis report -- and that all of those steps had been
17 translated correctly in that whole hierarchy of
18 drawings. And that is where I would have people
19 involved in that review process to see that that was
20 correctly done at each step along the way.

21 Now, that was being reviewed on an audit basis
22 to see that that was being correctly translated. But,
23 again, at the end for our final inspections and tests we
24 had the purchase order requirements, if that were
25 possible, and we would be comparing that to what it is

1 we were building.

2 And so I needed to be sure that likewise when
3 we went to like a whole plant or something, I had to be
4 sure that what was going out was consistent with the
5 FSAR or PSAR requirements. So part of what was done in
6 the design reviews that I mentioned is we would go over
7 what were the GE licensing requirements to see if each
8 of those were addressed in the design.

9 Q On these audits to assure that the criteria
10 were translated to the implementing documents, was that
11 your QA organization that performed that, the overall
12 supervision?

13 A (WITNESS HUBBARD) We did some of that,
14 because we were at the end and we would get criticized
15 if we were building or ready to ship something that
16 didn't agree with the purchase order, I mean with reason.

17 Q Well, that end product, you see, is different
18 in my mind. I recognize how they are all different
19 parts of the same larger assurance and in overall
20 quality assurance, quality control; but I thin, of that
21 last end as being more the as-built verification with
22 the implementing documents. And I want to back up to
23 the first step that you have emphasized as being very
24 important in your mind also and I think in everyone's
25 mind, and that is verification of the design, the audits

1 like the engineering assurance audits performed by Stone
2 and Webster that we have looked at here in this record.

3 Let's take those as an example. Would you
4 agree that those are audits of the design verification
5 process?

6 A (WITNESS HUBBARD) I want to be sure we're
7 communicating. I think it was an audit of the process.
8 I don't think it was an audit that the design itself was
9 acceptable. I mean it would look to see if the
10 requisite number of signatures or if the papers were
11 being properly filled out or if a review by a second
12 engineer had in fact taken place and if it were
13 traceable to calculations, which isn't to say some of
14 the design reviews were not to go in and actually verify
15 the design itself. But I think that the majority of the
16 audits were more of the process than the adequacy of the
17 design.

18 Q What did the audits that were performed under
19 your supervision contain and look at?

20 A (WITNESS HUBBARD) They would be consistent
21 with what Stone and Webster did; that you would be
22 looking to see if the process was working and that there
23 was not a lot of auditing done to see that the design in
24 itself was right. We were a little like Dr. Denton. We
25 assumed that the engineers were doing their job

1 correctly.

2 Now, there was the one over one checking of
3 every design that was safety-related; that you had two
4 signatures. But you do get to some strange things,
5 Judge Brenner, like a tester I have that would be like --

6 Q Mr. Hubbard, I'm just trying to communicate
7 with you an understanding of what audits in part should
8 be performed for the process of verifying that the
9 design Criterion 10 had been translated to the
10 implementing documents and stopping at that point and
11 not going ahead to the other problem of whether it was
12 built in accordance with the implementing documents.

13 And what I'm asking you is whether the audits
14 performed under your general supervision at GE are
15 equivalent, different, and with whatever explanation you
16 want to add, with the audits that we have looked at in
17 this record, the engineering assurance audits
18 particularly since we are focusing now on that part of
19 the process.

20 A (WITNESS HUBBARD) I think the audits I did at
21 GE were consistent with what was done by Stone and
22 Webster. And then I would add that today I don't think
23 that was adequate based on, well, for example, what I
24 saw at Diablo Canyon; that the commitments were not
25 getting correctly translated onto drawings, and so that

1 the audit program has to go far beyond the process. And
2 that is why I think a review such as that by Teledyne
3 with the proper scope would be very important.

4 Q Can you concisely but expressly state what
5 that review should look at, in your view, and how? And
6 I'm not talking about the scope, whether it should be
7 100 percent or 70 percent, but just the characteristics
8 that would be looked at.

9 A (WITNESS HUBBARD) Well, I thought the
10 attachment to my testimony that laid out the Teledyne
11 plan as written out by LILCO, I think that that is a
12 pretty good way of going about it. It looked adequate
13 to me. My major questions were that it was only one
14 mechanical piping system, and I would have looked at
15 electrical system, and I would have looked at an air
16 system because they are a little different, and I would
17 have made sure that I covered both GE and Stone and
18 Webster.

19 Q With respect to the engineering assurance
20 audits performed by Stone and Webster that we looked at
21 on the record here and the somewhat equivalent type
22 audits that were performed under your supervision at GE,
23 and recognizing your view as to the limitation of
24 looking at those things as distinguished from the
25 Teledyne-type proposal, do you think that the results of

1 the engineering assurance audit findings show major
2 problems in the work that was done, the engineering work
3 that was done, or are those findings similar to findings
4 that you would expect?

5 A (WITNESS HUBBARD) Some of them would clearly
6 be what you would expect to find, but I think that they
7 did indicate that there were some areas that there was
8 some question in my mind about control. I mean we did
9 talk about calculations and E&DCRs, the sheer number of
10 them, and that looked like they had the potential for
11 causing problems.

12 And in the end it is not the quality of the
13 paper but the quality of the design in the as-built
14 plant that I think is important. And that is why I
15 guess I give more weight to what would be found by a
16 Teledyne or a Torrey Pines because now Teledyne can go
17 in and look at the design documents that have come out
18 of this process, and if those turn out to be good then
19 you can say well, even if the process wasn't as
20 controlled as I wanted or as disciplined, the results
21 are pretty good. But then if it turns out it isn't,
22 then you need to know why it didn't, and that is -- that
23 gets back to the root causes and the QA program.

24 Q On the E&DCRs the audit reports shared your
25 concern, the Stone and Webster auditors, did they not,

1 in the reports we looked at with respect to E&DCRs?

2 A (WITNESS HUBBARD) I believe they did, Judge
3 Brenner. However, like the Courter matter took many
4 years to resolve, so that gets into how long it took and
5 how repetitive was it. In my judgment it took too long
6 and there were too many repetitions.

7 Q I'm a little troubled, and I want to state
8 this expressly so you can clarify for me, if you think
9 clarification is necessary. I'm a little troubled by
10 your kind of dismissing the useful lessons that can be
11 drawn from all of those engineering assurance findings
12 given the extensive use by the County in this proceeding
13 of those findings in support of its contention.

14 A (WITNESS HUBBARD) I didn't dismiss them at
15 all. I will tell you what I had hoped that they would
16 convince you of. I had hoped they would convince you
17 that there is at least some lack of certainty about the
18 discipline, and that, therefore, the remedy would be
19 what I suggested at the end of the testimony of the
20 design review and physical inspection. Because if you
21 have some question about the discipline and the process,
22 then you want to look at the end product of that
23 process, and that is the design documents and the
24 construction implementation.

25 Q I thought the spirit, if not the expressed

1 words, of what you said before was in the nature of
2 dismissing the importance of a lot of what the
3 engineering assurance audits looked at, and that is why
4 I just asked you what I did.

5 A (WITNESS HUBBARD) Okay. Well, I did say that
6 they looked mainly at the process and not at the design
7 documents themselves in the sense of like was the
8 calculation correctly done.

9 Q Let me stop you with that example. But didn't
10 they look quite closely at whether people involved in
11 the process were in turn looking at whether the
12 calculations were correctly done? Wasn't that the whole
13 point of the adverse audit findings they made for
14 calculations where they couldn't see concrete evidence
15 of whether they were checked by the right checkers and
16 so on?

17 Isn't that part of what quality assurance is
18 all about?

19 A (WITNESS HUBBARD) Yes, it was, but again, my
20 recollection was that, well, somebody had just forgotten
21 to put their signature there. That is different than
22 the signature wasn't there. And, in fact, a thorough
23 reanalysis of the calculations or independent review had
24 not been conducted.

25 Q Well, would you want one of your auditors to

1 assume the absence of a signature was simply a matter of
2 somebody not putting the signature there when it was
3 checked, or would you want your auditor to assume until
4 proven differently that the missing signature meant that
5 the calculation was not checked by the person it should
6 have been checked by?

7 A (WITNESS HUBBARD) Well, I would want to find
8 what the facts were, and I would assume that until I saw
9 some documentation to show that the review had in fact
10 been accomplished, that the lack of a signature meant it
11 hadn't been.

12 Q Isn't that what some of the Stone and Webster
13 auditors were doing by making those findings that maybe
14 later turned out to be just nixed when the full story
15 was learned, but at the time the auditor made the findin
16 the auditor either didn't know that or didn't have it
17 proven to his or her satisfaction? Isn't that correct?

18 A (WITNESS HUBBARD) I think the latter would be
19 more the case: it wasn't proven to his or her
20 satisfaction. In my experience of auditing people have
21 a ready explanation if things are really all right and
22 that they produce that rather quickly.

23 Q In criticizing the lack of I&E or other NRC
24 staff involvement in the design verification process --
25 and I don't think it is necessary to look, but that

1 starts at page 60 of your testimony -- do you think the
2 staff's review would be markedly improved if the staff
3 had reviewed the engineering assurance audit reports by
4 Stone and Webster and other audit reports of the same
5 areas that may have been performed by GE and LILCO?

6 A (WITNESS HUBBARD) Well, I think to some
7 extent they are reviewed, Judge Brenner. I think the
8 I&E people do review the audit reports to some extent,
9 but you will have to ask them when they are here.

10 Q You anticipated my next question. You don't
11 know the extent to which the staff reviews those?

12 A (WITNESS HUBBARD) Well, I assume you mean
13 staff in the larger context, including both I&E and NRR.

14 Q Yes.

15 A (WITNESS HUBBARD) And I am familiar that I&E
16 does look at audit reports. In fact, that is true to
17 some degree. And I would assume that they would use
18 that part in deciding what ought to be looked into.

19 Now, the second part of your question, would
20 it make some sense for NRR to also be aware of those
21 audit reports, I think --

22 Q Well, you can answer that if you want, but I
23 didn't mean to ask that. I thought before in the
24 hearing on this issue I had gotten away from turf
25 disputes as to who should look at what within the staff,

1 and they prefer to look at them as one entity, and I
2 prefer to look at them as one entity from this
3 perspective.

4 Well, if I&E were to make adequate use of the
5 findings in the audit reports performed by the utility
6 and the utility's agents, then they would be involved in
7 that aspect of the process, would they not, even though
8 they are not performing their own direct inspection?

9 A (WITNESS HUBBARD) Well, that is a very
10 hypothetical.

11 Q Well, we will ask the staff whether they look
12 at it and to what extent, but you said you believe they
13 look at it to some extent, so I don't think it is
14 totally hypothetical.

15 A (WITNESS HUBBARD) I think the fact of how
16 much benefit they get from that is more appropriate for
17 them to answer than me. I would add one thing, though,
18 Judge Brenner, that again dating back to Diablo Canyon,
19 that part of the finding by the Board on Diablo Canyon
20 was that this was a more inspected plant because there
21 it wasn't just I&E, it was actually people from NRR came
22 out and looked at the design review or design packages.
23 And part of the judicial decision on Diablo Canyon was
24 that the staff's testimony was that this was a more
25 reviewed plant, so the probability of error was much

1 lower. And we have seen that to be absolutely not the
2 case.

3 And so I guess I do have a judgment that even
4 if I&E has looked at this to some extent, that isn't
5 going to solve the problem.

6 Q I appreciate your answer. I was focusing on
7 the narrow point that one could infer from much of your
8 testimony -- well, I will stay with I&E if you want to
9 -- that I&E's inspection has looked only at the
10 implementation of the last stage of implementing
11 documents into the construction and also into the design
12 to the extent only of their vendor inspection program,
13 and has not looked at all at the types of things that
14 the engineering assurance audits performed by Stone and
15 Webster looked at.

16 A (WITNESS HUBBARD) Well, I do need to correct
17 one thing. The engineering assurance audits in general
18 were at Boston, so the people from I&E that would be
19 looking at them are the vendor inspection people from
20 Region IV. And one of the problems I think that may
21 occur is nobody on the panel from the NRC from Region IV
22 who has either inspected GE or Stone and Webster; and
23 that can be an omission.

24 Q Well, we could find out, for example, if --
25 you said, I believe, that the staff could make use of

1 those findings in determining where to direct their
2 efforts or assisting in that determination. Am I
3 correct so far?

4 A (WITNESS HUBBARD) Yes.

5 Q We can find out when they're here as to
6 whether somebody said hey, these audit reports are
7 showing E&DCR problems; why don't you take a look at
8 what the field construction looks like on some of these
9 areas where all of these E&DCRs were backed up.

10 A (WITNESS HUBBARD) That is very correct. Did
11 Region IV contact the site -- that may be a very good
12 followup.

13 Q Well, maybe you can tell your counsel to ask
14 that.

15 (Pause.)

16 Q Changing subjects, we have focused a lot,
17 given the testimony of LILCO's witnesses, on the
18 necessary level of detail in the OQA procedures; and I
19 don't want to push that too far today because we are
20 going to come back to that area after the staff's report
21 is available.

22 But you were asked as to your involvement in
23 similar type procedures at GE, and you stated that your
24 organization under your overall supervision was involved
25 in many of the same type things, and you ticked off some

1 of the subject areas which are the same as titles of
2 sections in the manuals, such as procurement, document
3 control and control of special processes and measuring
4 and test equipment and so on.

5 Am I accurate so far?

6 A (WITNESS HUBBARD) Yes, sir.

7 Q That did not give me personally a very good
8 picture of the nature of the type of procedures that you
9 would be involved in implementing at the manufacturing
10 plant you worked at as compared to the procedures on the
11 same subjects that would be necessary to implement an
12 adequate and successful program at a nuclear power
13 plant, particularly in terms of the level of detail
14 necessary in the procedure.

15 Is there a different level of detail necessary
16 in the sense that there may be a difference in the
17 available hierarchy of documents? For example, LILCO
18 witnesses continuously -- one might fairly almost say
19 constantly -- referred to the fact that there were plant
20 procedures which contained a lot of detail which was not
21 in the OQA implementing procedures.

22 Did that same type of hierarchy exist at GE,
23 or is that an important difference; that there is a
24 plant operating staff with additional implementing
25 procedures beyond what the OQA staff would have?

1 That is a very broad question. I'm trying to
2 get a feeling for what you did.

3 A (WITNESS HUBBARD) That is a broad question in
4 terms of judgment. You don't want to have too many
5 procedures, so, for example, like on corrective action
6 you would prefer to have one procedure that everybody
7 followed, so that might be what would be called a plant
8 procedure or a department procedure.

9 You do want to make sure the interfaces are
10 covered, and so you want to have details at those
11 interfaces again into the who, what, when, and how; so
12 you want to have as few procedures as possible because
13 of the training, but you want the procedures you have to
14 have as much of who, what, when, and how as possible.

15 Now, yes, there are in a manufacturing plant
16 quite a hierarchy. You would have like department or
17 plant procedures which might discuss things that apply
18 to all of the groups, that they be done in a consistent
19 manner.

20 Then the quality manual, we would go -- or the
21 ones I wrote went a lot farther than the LILCO -- that
22 it would have as exhibits all of the forms and tags that
23 were to be used. They would be in and they would be
24 filled out to show a person how to do it and what it
25 should look like. And so it would really describe the

1 who, what, when, and how of the problem. All of the
2 interfaces would be worked out in that QA Manual.

3 Then there would be implementing procedures
4 below that which might have a little bit more detail,
5 but the management decisions of the who, what, when, and
6 how would have been made in the manual.

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1 Then you are correct that there is still like
2 welding procedures, hundreds of them. There are various
3 manufacturing procedures. There are workmanship
4 standards. We haven't talked about that. Like in a
5 manufacturing plant you have volumes of workmanship
6 standards with photographs of what is an acceptable this
7 and what isn't. So you want the right amount of
8 procedures, not too many, and you want to have it
9 defined. And in my review of LILCO there is a
10 proliferation of them and none of them quite do the job.
11 I would tend to want to consolidate so maybe redo some
12 of the hierarchy and put more detail in one place, and
13 right now we don't have the detail anyplace I can find.

14 Q Did you look at the plant procedures to see if
15 they, too, do not do the job?

16 A (WITNESS HUBBARD) No, I did not, other than
17 the ones that were provided, but that gets back to my
18 proliferation concern. It seems to me it is hard enough
19 to train people in the follow-up procedures, that you
20 want as few as possible, and that is why I would want to
21 have it as consolidated as possible.

22 Q What about the argument -- and I won't push
23 you too far, as I said, but let me try just a little
24 farther. What about the argument -- and this is my
25 interpretation but it is based upon what LILCO witnesses

1 said -- that they could put more detail in those OQA
2 procedures, and that way anybody, even somebody like
3 myself, could read them and figure out who is doing
4 what, when and where and how.

5 But it was really just an unnecessary writing
6 exercise because there was enough in there to tell
7 everybody what to do with the benefit of the additional
8 implementing procedures, and anybody involved in having
9 to follow those procedures also necessarily knew those
10 detailed procedures, which, as you stated, exist in
11 manufacturing plants and other endeavors in life also.
12 And it would be wasting time by putting all of that
13 detail in the OQA procedures, all of the stuff there. It
14 would be unnecessary eyewash, to put it bluntly, in
15 their view.

16 A (WITNESS HUBBARD) Well, that, again, is a
17 broad question. If I were to make a decision, for
18 example, if I were at NRR and had to review a program to
19 see that it was adequately implemented, I would want to
20 see more detail than I have.

21 Q How about from the point of view of the
22 organization implementing it, LILCO in this case.

23 A (WITNESS HUBBARD) From the point of view of
24 implementing it, coming from an engineering background,
25 I did not believe in procedures, and then I had, like,

1 19 project engineers working for me through three
2 managers, and I thought they were all running their
3 projects in the same way and we didn't need a lot of
4 procedures.

5 Well, we had a general manager who wanted us
6 to look over in detail how our people were doing their
7 work, and I was made chairman of the task force to do
8 that and I found, much to my chagrin, that the 19 people
9 were doing it quite differently. Then I began to become
10 a little bit more of a convert to the idea that you
11 write procedures in a little more detail than I would.

12 Right after I was assigned manager of the QA,
13 we at G.E. had to face a renewal audit on our ASME code
14 stamp, and we had not updated the manual since we got
15 the QA, or the ASME stamp in 1969. The outside auditors
16 from the ASME came in and they took one look at the
17 program and sat in my office and they said, well, now,
18 Mr. Hubbard, who is responsible, what did they do, when
19 did they do it? And I was giving them my opinion, much
20 like here, and at the end of two days they went like
21 this and said, well, we will be back in six weeks, you
22 don't get your stamp renewed but you can continue to do
23 some of it.

24 And we worked very hard for that six weeks or
25 couple of months getting a program in order that said

1 who, what and when all in one place, and how.

2 Q Was their problem that the who, what, when and
3 how didn't exist at all, or it existed in other
4 procedures lower down in the hierarchy?

5 A (WITNESS HUBBARD) Partially that it existed
6 in people's minds, not on paper, part that it was
7 someplace else, but they said, look, we are giving you a
8 stamp based upon this manual, this is what we are
9 reviewing, we want to see the program here. And what I
10 really picked up in terms of how, there needs to be
11 enough information there that you have got control.

12 At the time it was a painful experience, but
13 in hindsight I believe they were absolutely right
14 because we then structured the 18 criteria programs the
15 same way, and I felt it worked.

16 Q Is part of what you are saying a prediction
17 that, based on the experience you have articulated, that
18 Mr. Muller may think -- that you may agree that Mr.
19 Muller knows what to do and that Mr. Youngling knows
20 what to do and they may think their people know what to
21 do, but when they start looking at what all of their
22 different people are doing, they may find out that they
23 needed more detail in the procedures than they imagined?

24 A (WITNESS HUBBARD) I think there is a
25 reasonable probability of that, and plus for training.

1 I mean if you get it boiled down in one place and do the
2 training, it does make it easier, in my view.

3 Q I am trying to figure out what an objective
4 test would be to know whether the requisite level of
5 detail is contained in the right procedures, and I am
6 soliciting your view on whether such a test might be
7 whether people with knowledge and experience and the
8 expertise in the field but not people actually that have
9 been doing the work at LILCO under the procedures can
10 tell, can read the procedures and then state that they
11 now know who does what, when and where, and actually
12 state what that is.

13 Would that approach some sort of objective
14 test?

15 A (WITNESS HUBBARD) I think it would.

16 Q So that maybe one thing we could do is ask the
17 Staff after their review whether they can tell that as
18 distinguished from saying the people at LILCO know what
19 to do. Is that true?

20 A (WITNESS HUBBARD) That is possible.

21 JUDGE BRENNER: That is all I have.

22 All right, we will break for lunch at this
23 point unless there is something that need be said before
24 the break.

25 MR. BORDENICK: I am just curious as to

1 whether we have a prognosis of when we are going to
2 finish with Mr. Hubbard and take up schedules.

3 JUDGE BRENNER: That is a good thought. Mr.
4 Lanpher, do you know how much you have?

5 MR. LANPHER: I think I can be done in 30
6 minutes.

7 JUDGE BRENNER: Well, I shouldn't cut it off
8 after you. How about follow-up by the other parties
9 based upon the Board questions? Is there going to be
10 any?

11 MR. ELLIS: There will but it will be very
12 brief. If asked for an estimate, I don't know that I
13 could be as accurate as I was this morning because I
14 haven't had a chance to discuss it.

15 JUDGE BRENNER: I interpret "very brief" as
16 less than 30 minutes. Is that a fair interpretation?

17 MR. ELLIS: Yes, that is what I meant, 30
18 minutes.

19 MR. BORDENICK: Mine will be even briefer than
20 that. It will be brief brief.

21 JUDGE BRENNER: All right. So when we come
22 back we will have about an hour to an hour and a half,
23 at the most. So that would be 1:00 to 2:30. Then we
24 would be prepared to pick up schedules then at about
25 that point.

1 But whenever we get to it, I am very anxious
2 to nail down the dates for the Staff review, I told you,
3 so if you need a technical person from the Staff here,
4 that is up to you. If you have all of the information,
5 that is fine, but we are going to take that estimate and
6 make them required dates, and then if you have problems
7 with that and the precedent and so on, what we will do
8 is establish the right procedure in order to vary that
9 date for good cause to be shown and that type of
10 approach because a lot of people's schedules are going
11 to turn on that, and now that we are in the near
12 timeframe, we feel it is fair to do that. We certainly
13 have not done that heretofore, as you know. Mostly it
14 is going to be the containment isolation area that is in
15 doubt. We are going to do it as to the others, too.

16 Let's break until 1:10.

17 [Whereupon, at 12:05 p.m. the hearing was
18 recessed, to reconvene at 1:10 p.m. the same day.]

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1 AFTERNOON SESSION

2 (1:10 p.m.)

3 JUDGE BRENNER: Okay, we are ready to go back
4 to the final round of redirect now, and you can include
5 in whatever sequence you want the matters you deferred
6 until today as well as follow-up questions.

7 MR. LANPHER: That is what I intended to do,
8 Judge Brenner, to do it all at one time.
9 Whereupon,

10 RICHARD B. HUBBARD,
11 the witness on the stand at the time of recess, resumed
12 the stand and was examined and testified further as
13 follows:

14 REDIRECT EXAMINATION

15 BY MR. LANPHER:

16 Q Mr. Hubbard, I would first like to direct your
17 attention to page 21 of your prefiled testimony. Mr.
18 Hubbard, there was discussion between you and Mr. Ellis
19 about your characterization of eight discrepancies and
20 the fact that the CAT inspection used the word "minor"
21 in front of the word "discrepancies" and you deleted
22 that.

23 You were asked questions subsequently by Judge
24 Carpenter regarding whether in your view the use of the
25 word "minor" is proper in a quality assurance context.

1 What is your opinion, sir, regarding the use of the word
2 "minor" in a quality assurance context?

3 A (WITNESS HUBBARD) Later in my testimony I do
4 talk about classifying characteristics where they would
5 have major characteristics, minor and critical, and that
6 if in advance of running the test, the classification
7 has been made, then you could say, well, this is a minor
8 defect because you will have decided in advance that
9 such a defect is minor. However, in the context that I
10 felt "minor" was used in the CAT inspection, it was that
11 these particular types of breakdowns are just minor
12 ones, and that from a quality assurance standpoint I
13 don't agree with -- I think any time you are following
14 the requisite procedures, that that is something that is
15 significant. I would never call it minor.

16 Q Mr. Hubbard if you could turn to the next
17 page, 22, there were questions relating to Breakdown 16,
18 and I believe in your earlier testimony in response to
19 Mr. Ellis you stated that the Criterion 13 violation
20 that you testified to related primarily to the fact that
21 the vent lines had not been plugged or capped to prevent
22 dirt and dust from entering the valves.

23 Mr. Hubbard, are you aware of any other
24 requirement or commitments that this particular quoted
25 portion may be contrary to?

1 A (WITNESS HUBBARD) Yes.

2 MR. ELLIS: Objection. That calls for new
3 testimony, I think.

4 JUDGE BRENNER: No, because he was questioned
5 somewhat about -- more than just somewhat about that
6 finding quoted there, and there was discussion as to
7 which part of that finding went to which criterion and
8 whether he interpreted the tags being for one criterion
9 as distinguished from the vent valves being plugged or
10 capped going to Criterion 13. And given that plus the
11 other testimony we have heard as to the applicability of
12 the particular criterion for a particular matter, it is
13 fair follow-up, so I will allow the question.

14 WITNESS HUBBARD: Yes. In Appendix 3B of the
15 FSAR, LILCO commits to meet Regulatory Guide 1.38.
16 Regulatory Guide 1.38 calls out ANSI Standard
17 N45-2-1972, having to do with storage, handling,
18 receiving and so forth that we have discussed earlier in
19 this proceeding, and as part of that ANSI standard,
20 paragraph 6.4.2(1) states that items in storage shall
21 have all covers, caps, plugs or other closures intact.
22 And then it goes on to say covers removed for internal
23 access at any time for any reason shall be immediately
24 replaced and resealed after completion of the purpose
25 for removal.

1 BY MR. LANPHER: (Resuming)

2 Q Mr. Hubbard, this morning in response to a
3 question by Judge Carpenter you testified that while you
4 were at General Electric you had on occasion utilized
5 your stop-work authority more or less to shock people --
6 I'm not sure if you actually used the word "shock," but
7 to shock people.

8 JUDGE BRENNER: Yes, he did.

9 BY MR. LANPHER: (Resuming)

10 Q To shock people into letting them know that
11 the quality assurance program was there and that it had
12 to be complied with. Now, earlier at a prior time this
13 morning in response to Judge Morris, he was asking you
14 questions relating to what criteria might be utilized
15 for stop-work at a nuclear power plant, both design,
16 construction and during the operations phase. You
17 didn't mention in response to Judge Morris this sort of
18 shock category criterion. Was there a reason?

19 A (WITNESS HUBBARD) I really hadn't thought
20 about it at the time, so that was the reason. And
21 thinking back over the types of times that one might
22 have wanted to stop activities, that a fair number of
23 those would be to make a point, and it would be really
24 based upon a number of these so-called less important
25 problems. So then one would look at that and say, well,

1 let's stop work in a particular area until that gets
2 corrected. I know when I said less important, that is a
3 little inconsistent with what I said before about minor,
4 that I think you do have to classify characteristics,
5 but then when you get the sum total of things together,
6 then you say that is important, and so I think that does
7 make it consistent.

8 Q Mr. Hubbard, you also testified this morning,
9 I think it was in response to Board questions, relating
10 to the deficiency reports concerning welding, and you
11 expressed a concern that the number of reports had
12 continued to increase, and I believe you also said that
13 you would have expected that the number of deficiency
14 reports would have gone down as the number of persons
15 involved in welding increased. Was that a correct
16 statement?

17 MR. ELLIS: Judge, I object to this question.
18 This was not a question that was asked. It was an
19 example, one of myriad examples that he chose to raise
20 in his answer, and it is a bootstrap in order to be able
21 to raise new areas that were not raised on cross or
22 redirect.

23 JUDGE BRENNER: To agree with you I would have
24 to rule that the answer was non-responsive to the
25 question, and my recollection of the answer and the

1 question is that that is not the case. His answer came
2 up in discussion as to whether -- well, I'm not sure
3 enough to say it was not responsive, but my recollection
4 is it was responsive. I think it came up in the context
5 of as things go on, would you need a lesser number of
6 quality control people and efforts.

7 I may be wrong, but it happened today and I
8 don't have the transcript, so I am not prepared to say
9 if it was non-responsive. It is my recollection that it
10 wasn't non-responsive at the time, so I will allow it.

11 WITNESS HUBBARD: I meant to say that I would
12 expect defects on a per-person basis to go down as the
13 number of welders increased, and that would be because
14 you would have the learning curve and you would have the
15 training from the previous welders so that then on a
16 per-person basis as you increase the number of welders,
17 I would expect the defects per person to go down over
18 time.

19 JUDGE BRENNER: If it is any solace to you,
20 you did say that.

21 WITNESS HUBBARD: That is what I thought I
22 said.

23 BY MR. LANPHER: (Resuming)

24 Q Mr. Hubbard, in response to Judge Brenner's
25 questions earlier, I believe you clarified that in your

1 opinion the Stone & Webster engineering assurance
2 audits, you were not rejecting them as useful but at the
3 same time you had some reservations about their
4 usefulness. Now, in what way do you believe these
5 audits are useful and what is your reservation?

6 A (WITNESS HUBBARD) I think that they are
7 useful in looking at the process and in particular
8 looking at the process in terms of the design process,
9 and particularly looking at the discipline of the design
10 process. I think they are not as useful in going to the
11 actual substance of the design. I think the focus of
12 the audits is primarily on the design process rather
13 than the substance of the design.

14 Q Mr. Hubbard, Judge Brenner also posed
15 questions concerning whether I&E reviews the LILCO
16 and/or Stone & Webster audits regarding Shoreham, and
17 you indicated that you believed at least to some extent
18 that I&E did review those audits. Have you been able to
19 come up with an example of such an instance?

20 A (WITNESS HUBBARD) Yes. Audit 76-06 is an
21 example of that and it is a subject that we discussed
22 before on E&DCRs, that the I&E inspector reviewed the
23 audit reports both for internal audits and for some
24 external audits, and as a result of that, found that
25 LILCO in the field audits, in two of them had identified

1 a lack of control of E&DCRs having to do with the
2 administration of E&DCRs with drawings and procedures,
3 and then as a result of 76-06, cited LILCO for a
4 violation and failure to initiate the proper corrective
5 action.

6 So this was a case where I&E did look at both
7 LILCO's internal audits of site activities and some
8 off-site activities.

9 Q Mr. Hubbard, focusing on the E&DCR problem
10 which you mentioned, and you indicated that I&E cited
11 LILCO for a violation in that instance, did I&E's
12 handling of this problem eliminate any of your concerns
13 relating to I&E?

14 A (WITNESS HUBBARD) Well, I think it does
15 demonstrate that they did indeed look at audits, so I
16 think that is good. However, this was closed out soon
17 thereafter, the subject of E&DCRs, in 76-12. And in my
18 knowledge, the subject of E&DCRs was never again cited
19 as a violation by I&E. In my testimony in this
20 proceeding and in reviewing the internal audits, I saw a
21 pattern, how the problem of the administration of the
22 E&DCRs was not solved in the 1976 time period but had
23 continued after 1976. So it gives me a concern that the
24 NRC did not continue to focus on this matter.

25 MR. LANPHER: Judge Brenner, that completes my

1 questions.

2 JUDGE BRENNER: That is a surprise by a few
3 minutes. Very good.

4 Mr. Ellis, do you have any follow-up since the
5 Board questions and these last questions?

6 MR. ELLIS: Yes. If I could have just a
7 moment, Judge Brenner.

8 JUDGE BRENNER: Do you need more than just a
9 moment? We could take five or ten if you like.

10 MR. ELLIS: No, I think just a moment will be
11 enough.

12 RE CROSS EXAMINATION

13 BY MR. ELLIS:

14 Q Mr. Hubbard, early this morning Mr. Bordenick
15 asked you a question concerning your belief about what
16 I&E inspectors include or do not include in their
17 reports. Confirm for me if you would, please, that it
18 is not the practice of auditors generally, I&E auditors
19 included, to identify the good things that they looked
20 at during the audit. Isn't that right?

21 A (WITNESS HUBBARD) No.

22 Q Is it your testimony that I&E inspectors
23 regularly record and report on the identity of all of
24 the good things or the things that they find that are in
25 conformity with the regulations and procedures in their

1 inspections and audits?

2 A (WITNESS HUBBARD) I think in general that is
3 true, that they would list that they reviewed the
4 following procedures and that all of them were
5 acceptable except for the following. That is just the
6 general format that is used. They list what they looked
7 at and said everything was acceptable except these
8 particular areas.

9 Q Well, in your experience do I&E inspection
10 reports list all of the attributes and the universe of
11 things that they looked at in giving the report on the
12 items that they found, either as findings or
13 observations or open items?

14 MR. LANPHER: I object to the question. That
15 was multiple. He asked for two things and I think it is
16 confusing. He asked for attributes and he asked for the
17 universe.

18 JUDGE BRENNER: Well, he is not going to get
19 it.

20 [Laughter.]

21 MR. LANPHER: He used the word --

22 JUDGE BRENNER: I know he used the word, but
23 he didn't ask for the universe. I think the question is
24 understandable. It is a follow-up to the previous
25 question. Let's see if we can get an answer.

1 WITNESS HUBBARD: There is not a list of
2 attributes, a number of attributes that are generally
3 included in I&E reports like you might see in an audit
4 report, like a checklist. So in that sense one doesn't
5 get a direct indication of how many attributes were
6 looked at in an I&E inspection.

7 BY MR. ELLIS: (Resuming)

8 Q Are you done, Mr. Hubbard?

9 A (WITNESS HUBBARD) Yes, sir.

10 Q Thank you.

11 Later in the morning Judge Morris asked you a
12 series of questions and at one point asked you whether
13 Shoreham was any different from the bulk of the plants
14 that were licensed plants that were constructed in or
15 about the same period of time, and you said yes, and the
16 only one you mentioned was Diablo Canyon. Did you omit
17 some others that should be mentioned as well? Let me
18 suggest La Salle to you, and Susquehanna.

19 A (WITNESS HUBBARD) I don't agree with how you
20 structured the question. My recollection of the
21 question and answer is not quite as you set it out.

22 Q Well, the record will speak for itself on
23 that; but Mr. Hubbard, it is fair to say, isn't it, that
24 LaSalle, Susquehanna, Grand Gulf, North Anna 2 and Salem
25 are now licensed plants that were constructed during

1 essentially the same period of time that Shoreham was?

2 A (WITNESS HUBBARD) I really can't say that.
3 My recollection is a little different than that, that I
4 think Shoreham got started earlier than most of those
5 plants with the design back in the 1968 time period. My
6 recollection is, oh, like Grand Gulf and Susquehanna,
7 particularly Grand Gulf is a BWR-6, as I recall, and
8 that this got started at a later time and had a shorter
9 design and construction, total schedule than Shoreham
10 did.

11 Q You are not sure then, I take it, about
12 LaSalle, Susquehanna, North Anna 2 and Salem?

13 A (WITNESS HUBBARD) Well, Susquehanna is
14 another BWR-6, as I recall, and I think it had a shorter
15 time cycle than Shoreham. Salem 2 is a PWR and I don't
16 recall when work started on Salem 1. LaSalle has a Mark
17 III containment. Well, LaSalle -- I don't remember the
18 dates on LaSalle. It seemed to me that that started
19 later in the process than the Shoreham plant in the
20 original design activities on LaSalle; that Shoreham
21 work was done first.

22 JUDGE PRENNER: Is all of this a long way of
23 saying you are just sure?

24 WITNESS HUBBARD: I am not sure on LaSalle.

25 JUDGE BRENNER: As to the others also, other

1 than your comments, besides Grand Gulf?

2 WITNESS HUBBARD: Well, I think Susquehanna is
3 also a BWR-6 in some respects. It has some of the
4 miniaturized control room and some things like that that
5 weren't really discussed at the time Shoreham was
6 designed.

7 JUDGE BRENNER: I'm not sure if it's a 6 or
8 not, but okay.

9 BY MR. ELLIS: (Resuming)

10 Q Mr. Hubbard, in response, I think, also to
11 Judge Morris' questions, you gave your subjective
12 impressions of your visits to the site and you talked
13 about graffiti and litter. Did you see any positive or
14 good things in connection with the construction of
15 Shoreham when you visited it?

16 A (WITNESS HUBBARD) Yes, I did. I mentioned
17 earlier to Judge Carpenter that in the storage area for
18 replacement parts I thought there was some good
19 discipline there. (Pause.) None more come to mind
20 right now. Oh, another place was in the quality records
21 center. I thought there was some good equipment there
22 to take care of quality records, though the people did
23 say they were a little behind at the time getting them
24 inputted.

25 Q Is that the end of your answer, Mr. Hubbard?

1 A (WITNESS HUBBARD) Yes.

2 Q With respect to the questions that Judge
3 Morris asked you about the FSAR being a licensing
4 document, would you expect to find any design
5 information in an FSAR that is not supported by or
6 generated from a design document?

7 A (WITNESS HUBBARD) Well, the FSAR covers
8 things other than design, but it is a little bit of a
9 chicken and egg. I think in general the design
10 documents should support what is in the FSAR. That was
11 one of the words you used. What was the other word,
12 support or --

13 Q I used the word "generated from" or "supported
14 by."

15 A (WITNESS HUBBARD) I would expect that the
16 design documents should either be generated from or
17 supported by a more detailed design document.

18 Q I'm sorry. Did you mean to say that the FSAR
19 should be supported by or generated from design
20 documents?

21 A (WITNESS HUBBARD) Not necessarily. Sometimes
22 what is in the FSAR in the early stages of the FSAR is
23 before the detailed design has been completed.

24 Q It is true, isn't it, Mr. Hubbard, that the
25 procedures that you quoted from relating to the FSAR

1 called it a licensing document, didn't they?

2 A (WITNESS HUBBARD) Yes.

3 [Counsel for LILCO conferring.]

4 Q Mr. Hubbard, you testified earlier today that
5 you had made your views with respect to Shoreham known
6 for a long time with respect to important to safety.
7 Can you tell me to whom you made those views known? And
8 the views I am talking about are views that you were
9 interested in LILCO's quality assurance treatment for
10 nonsafety-related items. I would like to know to whom
11 you made that known in LILCO and when.

12 A (WITNESS HUBBARD) That is difficult to
13 answer, Mr. Ellis. We had discussions on settlement
14 over the years and a number of people attended those
15 meetings, and the question always was what is the County
16 concerned about? I recall in the earliest days Mr.
17 Morin attended the meetings when we discussed that
18 particular matter.

19 Q Now, let me be very clear about the subject
20 that I am asking about, and the subject isn't any
21 general view but what LILCO's treatment of quality
22 assurance or quality control of nonsafety-related items
23 was. Is it your testimony that you discussed that with
24 Mr. Morin?

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

1 We had a number of discussions about what the
2 contentions mean, and I would have thought that that was
3 discussed. I mean we also answered interrogatories and
4 I don't recall in the interrogatories whether that was a
5 specific aspect, but I would be surprised if it wasn't
6 somewhere. And it has been in the contention all along,
7 the GDC-1.

8 Q The contentions. Excuse me?

9 A (WITNESS HUBBARD) The QA contentions.

10 Q Those are the ones that were filed in January
11 of this year?

12 A (WITNESS HUBBARD) They were based on words
13 that were in existence before January of this year. I
14 mean we could go back and look to see what the words
15 were in 1977 when we began.

16 Q You were asked a number of questions, or maybe
17 just one or two, concerning the aerospace and military
18 programs, and you said in the military programs nothing
19 is shipped without hold points on fabrication processes
20 and inspections prior to shipping. I think you said
21 that was Admiral Rickover's program. It is true, isn't
22 it, for Shoreham that in procurement for Shoreham there
23 was inspection of vendor shop work, there was witnessing
24 of tests during fabrication, there were hold points
25 during fabrication and prior to shipment for

1 verification by buyers of the conformance to the
2 purchase specifications? Isn't that a fact?

3 A (WITNESS HUBBARD) That is a fact I would
4 assume to some degree, Mr. Ellis, but it is not true for
5 every safety-related item.

6 Q Judge Brenner asked you some questions
7 concerning the OQA procedures. In determining the
8 appropriate level of detail to incorporate in an OQA
9 procedure or in any procedure, is it appropriate, in
10 your opinion, to consider the circumstances in which the
11 procedure will be used, such as the qualifications and
12 training of the users, complexity of the work to be
13 done, and the existence of other applicable procedures?

14 A (WITNESS HUBBARD) To some extent yes, Mr.
15 Ellis; that I can remember making up a pie-shaped chart
16 to say there were really three things I could do: I
17 could write very good procedures, and that would be one
18 part of the way to spend money. A second way to do it
19 would be to spend a lot of money training people and
20 have almost no procedures. And a third way would be to
21 do away with procedures and training and try to automate
22 things as much as possible.

23 And one has to figure out the balance of what
24 you do in those three aspects, for example, in writing
25 procedures, in training the people and in automating.

1 But I think that having well-documented procedures
2 assists in the activity training well so that these
3 things are complementary.

4 [Counsel for LILCO conferring.]

5 Q All right, Mr. Hubbard. In connection with a
6 question you were asked, I think by Mr. Lanpher, on page
7 21 of your testimony -- do you recall your testimony
8 where I had asked you on cross examination about your
9 omission of the term "minor" which had been included by
10 the I&E inspector, and you indicated in response to Mr.
11 Lanpher your disagreement with the use in that context,
12 and we discussed Item (d), which, as you will recall, is
13 the item where the reference locations were not correct
14 on the flow diagram, the reference location to a
15 particular drain? In your opinion, is the condition in
16 that flow diagram likely to reduce the usability of that
17 diagram for its intended purpose in any substantial way?

18 A (WITNESS HUBBARD) Yes.

19 Q Can you make that judgment without seeing the
20 flow diagram, as you testified earlier you had not done?

21 A (WITNESS HUBBARD) I believe so.

22 Q In other words, you can make a judgment on
23 whether the usability of a flow diagram has been
24 materially or substantially reduced without ever having
25 seen it and without knowing the nature of the problem?

1 Is that your testimony?

2 A (WITNESS HUBBARD) Yes.

3 MR. ELLIS: No further questions, Judge
4 Brenner.

5 JUDGE BRENNER: Mr. Bordenick.

6 RE CROSS EXAMINATION

7 BY MR. BORDENICK:

8 Q Mr. Hubbard, in part in responding to a
9 question from either Judge Morris or Judge Brenner -- I
10 don't remember precisely who it was at this point -- you
11 made a statement, and if I'm quoting you incorrectly,
12 please correct me, to the effect that the Staff is
13 precluded from participating in the Torrey Pines
14 review. Do you recall that? Unfortunately, I don't
15 remember the question or the answer, but it was in part
16 of an answer to a question.

17 A (WITNESS HUBBARD) I think that was correct. I
18 was saying precluded in the sense of the protocol that I
19 described in my testimony.

20 Q In response to a question from Mr. Lanpher
21 just a few moments ago, you made reference to an I&E
22 inspection report. I think it was 76-06.

23 A (WITNESS HUBBARD) Yes.

24 Q And you -- unfortunately, I don't have a copy
25 of that in front of me, so this is from memory, and

1 again, if my memory is faulty, please correct me -- you
2 discussed in your answer the fact that the I&E inspector
3 had made a finding with regard to generally speaking
4 E&DCRs, and then you made the statement that in
5 conclusion, I believe that the Staff had not since that
6 inspection report followed up on or had not focused, I
7 believe was the word you used, or that they didn't
8 continue to focus on that matter. Is that what you
9 testified?

10 A (WITNESS HUBBARD) My recollection is that I
11 testified that there were no subsequent I&E findings
12 relating to E&DCR processing in the administration of
13 the E&DCR system while we have the LILCO internal audits
14 or the Stone & Webster internal audits that show a
15 continuing problem with the processing of E&DCRs.

16 Q Was that testimony based on an exhaustive
17 review on your part in looking at the subsequent
18 inspection reports?

19 A (WITNESS HUBBARD) I looked through -- and I
20 am going to answer yes and no, and I will tell you how
21 exhaustive it was. I did look through the rest of the
22 I&E findings to see if I could find others relating to
23 the administration of E&DCRs, and in general I could
24 not. There was one about 79-07 that had to do with the
25 E&DCRs' relation to separation, but that was more into

1 not the processing method but into the technical matters
2 of the use of the E&DCR, so I did not find any which had
3 to do with the general matter that we talked about
4 before, that the applicable specifications and
5 procedures were not with the E&DCR in the follow-up
6 audits.

7 Q Well, assuming for the sake of my questions
8 and your answers at this point that there was no further
9 follow-up along the lines that you indicated, would it
10 necessarily follow that the only conclusion that one
11 could draw is that the Staff was not interested in the
12 problem in any further degree, or could other
13 conclusions be drawn?

14 A (WITNESS HUBBARD) One might draw other
15 conclusions, Mr. Bordenick. My conclusion was that
16 while the Staff initially identified that there was a
17 problem, that they closed out the corrective action, I
18 think, prematurely.

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1 Q I'm not challenging your conclusion. My
2 question is simply could one draw other conclusions
3 beyond the one you have drawn?

4 A (WITNESS HUBBARD) I guess you would have to
5 tell me what those conclusions are and maybe I can say
6 yes or no.

7 Q Well, I'm asking you whether it is reasonable
8 to assume that other conclusions could be drawn beyond
9 the one that you have drawn, yes or no.

10 MR. LANPHER: I object to the question. I
11 don't know what kind of other conclusions he means.

12 JUDGE BRENNER: The witness in effect,
13 although trying to be polite, indicated he can't answer
14 the question. If you want to suggest something to him,
15 he would be willing to try.

16 BY MR. BORDENICK: (Resuming)

17 Q Could one conclusion be that the staff did not
18 think the E&DCR problem you've described was in fact a
19 problem?

20 A (WITNESS HUBBARD) That is possible, but it
21 was originally cited as a violation.

22 Q I'm talking about subsequent to the report
23 76-06.

24 A (WITNESS HUBBARD) I would find it hard to
25 believe that they would feel it wasn't a problem with

1 the numbers in the 10 to 30 percent and not meeting the
2 procedure.

3 Q Why do you say that?

4 A (WITNESS HUBBARD) I would expect the staff's
5 view to be that procedures are followed, particularly
6 design control procedures, in the handling of the E&DCRs.

7 Q But if they felt the procedures were being
8 followed would they have any need to indicate that in an
9 inspection report?

10 A (WITNESS HUBBARD) Well, I think we have audit
11 findings, Mr. Bordenick, that show that the procedures
12 were not being followed.

13 Q Whose audit findings -- the applicant's?

14 A (WITNESS HUBBARD) The Stone and Webster ones
15 and also the LILCO field audits.

16 Q Do you think it necessarily follows that the
17 staff had to agree that it was a problem even though the
18 internal audits indicated that that was the case?

19 MR. LANPHER: I object. He is asking Mr.
20 Hubbard to speculate what the staff --

21 MR. BORDENICK: Well, if he doesn't know, he
22 can so indicate.

23 MR. LANPHER: Well, I think he has gone beyond
24 that. He is asking him to speculate. He's not showing
25 him any document that might indicate one way or the

1 other.

2 JUDGE BRENNER: Well, I don't agree with your
3 last point given the nature of your question, but I
4 agree with your penultimate point that it is just not
5 productive to the point where we have taken it. He has
6 given his view in answer to the suggestion you made. He
7 doesn't agree that the staff could have thought that.

8 I don't see how he can answer it given what
9 he's said already.

10 MR. BORDENICK: If that's his answer, that's
11 fine.

12 JUDGE BRENNER: Well, let's ask him directly.
13 Can you answer that question without speculation, Mr.
14 Hubbard?

15 WITNESS HUBBARD: No, I cannot.

16 MR. BORDENICK: That concludes my questions,
17 Judge Brenner.

18 JUDGE BRENNER: As a final followup, do you
19 have any particularly incisive, important questions, Mr.
20 Lanpher, based upon Mr. Ellis' and Mr. Bordenick's
21 questions?

22 MR. LANPHER: I have no further questions.

23 JUDGE BRENNER: Mr. Ellis, anything based on
24 Mr. Bordenick's questions?

25 MR. ELLIS: No, sir. That's no reflection on

1 his questions.

2 (Laughter.)

3 JUDGE BRENNER: Stop right there. You've
4 given the right answer.

5 All right. We are done, and I am pleased to
6 see we are done in time to catch your flight, Mr.
7 Hubbard. We appreciate all the time again that you have
8 spent up there. It is not easy, but it is an important
9 part of the process that we get as much help as we can,
10 and we appreciate that help you have given us and the
11 work you have gone through in attempting to give us that
12 help. So thank you.

13 We can let you go, and you can sit wherever
14 you want, including outside of this room if you prefer.

15 (The witness was excused.)

16 JUDGE BRENNER: I think we can go right into
17 the scheduled discussion.

18 MR. LANPHER: Could we have about one minute?

19 JUDGE BRENNER: All right. Let's take a
20 minute or two.

21 (Recess.)

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1 JUDGE BRENNER: Let's go on the record.

2 Mr. Bordenick, do you have an item?

3 MR. BORDENICK: Yes, Judge Brenner. I have
4 copies of what I think are referred to as Teledyne
5 findings. This is not the final report. These are
6 interim findings. I would have thought they would have
7 come from LILCO, but apparently their lawyers didn't
8 know anything about them. I had given copies to the
9 County and the attorneys for LILCO, and all of the
10 parties were curious as to whether the Board wanted a
11 copy, and if so, we can make them available.

12 JUDGE BRENNER: Yes. It doesn't have to be
13 today, though.

14 MR. BORDENICK: I have them here. I will
15 leave them at the end of the day.

16 JUDGE BRENNER: We received some preliminary
17 findings -- well, I'm not using "findings" as a term of
18 art. We have received some preliminary reports on the
19 Teledyne review process already, as you know.

20 MR. BORDENICK: These may well be duplicates.
21 I don't know. This is the first I've seen them.

22 MR. EARLEY: Judge, I believe these are
23 additional findings to those that we may have
24 distributed several weeks ago. They are coming in as
25 Teledyne produces them and not as a separate report.

1 There will be a final report.

2 JUDGE BRENNER: All right. We will take them
3 both ways; that is, as they come in and then as a final
4 report. Do you want to give us a date as long as we are
5 on the subject of the Teledyne final report, if you can?

6 MR. EARLEY: The scheduled completion date for
7 Teledyne is December 15th. It is the view of the people
8 at LILCO who have had some contact with Teledyne that
9 they are not going to be finished December 15th.
10 Teledyne has not given anyone a new estimated completion
11 date yet.

12 JUDGE BRENNER: We appreciate being kept
13 informed when you get a new estimate or any other
14 information on it.

15 All right. As I stated this morning, and
16 hopefully counsel informed those counsel who are not
17 here, that in response I guess primarily to LILCO's
18 cover letter we would not accelerate the Torrey Pines
19 schedule. We finally have that schedule set after the
20 long discussion, and while it might be feasible to
21 telescope it, it would not be painless, and we are not
22 going to do it.

23 We point out that one reason the need arises
24 is that there was settlement by the parties of the
25 inadequate core cooling issue and the remote shutdown

1 panel issue, which we encouraged, and subject to seeing
2 the settlements, we understand them. If we have no
3 remaining questions, we will, of course, approve them.
4 We are not going to turn around and use the fact that
5 there was good settlement to then put pressure on
6 parties to accelerate Torrey Pines largely because of
7 that settlement. So we are going to keep that schedule
8 as is which will result in being able to litigate Torrey
9 Pines the week of January 11th.

10 Now, I don't know that it should take four
11 days, and we alluded to this briefly. We have not and
12 will not in advance set a limiting time period for the
13 litigation of it. We did set the time period for the
14 depositions. But we don't know that it will take all
15 four of the days, and we certainly don't anticipate it
16 going over that; but we will make that judgment better
17 when we see all of the testimony and the cross plans and
18 hear the beginning of the examination.

19 One point on Torrey Pines, I did not go back
20 to the transcript. I could not tell from my notes
21 whether when I gave the January 5th date as the due date
22 for the portions of depositions which parties wished to
23 move into evidence to be filed along with any motions to
24 strike on the same day whether we stated that we
25 certainly would expect the filing of the depositions to

1 be joint, not that you agree on which portions you would
2 move in, but so that we could look at one copy for each
3 of us and see what parties want to move in from that one
4 copy. And that is what we would expect. It's going to
5 be very difficult for us to juggle three copies from
6 each of the parties.

7 With what we said this morning, and we will
8 reiterate, we will not hold a hearing the week of
9 January 4th if we complete testimony of the staff before
10 Christmas; that is, by the end of the hearing day on
11 December 22. We believe that is far from unreasonable
12 given the amount of hearing days we are talking about
13 which would be almost seven hearing days, six and a half
14 to seven hearing days. If we don't make it, we will
15 finish up that testimony the week of the 4th, but it
16 seems -- it would seem a shame to have to come back to
17 hearing that week for what I'm sure would not be a full
18 week of testimony. So we are hopeful of everyone trying
19 very hard to finish.

20 We will know more as the week progresses. We
21 are going to be receiving the County's cross plan
22 mid-day on Monday. And I think I mentioned in passing
23 that we would like to see LILCO's cross plan on Tuesday
24 -- that is really earlier than we had intended thinking
25 about it -- to give us the benefit of seeing LILCO's

1 cross plan while at the same time giving LILCO the
2 partial benefit of being able to key off of the cross
3 examination as it transpires. We can delay that until
4 the day before LILCO's examination if any of the staff
5 witnesses would begin.

6 Now, you will have to judge and make the
7 conservative judgment as we go through the week, but
8 that might mean that you wouldn't have to file a cross
9 plan until close to the end of that week or perhaps even
10 the beginning of the next week.

11 If the County's cross examination is not
12 complete by next Friday, then it would be right to be
13 apprehensive about whether we would finish those
14 witnesses, because that would leave three days for the
15 followup questions of other parties, the Board, and
16 redirect, and followup rounds to that.

17 We are also willing to hear when we can have
18 the emergency planning discussion the week of December
19 20th, and I assume the parties will tell us shortly.
20 Parties have jointly proposed with respect to the
21 following week, the week of January 18th, that that is
22 the week we would handle the remaining OQA litigation
23 following up on the staff's report of its currently
24 ongoing inspection.

25 Now, the parties only provided in passing

1 assuming -- I'm looking for the exact wording -- but I
2 believe it was in the spirit of assuming the staff's
3 report by December 30th. We want to set precise dates
4 now. The reason we have to do that is obvious. Our
5 schedule, what we are going to do in order to have any
6 control over planning and scheduling this proceeding
7 depends on all of these dates being precise dates to be
8 met. If they are not met, they are in violations of our
9 orders unless good cause has been shown in advance and
10 so on.

11 So is that the date, December 30th, for the
12 receipt of the staff's report?

13 MR. BORDENICK: Judge Brenner, in that regard
14 I'm not quite sure where the assuming came from. I mean
15 I know it is or it says based upon submittal.

16 JUDGE BRENNER: I can't even find it.

17 MR. LANPHER: It's on page 5 in the
18 single-spaced text.

19 JUDGE BRENNER: Yes. And signed by staff
20 counsel.

21 MR. BORDENICK: Not this particular staff
22 counsel.

23 At any rate, I just wanted to say that that
24 date was given to me by the region, and they intend to
25 meet it. They are prepared to have people work overtime

1 and on holidays and whatever needs to be done to meet
2 it. That is the word I have.

3 JUDGE BRENNER: Well, you have already had my
4 views as to the not understanding why the review itself
5 has come so late in the process, and there is no need to
6 rehearse that. And as I think we said, we finally
7 plowed ahead of the review, unbelievable as that is
8 given the length of this proceeding; and so we do need
9 diligent assistance, and we appreciate what you just
10 said given that context.

11 All right. All parties will receive staff's
12 inspection report by December 30th. If you have a
13 distribution problem or run short of copies or
14 something, the Board can receive it early the following
15 week, so don't worry about us as the pacing item. But
16 make sure you get it to the parties and then to us as
17 soon as possible thereafter in the event that proves to
18 be helpful.

19 You can apply that to everything. We accept
20 to receive it on the dates we are ordering here when we
21 are talking about testimony, but if you get it to us a
22 business day later or so, that is all right. But let's
23 make sure we get it to the parties.

24 Based on that, there is no provision for
25 followup on the OQA issue. We had stated we would give

1 everyone the opportunity to file followup testimony if
2 they wished based on that, and this is what we would
3 propose, including the staff, that is, and this may give
4 the staff some assistance in the sense that the report
5 would come out December 30th, but you would then have
6 the same additional time as the parties to file whatever
7 supplemental testimony you want, presumably to which the
8 report would be an attachment or reference. But to put
9 it in the context of the issues in the proceeding, so
10 that should give the staff some assistance there also if
11 you are on a tight time frame.

12 We would propose January 10th, which is a
13 Monday, as the receipt of the followup testimony; and we
14 would certainly appreciate word if parties are not going
15 to file followup testimony on it.

16 MR. LANPHER: Judge Brenner, this is followup
17 based only on the staff report, in the nature of
18 commenting on it? And I haven't seen the report,
19 obviously.

20 JUDGE BRENNER: No. In the nature of
21 testimony pertinent to the OQA issue in light of the
22 staff's report. I want it in the context of the
23 testimony in this case and not comments on the report.
24 There may be an overlap of the two, but we have had
25 testimony.

1 MR. LANPHER: I understand.

2 JUDGE BRENNER: If LILCO changes their
3 procedures, for example, in light of the staff report,
4 we want to give you the benefit, or if you think you now
5 have some concrete examples and that LILCO should change
6 its procedures in light of this report. It would be of
7 that nature.

8 MR. LANPHER: Could I put Mr. Dynner on the
9 stand?

10 (Laughter.)

11 JUDGE BRENNER: Along with the dictionary.

12 MR. EARLEY: Judge Brenner, I take it --

13 JUDGE BRENNER: I tell you, I was thinking
14 more of LILCO than the County on the followup testimony
15 given the absence of detailed discussion of these
16 matters in the County's testimony heretofore. Your
17 observation is right. Most of it has been by cross.
18 However, we invite the County to file some testimony if
19 it wishes. We won't feel badly if you don't, but anyway
20 --

21 Mr. Earley.

22 MR. EARLEY: I just wanted to clarify whether
23 filing the supplementary testimony went to LILCO as well.

24 JUDGE BRENNER: Yes, it did.

25 MR. EARLEY: Thank you.

1 JUDGE BRENNER: We would then want what the
2 parties have termed preliminary motions, which I hope
3 are nothing more nor less than motions to strike, on
4 January 14th received. January 17th we will receive the
5 cross plans and any responses to the motions to strike.
6 And when we get to the other issues you will see we've
7 left that out.

8 Responses to the motions to strike -- given
9 the tight time frame, they can be summary in form, and
10 we will hear oral argument on it.

11 We adopted that time frame from the time
12 frames that the parties had proposed for the other
13 issues. We recognize it is tight. As I said, it can be
14 summary, but we want some inkling of the response so
15 that when we entertain the discussion we will have been
16 able to prepare a little better.

17 We will start the litigation on January 18th
18 after ruling on any preliminary motions and any motions
19 to strike.

20 MR. LANPHER: Do you mean the 17th?

21 JUDGE BRENNER: No. The 18th is Tuesday. And
22 we will begin with the staff witnesses even if other
23 parties file testimony, I believe.

24 Mr. Bordenick, do you have any view on that?

25 MR. BORDENICK: I'm sorry, Judge Brenner.

1 JUDGE BRENNER: I would propose that we would
2 begin with the staff witnesses even if the other parties
3 file testimony given the nature of the deferral and what
4 we are keying off.

5 MR. BORDENICK: Offhand I can't think of any
6 basis to oppose that or to say something contrary.

7 JUDGE BRENNER: Well, if you think of
8 something you can let us know the week before.

9 All right. The next issue in terms of the
10 sequence for scheduling that the parties have proposed
11 would be the combination of environmental qualification
12 and seismic qualification issues.

13 First, a word about the combination. We had
14 always considered close coordination between those
15 issues, going back to the transcript portion which LILCO
16 cited in its third status report dated January 7th --
17 I'm sorry -- December 7th. However, while there is
18 overlap between those issues, there are also differences
19 between the issues, and we want the testimony structured
20 in such a way that the matters that are separable are
21 treated separately and then we can be flexible in
22 determining whether we should go through the rounds of
23 questioning on one aspect and then the rounds of
24 questioning on the other aspect, as well as any
25 interface.

1 We accepted the schedule proposed by the
2 parties on these issues; that is, testimony would be
3 received by January 17th; motions to strike would be
4 received by January 21st; cross examination plans would
5 be received by January 24th. We would add we want
6 summary responses to any motions to strike received on
7 January 24th. And then we will begin the litigation of
8 those issues on January 25th.

9 MR. IRWIN: Judge Brenner, there is one
10 modification to that schedule which Mr. Lanpher has
11 requested and we have agreed to, and that is the
12 testimony filing date rather than being Monday, the 17th
13 would be Tuesday, the 18th, as an accommodation to
14 cross-country shipment of documents. There would still
15 be testimony received by the other parties on Tuesday,
16 the 18th.

17 JUDGE BRENNER: All right. But we will keep
18 the 21st.

19 MR. IRWIN: That is correct. All of the other
20 dates would remain the same.

21 JUDGE BRENNER: All right. That assumes, I
22 take it, the staff's SER being out by December 30th at
23 the latest. And I think the staff's estimate was
24 actually a little earlier than that. But we would set
25 the date as December 30th unless there is a reason not

1 to do that. And the SER -- and part of it is already
2 out.

3 MR. REPKA: We have said the end of December,
4 so I am confident we will make December 30th, although
5 out of an abundance of caution I might suggest taking
6 the full month and making it the 31st.

7 JUDGE BRENNER: That is a holiday.

8 MR. REPKA: Oh, that's right. The 30th is
9 fine.

10 JUDGE BRENNER: All right. That is a received
11 date, and that is our order; that the staff's completed
12 SER -- the input, obviously, and not the published
13 version -- be received by December 30th.

14 Now, I take it discussions are proceeding on
15 those issues towards a possible settlement, correct?

16 MR. IRWIN: That is correct, Judge Brenner.
17 We had a discussion this Wednesday. A further
18 discussion is scheduled for next Friday. In our cover
19 letter we indicated that we hoped that the week of
20 January 4th could be used for that purpose as well,
21 assuming that hearings are freed up.

22 I think one of the things we have learned over
23 the past few months is the further ahead people start to
24 talk, the more the possibility is of reaching a rational
25 solution to matters voluntarily.

1 JUDGE BRENNER: Well, we now have the dates,
2 so it is obvious when you're going to either have to
3 settle it or file testimony by.

4 Now, to the next point I alluded to this
5 morning, the issue that would be taken up next in
6 sequence in terms of litigation is the electrical
7 penetration issue. Parties have assumed by scheduling
8 that such that it could not be litigated until February
9 1st, that environmental qualifications and seismic
10 qualifications would either take a full week or not be
11 settled, neither of which assumption we're willing to
12 accept as necessarily being accurate.

13 The staff's SER on electrical penetrations is
14 scheduled, I think, December 20th was the date, Mr.
15 Repka, am I right?

16 MR. REPKA: We said the end of December for
17 that one also, but that one we do expect sooner. We
18 have said the end of the month.

19 JUDGE BRENNER: I thought you said December
20 17th in your report that we received last time.

21 MR. REPKA: No, I never said that.

22 JUDGE BRENNER: I guess I'm wrong. In any
23 event, the date we would have set would have been
24 December 30th, so that is consistent; that is the
25 ordered required date. If there is going to be a

1 change, it's going to have to be a motion with cause
2 shown and far enough in advance so that we can look at
3 it, and it might be denied if any reasons are apparent.
4 We have run out of time to be flexible.

5 All right. What we would propose would be to
6 set precisely the same filing schedule for the
7 electrical penetration issue as for the
8 environmental-seismic qualification issue, although the
9 order of litigation would be to do that issue next.

10 Mr. Lanpher.

11 MR. LANPHER: Could I be heard on that?

12 JUDGE BRENNER: Yes. That was a proposal.

13 MR. LANPHER: My colleague, Ms. Letsche, and
14 Mr. Irwin have talked about this, and Mr. Irwin, of
15 course, will give LILCO's view. The reasons that we
16 would prefer the schedule which is proposed here are
17 several fold.

18 First of all, our proposed witnesses on both
19 those issues are going to be the same. Mr. Minor is
20 going to take the lead, and it's very difficult for him
21 to prepare both pieces of testimony and get them filed
22 the same day. In addition, Mr. Hubbard, is proposed to
23 be with Mr. Minor on the panel, and Mr. Hubbard's
24 schedule is going to be difficult. Well, it has been
25 difficult and it is going to be difficult in early

1 January given the Torrey Pines schedule and the
2 continued OQA examination.

3 So we really do need the additional time given
4 the fact that the same witnesses are going to appear on
5 both those, and that Mr. Hubbard is going to be occupied
6 with some aspects of this litigation pretty much full
7 time between now and mid-January. We would like to have
8 the staggered filing dates.

9 JUDGE BRENNER: But the problem is we will end
10 up with nothing to do the week of January 25th, either
11 for part of that week or for all of that week depending
12 upon what happens on the other issue.

13 Now, we are willing --

14 MR. LANPHER: I'm just saying that from the
15 County's point of view it's going to be impossible to
16 meet a simultaneous filing date on those issues.

17 JUDGE BRENNER: Well, we have already moved
18 Torrey Pines later than we had planned, and now you're
19 saying part of that problem is that that is getting in
20 the way. We are planning not to be here the week of
21 January 4th, if it works out, and we are hopeful it will
22 work out; so we have already got a lot of weeks without
23 a hearing in that time period.

24 Recognizing these problems, what if we
25 staggered it by a few days rather than by the full week

1 proposed so that there would be some time to put it
2 together for production and so on?

3 MR. LANPHER: I think having only a week apart
4 is going to be extraordinarily difficult as it is, Judge
5 Brenner. You are right. We have -- and I guess two
6 weeks or two and a half weeks now scheduled without
7 actual hearings going on -- a portion of the week before
8 Christmas, the week after, and then the first week in
9 January. But there are a lot of things that are going
10 on on this case that are occupying not only attorneys
11 but consultants during that time period.

12 JUDGE BRENNER: We know that. That is one of
13 the reasons why we're anxious to give you the time we
14 have already done outside of hearing.

15 MR. LANPHER: We just really need that extra
16 week for the staggered filing of testimony.

17 JUDGE BRENNER: Who are your witnesses on
18 seismic qualification and environmental qualification,
19 Mr. Minor and Mr. Hubbard?

20 MR. LANPHER: Yes, sir. Mr. Minor has been
21 taking the lead in all of these meetings for us.

22 JUDGE BRENNER: And he has been unoccupied by
23 the hearing for a long time now, and one reason we had
24 everybody involved in what the staff was doing was so
25 that we could have tight time frames.

1 MR. LANPHER: Well, he has been working. He
2 has other clients as well that he has to work on.

3 JUDGE BRENNER: We will talk about it
4 momentarily and then come back.

5 Containment isolation was not scheduled at all
6 by the parties to our disappointment. Can we schedule
7 it?

8 MR. IRWIN: Yes, sir. We have had a chance to
9 discuss that. The staff has indicated that they expect
10 to finish their final SER input not later than January
11 18. We have agreed, therefore, on a February 1
12 testimony filing date with -- I believe that's a Tuesday
13 -- with motions due on the 4th, I guess, Friday the 4th,
14 cross examination plans the following Monday, the 7th,
15 and hearings to begin on Tuesday the 8th, essentially
16 one week behind electrical penetrations.

17 JUDGE BRENNER: So you wouldn't have anything
18 scheduled for the week of February 1st anyway if we were
19 to move electrical penetrations up.

20 MR. IRWIN: That is correct. Containment
21 isolation is an issue that is difficult to move up much
22 further than the dates I have just indicated simply
23 because we don't expect the staff to have closed out its
24 SER review until mid-January. The staff will close out
25 everything but that one item well before then, but it is

1 difficult to say that an issue should be framed for
2 litigation until the SER review is closed out.

3 JUDGE BRENNER: All right. Let me take those
4 dates again in the right sequence. January 18th will be
5 the ordered date which we will set for the receipt of
6 the staff's SER.

7 Is that date accurate, Mr. Repka?

8 MR. REPKA: That is correct. When Mr. Irwin
9 calls it a final SER, I just want to point out again
10 that that SER input may or may not totally close out the
11 item.

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1 JUDGE BRENNER: Well, it may not close it out,
2 but that will be the Staff's view.

3 MR. REPKA: That will be the Staff's
4 chronological file.

5 JUDGE BRENNER: Well, that will be the end of
6 it as far as litigating it and going ahead. If the
7 Staff doesn't like what they have, then they will say so.

8 MR. REPKA: That is correct. I just wanted to
9 make that clear.

10 JUDGE BRENNER: All right. So just to make
11 sure I have it, January '8th for the Staff's SER,
12 February 1st for the testimony, and that can conclude
13 further, as always, further supplemental testimony by
14 the Staff if it wishes, and that should assist the
15 Staff's time frames on how to allocate time also.
16 February 4th for any motions to strike. And
17 incidentally, given these very tight time frames on
18 motion to strike and responses, we exhort the parties to
19 restrict such motions only to the essential, and I will
20 leave it at that. We don't want extensive motions to
21 strike unless they are absolutely necessary by the
22 testimony, and keep that in mind when you craft the
23 testimony, also. And cross plans would be, I believe
24 you said, February 7th, and we would include in summary
25 form responses to any motions to strike that had been

1 filed, and February 8th to begin the litigation.

2 The only troubling this is we could, as I
3 said, have to run off to hearing one or two weeks and
4 find we have all assembled for a day or two of hearing,
5 more likely two than one, but I have got better ways to
6 spend my time in February, in January and February.

7 MR. IRWIN: I have a sense, Judge Brenner,
8 that the next couple of weeks and couple of meetings on
9 settlement of these issues will help focus the
10 likelihood of litigation and its scope. It may well be
11 that we can conclude that some issues are not likely to
12 be litigated. I don't know. I don't want to prejudge
13 it. I think the device of having regular meetings and
14 regular status reports to the Board has proven very
15 useful. It might be useful to adjust the schedule as
16 time goes along but leave it in place unless there is a
17 good, concrete reason for adjusting it based upon the
18 settlement negotiations.

19 JUDGE BRENNER: Can you give me some insight
20 into the decision of what to sequence first as between
21 environmental qualifications/seismic qualifications and
22 electrical penetrations, given the fact that the Staff's
23 review will be finished in the same time frame and the
24 commonality of county witnesses and so on? Was there a
25 sense of one might settle in terms of putting one or the

1 other first?

2 MR. IRWIN: Not particularly. From the
3 meeting we had this week, I think it is just very simply
4 getting blood out of a stone. LILCO proposed to the
5 County having simultaneous filings on the 17th or 18th
6 with respect to all issues, and Mr. Lanpher and Ms.
7 Letsche just indicated to us that they thought it would
8 be physically impossible. We understood the Board
9 wanted the parties to reach an agreement, if possible,
10 on matters, and this was the agreement we reached.

11 JUDGE BRENNER: I mean given the fact that
12 they are not set simultaneously, was there any great
13 importance as to which was first?

14 MR. IRWIN: No, sir. We simply scheduled them
15 in the order in which we had taken them up at the
16 meeting last week.

17 JUDGE BRENNER: Mr. Lanpher, if environmental
18 qualifications or seismic qualifications were to be
19 settled very early in January, which it would almost
20 have to be if it is going to be settled at all, or at
21 least by then having a good sense of whether there will
22 be settlement, could we then move up electrical
23 penetrations, having moved the obstacle of some of the
24 same witnesses working on the same testimony?

25 MR. LANPHER: It seems to me we are just going

1 to have to wait and see where we are. We can talk about
2 it at that point. I can't agree to that at this time.
3 How much effort it takes to -- you are assuming a
4 resolution. It depends how much effort it takes to get
5 to that, whether we put off work on the other stuff. We
6 can keep you informed.

7 JUDGE BRENNER: We will be able to get a
8 fairly definitive report on the likelihood of settlement
9 on those two pairs of issues, electrical penetration and
10 the environmental qualifications, seismic qualification
11 issues, before Christmas? That is, by that last week
12 that we will be in session here?

13 MR. LANPHER: We will be in a better position.
14 Again, I don't know how definitive, but we can let the
15 Board know what happens next week.

16 JUDGE BRENNER: Well, we have got different
17 people working on those issues and different counsel and
18 different witnesses, and I think we just ought to be in
19 a position to know so that we can plan January a little
20 better than it has been planned here. I will be very
21 blunt. I don't want to have to run up for a day or two
22 and spend as much time in traveling as in hearing. I
23 have got other things to do, including working on this
24 case. My time is valuable also.

25 MR. IRWIN: Judge Brenner, I think it is clear

1 that it has been LILCO's position all along that we want
2 to spend as much time as possible framing issues to see
3 whether we can resolve them, and we believe that if the
4 meeting next week is as productive as the meeting this
5 week was, we will have a far better idea before
6 Christmas.

7 We would urge two things, though. One is that
8 the Board keep its eye pretty closely on the pace of
9 discussions, and secondly, that it not be afraid to
10 intervene and tell the parties to get together if any of
11 the parties find that their priorities simply conflict
12 with getting together. And I don't want to overstate my
13 point. There are a lot of things going on in this
14 hearing. Sometimes, though, it is difficult to get
15 together for a settlement meeting when one has either a
16 pleading or imminent cross-examination staring one in
17 the face on another issue.

18 We would like to put very high priority on
19 these meetings to try to resolve these issues.

20 JUDGE BRENNER: You have said that. We don't
21 have to say it again. All right, give us one moment.

22 Are there any other things we didn't raise
23 that we would have in terms of the schedule?

24 [No response.]

25 All right. Give us a moment. We did

1 appreciate that report by all parties. It was
2 comprehensive and assisted us in doing all of the
3 thinking we did before entering the discussion, so thank
4 you for that.

5 MR. IRWIN: I think I can report just a couple
6 of details. One is that in response to Dr. Morris'
7 question, there is a draft circulating among the
8 technical representatives of the parties discussing the
9 question of the use of error bands right now. Secondly,
10 the inadequate core cooling agreement is going through
11 literally final last minute flyspecking. I don't think
12 that there is a rational possibility that any
13 difficulties will develop with it. I expect to be able
14 to sign it at the beginning of next week.

15 JUDGE BRENNER: Also, that written report gave
16 the same status very much. Give us one moment.

17 [Board conferring.]

18 I don't know if the parties are in a position
19 to give us a better judgment -- if you are not, tell us
20 -- but do the parties truly believe that if
21 environmental qualification and seismic qualifications
22 is litigated, that that would take the entire week?

23 MR. IRWIN: It depends entirely upon what the
24 County wants, Judge Brenner. We just don't have that
25 concrete a feel yet for the issues that are really

1 bothering them.

2 JUDGE BRENNER: Mr. Lanpher, can you offer a
3 judgment? And if you can't, that is acceptable.

4 MR. LANPHER: I really cannot. I would agree
5 with Mr. Irwin that from my conversations with people
6 that were at this week's meeting, the issues are being
7 narrowed. That doesn't mean it is going to be
8 successful, but they have agreed to meet again next
9 week, and if those issues don't settle, they are pretty
10 broad issues and I think they could really take a week.
11 People are working pretty hard to find a way to resolve
12 all or part, but they are pretty broad issues,
13 particularly Suffolk County 8, the environmental
14 qualification issue.

15 JUDGE BRENNER: All right. We know there is
16 going to be a meeting on December 17th on environmental
17 qualification and seismic qualification issues. We
18 expect, unless we are informed differently, that the
19 meeting will take place by that date and not later than
20 that date.

21 What about on electrical penetration? Is that
22 going to be included in that meeting and discussion also?

23 MR. IRWIN: Yes, sir.

24 JUDGE BRENNER: We would then want to hear,
25 whenever it is convenient on the week of December 20th,

1 presumably either the 21st or the 22nd, and we will let
2 the parties tell us when it would be most convenient, as
3 to to what the status of those two issues are at that
4 time.

5 We will approve the schedules that we have
6 just discussed and as they have been proposed, with the
7 exception that we are not sure of deferring the
8 testimony filing date until January 24th for electrical
9 penetrations. We want to think about that, and we will
10 make that judgment as part of what we hear on the status
11 report from the parties the week of December 20th and
12 the County can be in a better position to see what its
13 situation is given the lack of commonality, total
14 commonality of witnesses and counsel with what has been
15 going on here and all of the time we have presumed being
16 spent on these issues up until now on December 20th, so
17 you will get a better picture too so you can give us the
18 realistic view as opposed to that of understandable
19 caution in not wanting to commit yourself today.

20 And then we will see -- I'm not saying we
21 won't ultimately end up approving the January 24th
22 date. We are reluctant to do it unless there really is
23 good reason, and we will hear better information from
24 the County a little later. When I say we are approving
25 the schedule, that includes the additional aspect on the

1 OQA matters that we have interposed on filing dates and
2 so on.

3 I guess we would appreciate it if the parties
4 could put together a schedule based on today's
5 transcript, just a simple listing by dates similar to
6 the summary presented at the end of the joint report.
7 With respect to electrical penetrations, put in the
8 schedule as you proposed it, with the footnote that the
9 testimony filing date could be adjusted to January 18th
10 depending on the reports of the parties and our thoughts
11 as we apply them during the week of December 20th when
12 we discuss it.

13 One uncertainty is whether the combination of
14 Torrey Pines and OQA will finish in two weeks also. We
15 are assuming for planning purposes that it will, but we
16 recognize that as an uncertainty also.

17 All right. If there is nothing else to be
18 done, we are prepared to adjourn.

19 JUDGE CARPENTER: Is the right counsel for the
20 stress corrosion cracking contention here?

21 MR. IRWIN: Yes, sir.

22 JUDGE CARPENTER: In addition to the question
23 that Judge Morris has put forth, in spite of the pace of
24 the proceeding I have had a chance to think a little,
25 and I would like to request that while you are getting

1 OQA matters that we have interposed on filing dates and
2 so on.

3 I guess we would appreciate it if the parties
4 could put together a schedule based on today's
5 transcript, just a simple listing by dates similar to
6 the summary presented at the end of the joint report.
7 With respect to electrical penetrations, put in the
8 schedule as you proposed it, with the footnote that the
9 testimony filing date could be adjusted to January 18th
10 depending on the reports of the parties and our thoughts
11 as we apply them during the week of December 20th when
12 we discuss it.

13 One uncertainty is whether the combination of
14 Torrey Pines and OQA will finish in two weeks also. We
15 are assuming for planning purposes that it will, but we
16 recognize that as an uncertainty also.

17 All right. If there is nothing else to be
18 done, we are prepared to adjourn.

19 JUDGE CARPENTER: Is the right counsel for the
20 stress corrosion cracking contention here?

21 MR. IRWIN: Yes, sir.

22 JUDGE CARPENTER: In addition to the question
23 that Judge Morris has put forth, in spite of the pace of
24 the proceeding I have had a chance to think a little,
25 and I would like to request that while you are getting

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 10, 1982

Docket Number: 50-322 OL

Place of Proceeding: Bethesda, Maryland

were held as herein appears, and that this is the original transcript
thereof for the file of the Commission.

Ray Heer

Official Reporter (Typed)

Ray Heer

Official Reporter (Signature)