

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 2, 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: :
LONG ISLAND LIGHTING COMPANY : Docket No. 50-322-OL
(Shoreham Nuclear Power Station) :

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Bethesda, Maryland
Thursday, December 2, 1982

The hearing in the above-entitled matter
convened, pursuant to notice, at 9:03 a.m.

BEFORE:

LAWRENCE BRENNER, Chairman
Administrative Judge

JAMES CARPENTER, Member
Administrative Judge

PETER A. MORRIS, Member
Administrative Judge

1 APPEARANCES:

2 On behalf of Applicant:

3 ANTHONY F. EARLEY, Esq.

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5 Hunton & Williams

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7 Richmond, Va. 23212

8 On behalf of the Regulatory Staff:

9 BERNARD BORDENICK, Esq.

10 Washington, D.C.

11 On behalf of Suffolk County:

12 LAWRENCE COE LANPHER, Esq.

13 ALAN ROY DYNNER, Esq.

14 Kirkpatrick, Lockhart, Hill,

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P R O C E E D I N G S

(9:03 a.m.)

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3 JUDGE BRENNER: We are ready to begin. We
4 have no preliminary matters. If none of the parties
5 have any, we will complete the followup cross
6 examination by the County. It is 9:03.
7 Whereupon,

EDWARD J. YOUNGLING

ARTHUR R. MULLER

AND

JOSEPH M. KELLY

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11
12 resumed the stand and were further examined and
13 testified as follows:

RE CROSS EXAMINATION -- Continued

BY MR. DYNNER:

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16 Q Gentlemen, I'm going to ask you a few
17 questions following up the testimony that you gave in
18 response yesterday to a line of questions which was
19 asked, in the main by Judge Carpenter, concerning
20 consumables. And the reference for this is Appendix
21 12.1, page 32 of 32 to SP 12.019.01, which is the SP on
22 procurement of parts, materials, components and services.

23 Mr. Youngling, for your convenience and that
24 of the Board and the other parties, you may turn to page
25 15,029 of the transcript of yesterday in which you had a

1 colloquy with Judge Carpenter and testified that with
2 respect to consumables, and in particular transistors,
3 that there was no way that LILCO could procure a
4 safety-related transistor because, at least in part as I
5 read your testimony, there is no manufacturer of
6 transistors which has a quality assurance program that
7 complies with Appendix B of 10 CFR Part 50.

8 Is that a correct synopsis of your testimony?

9 A (WITNESS YOUNGLING) Yes. I stated that there
10 were no vendors that we were aware of that had -- I'm
11 sorry -- would have Appendix B programs or be able to
12 accept Appendix B programs to the extent necessary to
13 supply us with safety-related transistors or other type
14 electronic devices.

15 Q Mr. Youngling, has LILCO made an effort or a
16 search to determine whether there are such manufacturers
17 that produce such equipment or parts?

18 (Panel of witnesses conferring.)

19 A (WITNESS YOUNGLING) Yes, we have made an
20 effort, and as has the entire industry made an effort to
21 seek out. As I mentioned, it just isn't there.

22 Q In the course of this effort did LILCO look
23 into the quality assurance programs by manufacturers of
24 transistors and other similar electronic components who
25 provide those parts to the space program?

1 A (WITNESS YOUNGLING) Not that I am aware of.

2 (Counsel for Suffolk County conferring.)

3 Q In the course of the efforts made by LILCO did
4 you examine the possibility of purchasing transistors or
5 other similar what you call consumables that are
6 manufactured to mill specs?

7 (Panel of witnesses conferring.)

8 JUDGE BRENNER: This is going very slow. I'm
9 not sure if you finished your question.

10 MR. DYNNER: I did indeed.

11 WITNESS YOUNGLING: Not that I'm aware of, no.

12 BY MR. DYNNER: (Resuming)

13 Q Is LILCO aware that the mill spec program has
14 been in existence for over 20 years?

15 (Panel of witnesses conferring.)

16 A (WITNESS YOUNGLING) We've been aware of its
17 existence, not whether it's been 20 years or 10 years.

18 Q Are you aware that items such as and including
19 transistors and the other consumables manufactured in
20 accordance with mill specs are manufactured in
21 accordance with quality assurance programs approved by
22 the Department of Defense?

23 A (WITNESS YOUNGLING) Approved by the
24 Department of Defense? Yes.

25 (Counsel for Suffolk County conferring.)

1 Q Mr. Youngling, you further testified, if you
2 turn to 15,030, you said to the best of your knowledge
3 manufacturers treat the situation exactly the same way
4 as we do, and you were speaking there to the way that
5 manufacturers procure resistors or transistors or
6 potentiometers or components, is that correct?

7 A (WITNESS YOUNGLING) What page was that?

8 Q I'm on 15,029 and 15,030.

9 (Pause.)

10 You see Judge Carpenter's question on line 21
11 on 15,029 and on the next page your response?;

12 A (WITNESS YOUNGLING) As I testified, to the
13 best of my knowledge the manufacturers treat the
14 situation exactly the same as we do, yes.

15 Q Mr. Youngling, have you or LILCO made an
16 investigation or examination into the way manufacturers
17 procure transistors and other similar items for
18 installation into safety-related equipment?

19 A (WITNESS YOUNGLING) We have had discussions,
20 and in particular, we've had discussions with the
21 General Electric Company on component parts, to the
22 subcomponent level on circuit boards, yes.

23 (Counsel for Suffolk County conferring.)

24 A (WITNESS YOUNGLING) I would also like to add
25 in the discussion about mill specs, as this appendix

1 says, we will purchase the replacement consumables with
2 an equal quality or a better quality. So if a mill spec
3 had been referenced in the document, it would have been
4 purchased to a mill spec if it had been.

5 Q Mr. Youngling, there are other factors in your
6 procedure -- that is, the SP 12.019.01 -- which go into
7 the procurement of safety-related items besides the fact
8 safety-related items must have a source with an
9 appropriate QA program, aren't there?

10 A (WITNESS YOUNGLING) The program does discuss
11 the procurement of safety-related items, and there must
12 be an appropriate level of quality assurance program,
13 yes.

14 Q In addition to the appropriate level of
15 quality assurance there are a variety of specified
16 methods by which safety-related items must be procured,
17 isn't that correct?

18 (Panel of witnesses conferring.)

19 MR. ELLIS: May I ask if he could just go
20 ahead and refer him to the spot so we could save time?

21 JUDGE BRENNER: Yes. You know, we are way
22 past the point of general questions. You're within your
23 last few minutes of focusing, and I want you to focus
24 him on something and challenge him with it. These are
25 followup questions.

1 MR. DYNNER: Okay.

2 BY MR. DYNNER: (Resuming)

3 Q If you turn to paragraph 8.2 of your procedure
4 you will see that there are particular methods and
5 documentation requirements for safety-related
6 purchases. There are particularly four different
7 methods which are specified for particular types of
8 items, and in accordance with paragraph 8.1.6 covering
9 nonsafety-related purchases, any one of those four
10 methods can be used that are specified in paragraph 8.2
11 except that no quality assurance review is required, and
12 the vendor quality evaluation approval is not required.

13 Now, Mr. Youngling, it is correct, isn't it,
14 that even if you could not find a vendor which had the
15 appropriate quality assurance program, if you wanted to
16 apply a higher level of concern with regard to safety to
17 parts which are to be installed in safety-related
18 equipment such as transistors, that you could apply
19 various other parts of your program to that procurement,
20 such as you could say that particular methods must be
21 used for the procurement. You could require that the
22 quality assurance section review the procurement
23 documents. In other words, you could treat these
24 consumables in the same way as safety-related items if
25 you wanted to but for the fact that there would not be a

1 vendor quality evaluation approval, isn't that correct?

2 (Panel of witnesses conferring.)

3 MR. ELLIS: Though time is short, I do want to
4 note for the record my objection to the question as
5 being compound and confusing.

6 JUDGE BRENNER: It is compound. I will let
7 the witnesses decide if it is confusing.

8 (Panel of witnesses conferring.)

9 WITNESS YOUNGLING: The attributes that you
10 mentioned would not have to be applied. There would be
11 adequate review of the purchasing process by the reviews
12 done by the responsible section head and by other
13 members of the technical staff. It wouldn't be
14 necessary.

15 In addition, if we were to impose upon the
16 vendors safety-related requirements, parts of the
17 Appendix B program for transistors, we would find that
18 we would not find a vendor who would respond to the
19 purchase order or to the request for purchase. They are
20 just not there.

21 BY MR. DYNNER: (Resuming)

22 Q Mr. Youngling, I understand you feel it is not
23 necessary, and my question was a bit convoluted, so let
24 me ask one last question of you. Aside from vendor
25 quality evaluation approval, if you wanted to, you could

1 do more in terms of the requirements for the procurement
2 of these consumable items, couldn't you?

3 A (WITNESS YOUNGLING) What we have specified in
4 the procedure is an adequate level of review, and that
5 is what is in there, and that is what is done, and that
6 will give us the appropriate product.

7 MR. DYNNER: No further questions, except I
8 would like to, with the Board's permission, at this
9 point move into evidence SC Exhibit 77 which is the --
10 these are basically the staffing documents that we asked
11 questions on. SC 77, 83, 85 and 86.

12 Do you want me to identify those?

13 JUDGE BRENNER: I've got the list, but I do
14 better when I have them in front of me. I have 85 and
15 86.

16 MR. DYNNER: SC Exhibit 77 was the EEI nuclear
17 plant staffing survey of May 1980.

18 JUDGE BRENNER: And what was 83?

19 MR. DYNNER: And SC 83 was the station
20 operational quality assurance section planning report
21 which is dated May 1980 to July 1982.

22 JUDGE BRENNER: Any objections?

23 MR. ELLIS: Yes. May I have a moment, please,
24 Judge Brenner?

25 (Pause.)

1 MR. ELLIS: Judge Brenner, I deliberately did
2 not ask questions on one of the exhibits because it was
3 not in evidence. I would like an opportunity to ask a
4 question about SC 77 if it is going to be admitted into
5 evidence; and I would object to it on that basis.
6 That's the EEI nuclear plant staff survey.

7 JUDGE BRENNER: I will let you ask your
8 question. I don't understand your position that you
9 didn't ask a question because it wasn't in evidence.
10 Questions were asked about it, and people were free to
11 ask questions even when it was an exhibit for
12 identification; so I don't fully appreciate your point
13 without knowing the detail of your question, so it's
14 hard for me to appreciate the point in advance.

15 But if that is your only problem, I will let
16 you ask the question.

17 MR. DYNNER: Judge Brenner, I would like the
18 opportunity then to do recross if he's going to start
19 questioning again on the document.

20 MR. ELLIS: My problem with that, Judge, is
21 that by moving it into evidence, there now may be
22 figures in other parts of the report that are going to
23 be cited, and there has been no examination on those
24 other parts.

25 JUDGE BRENNER: Why do you want 77 in

1 evidence? If it is just for the numbers that you asked
2 him about, you already have in evidence that these are
3 the numbers of staffing at these other plants.

4 MR. DYNNER: Judge Brenner, these are the
5 documents which LILCO provided, you will recall,
6 originally.

7 JUDGE BRENNER: Wait a minute. I'm asking a
8 very practical question, because you may already have
9 everything in evidence that you need. And I don't know
10 what Mr. Ellis' abstract problem is yet either.

11 MR. DYNNER: I think it is a document that was
12 relied upon, as the witnesses testified in part, in
13 determining their staffing levels; and, therefore, it
14 seems to me that they didn't say they only relied upon
15 particular portions. When they filed their prefiled
16 testimony they said that this was what they relied upon
17 in staffing. Therefore, I think that the document as a
18 whole is certainly relevant to the evidence.

19 JUDGE BRENNER: Well, we have had an approach
20 in this proceeding that we don't just admit total
21 documents willy-nilly and then find out later that
22 particular points are going to be relied on, because if
23 there is any confusion, we would like to take advantage
24 of witnesses being here to answer questions about it.

25 And I think we have had extensive questioning

1 on this report. You have already got everything on the
2 record that you're going to need. But I will be happy
3 to hear as to what else you have in mind in terms of
4 moving it into evidence.

5 I'm not going to let somebody challenge the
6 numbers in here that we used in cross examinations or
7 questions by the Board or other parties are not accurate
8 because none of the witnesses raised that. So if that
9 is your problem, don't worry about it. But there was
10 some confusion in the way some of the organizations were
11 subdivided by the different reporting entities, and
12 questions were asked about some of those. Questions
13 that were not asked I don't want in the record.

14 MR. DYNNER: I think the questions were asked
15 concerning, as I recall, most of the parts of this
16 survey that relate to QA/QC. I'm certainly not
17 interested in introducing the parts into evidence that
18 talk about health physics and chemistry, those parts,
19 but they form a part of each page, and each page does
20 detail with various kinds of totals at the bottom and of
21 who is included and who is not included in the QA/QC
22 program, and the first page asterisks which were
23 questioned upon.

24 It just seems to me that in making our
25 findings it would be much more convenient for all of the

1 parties to have this document available to analyze, and
2 I don't see what the objection is.

3 JUDGE BRENNER: Well, my problem -- and I'm
4 not sure what the objection is -- but my problem is I
5 don't want to find little details in this document later
6 that were not focused on in the hearing. And we asked
7 everything. This document has become more and more
8 collateral in my mind as the questioning has gone on,
9 and I might indicate that. And I think anything you are
10 going to need from it is already in the record.

11 What question would you want to ask, Mr.
12 Ellis, if we admitted it?

13 MR. ELLIS: Judge Brenner, I would want to ask
14 about the footnotes that there was some confusion
15 about. We had explanations for those. And then I would
16 also ask, of course, a question whether with those
17 clarifications it was still supportive of the level. I
18 think the Board has, given the way the questioning went,
19 the nature of the fact that its being collateral may be
20 accurate; but I think that --

21 JUDGE BRENNER: I didn't say it wasn't also
22 pertinent, so be careful.

23 MR. ELLIS: I would want an opportunity to ask
24 some questions.

25 JUDGE BRENNER: I don't fully understand that

1 either because the footnotes were asked about, and that
2 was their game, for you to ask already if you had a
3 problem with that whether or not it was in evidence
4 already.

5 What about the other exhibits?

6 MR. ELLIS: Exhibit 83, we have no objection
7 to that, although we point out again that there is a
8 great deal in that exhibit that was not inquired into.
9 Exhibit 85 we object to. That was the exhibit that was
10 never used or submitted as testified to. The author was
11 not here.

12 JUDGE BRENNER: Whose fault is that?

13 MR. ELLIS: Well, that -- if I may speak about
14 that, we were asked what documents there were. I didn't
15 produce that document because we used it or relied on
16 it. I produced that document because I told them to go
17 out there and dig up whatever they could find, and when
18 it came down here, I produced it. And if at that point
19 in time I should have brought Mr. Rose down here, then
20 I'm in error.

21 JUDGE BRENNER: I didn't say you should have.
22 I just don't want you to use that objection with
23 somebody you were in full control of and had plenty of
24 time to bring him here if you wanted to.

25 MR. ELLIS: Well, this was a document that has

1 been testified to that was sitting in his drawer and he
2 wasn't aware of until I sent him back up there to look
3 for documents.

4 JUDGE BRENNER: What about 86?

5 MR. ELLIS: 86 we have no objection to. That
6 is the document prepared by Mr. Muller.

7 MR. DYNNER: Do you want to hear from me on
8 this?

9 JUDGE BRENNER: No. We're going to admit them
10 all. We would admit them all into evidence. I'm not
11 sure on the difference with respect to 85, Mr. Rose's
12 document, of leaving it for identification or admitting
13 into evidence. It stands for the proposition based upon
14 the testimony we already have that these were his
15 projections at the time and in the circumstances he made
16 them, which Mr. Muller has testified about. And I think
17 you've got the very same record whether it's in evidence
18 or not. And if these were not his projections -- that
19 is, if he himself thinks that there is something in
20 error or the way it was presented is not his projections
21 -- that is their problem, LILCO's problem, because that
22 is not a point that was ever raised.

23 The points raised were Mr. Muller's reasoning
24 as to why he made the projections he made, not that
25 there is some evidentiary error, and that this is not

1 really what Mr. Rose projected. So I don't have the
2 absent witness problem for that aspect.

3 MR. ELLIS: Well, there was testimony by Mr.
4 Muller that Mr. Rose did not agree with these
5 projections.

6 JUDGE BRENNER: I never heard that.

7 MR. ELLIS: May I have a moment then to review
8 the record, because it's my very firm recollection that
9 that is the case.

10 JUDGE BRENNER: I will let you review it
11 after, and you can bring him in on rebuttal if you want,
12 because if you were going to make a point that the
13 author of these numbers thinks they are incorrect or
14 wrong as opposed to somebody who you place greater store
15 in at this point in time thinking they're wrong, then
16 that is a whole different thing, and you need Mr. Rose
17 here to say that and not Mr. Muller to say he thinks Mr.
18 Rose thinks that.

19 MR. ELLIS: Well, I think Mr. Muller did
20 testify to that, and that was one of our points. And if
21 it becomes necessary to bring Mr. Rose here, we will.

22 JUDGE BRENNER: Mr. Muller testified he
23 questioned Mr. Rose, and in Mr. Muller's view, Mr. Rose
24 couldn't support the reasoning for some of those things;
25 and he admitted they were projections and guesstimates to

1 had had a problem, I would have let you know. I have no
2 problem, no objection.

3 JUDGE BRENNER: Okay. Things proceeded
4 rapidly enough where I may not have given you an
5 opportunity to jump in, and that is why I checked.

6 All right. Mr. Bordenick, do you have
7 followup questions?

8 MR. BORDENICK: Yes, Judge Brenner.

9 BY MR. BORDENICK:

10 Q Good morning, gentlemen. Do you have a copy
11 of LILCO Exhibit 42 in front of you? It's transmutation
12 model 1040, digital calibrator.

13 A (WITNESS YOUNGLING) Yes, we do.

14 Q Mr. Muller, could you tell me where on that
15 document there is an indication, or I should say is
16 there an indication on that document as to whether OQA
17 has reviewed this particular procedure?

18 A (WITNESS MULLER) There is no signature by OQA
19 indicating a review. The procedure that requires our
20 written approval on each station procedure was revised
21 within the past four months, and this procedure was
22 effective 5-19-81, so our review signature does not
23 appear on this document.

24 This next revision would indicate that it was
25 reviewed, but this procedure was reviewed by OQA, and

1 that approval was documented via the ROC meeting minutes.

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

3 (Discussion off the record.)

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

5 BY MR. BORDENICK: (Resuming)

6 Q Mr. Muller, would your answer be the same for
7 all the other procedures that were reviewed, or were all
8 of the other procedures reviewed by you even though your
9 initials or signature or whatever don't appear on them,
10 on the other procedures similar to the one I
11 specifically alluded to earlier?

12 A (WITNESS MULLER) Yes. For the procedures
13 that OQA is required to review, yes, that is correct.
14 We would not review some of the nonsafety-related
15 procedures.

16 Q Thank you. I'm going to move to a different
17 area.

18 We've had a lot of questions on consumables,
19 and there is one aspect that I would like to follow up
20 on. First, let me try to summarize my understanding of
21 what has been said.

22 The testimony has been that consumables are
23 bought without regard to whether they would later be
24 required for safety-related application. Is that a fair
25 summary of what has been said so far?

1 A (WITNESS YOUNGLING) Yes, sir.

2 Q And that these consumables are then placed in
3 a stockpile or a storeroom or whatever, is that correct?

4 A (WITNESS YOUNGLING) Yes. In a storeroom.

5 Q Then there may come a time when it will become
6 necessary to select let's say for example a resistor in
7 the stockpile for some safety-related system. When that
8 time comes can you tell me what, if any, engineering
9 considerations are given prior to the selection of the
10 resistor, and with particular regard to the end use
11 technical requirements of that resistor, the
12 environmental end use, environmental requirements, the
13 end use qualification requirements, and the end use
14 safety requirements?

15 The first question would be are there any
16 engineering judgments applied, and if so, what are they?

17 (Panel of witnesses conferring.)

18 A (WITNESS YOUNGLING) As we testified earlier,
19 as soon as one of those consumables is slated or
20 identified for installation in a safety-related
21 situation, the administrative controls associated with
22 the maintenance work request program are initiated.
23 Part of those controls call for a review by, in this
24 particular case, the I&C supervision to assure that the
25 component to be installed is in accordance with the

1 engineering documents -- in other words, a full like
2 replacement or better.

3 As part of that engineering review
4 considerations for environmental qualification, safety
5 was another one that you mentioned. And I don't have
6 the third. They all would be considered, and they would
7 be considered through a review of the base design
8 documents. Once the supervision has identified the
9 component to be replaced, as part of the maintenance
10 work request administrative program they have to
11 identify on the stores request the component, the actual
12 component that they want. That component would then be
13 given to the workers, and only that component would be
14 given to the workers since that would be written on the
15 stores request form. And from there the component would
16 be installed and suitable post-testing would be
17 accomplished, plus any other appropriate quality
18 inspections.

19 Q Given a situation where what you have just
20 described is implemented, and it is determined that,
21 again in the case of the example I used, the transistor,
22 does not meet end use requirements, do you have any
23 provisions to perform any quality or engineering test,
24 actual test, that would give you the confidence that the
25 transistor that had to go into a safety-related area

1 would perform or qualify acceptably? In other words,
2 what, if anything, concrete do you do besides, or could
3 you do besides the abstract judgments that you've
4 described?

5 A (WITNESS YOUNGLING) If we got into a
6 situation where we couldn't make a like-for-like
7 replacement or a better quality replacement, or if we
8 had to perform the evaluation that you postulated,
9 during the review process that fact would kick out, and
10 the technical people involved would kick the problem to
11 appropriate engineering, whether it's engineering at the
12 site or engineering at Hicksville, or it could even be
13 kicked back to the vendor engineering department, and if
14 necessary testing needed to be done, it would be done.

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1 (Counsel for NRC conferring.)

2 Q Do you consider what you just described to be
3 a graded approach to quality?

4 A (WITNESS YOUNGLING) Yes, I would, yes.

5 Q What is the basis for your answer?

6 A (WITNESS YOUNGLING) As I testified earlier,
7 if we could not achieve the goal, the primary goal, of
8 equal to or better than, we would then have to justify
9 deviating from that envelope. And in order to ensure
10 that the end application is still going to give us the
11 confidence that we require, we would perform the
12 necessary evaluations. That would be my basis.

13 MR. BORDENICK: Gentlemen, Judge Brenner, I
14 have no further questions.

15 JUDGE BRENNER: We will ask our questions
16 now.

17 BOARD EXAMINATION

18 BY JUDGE CARPENTER:

19 Q I am still trying to understand this, Mr.
20 Youngling. From a common sense point of view, if
21 procurement doesn't anticipate the need in the plant for
22 such things as transisters and potentiometers of a
23 particular quality, I am having a difficult time
24 understanding how it plans to operate if there is no
25 anticipation of the sort of quality of components,

1 replacement components, as you called it, consumables
2 that are going to be needed.

3 Do you see my problem?

4 A (WITNESS YOUNGLING) Yes, I do. Please don't
5 let me give you the impression that when we purchase
6 these consumables that we are not buying quality
7 products. We are buying quality product. When we
8 purchase, we purchase to equal to or better than
9 quality.

10 The documents that are sent out to the vendors
11 to make the purchases are documents that are consistent
12 with the kinds of consumables that we think we need to
13 cover all the applications within the station. In
14 selecting those kinds of consumables, we make reviews of
15 the appropriate documents, design documents.

16 Now does that mean that we are going to have
17 every transistor that we could possibly need in the
18 station? No. We probably won't. We will have to go
19 out and buy them on a quick order. But the point is the
20 consumables cover such a wide range and cover not only
21 safety-related applications but non-safety-related we
22 have to buy on a broad basis. And so we designate this
23 consumable nature.

24 But don't let me give you the impression that
25 we are not buying quality components. We are buying

1 state-of-the-art electronic components to support the
2 operation of the station.

3 A (WITNESS MULLER) Judge Carpenter, may I add
4 one thing? When we purchase the original equipment we
5 solicit the spare parts lists from the vendor also, so
6 we do anticipate replacing certain parts within these
7 components.

8 Q Can you explain to me why the procedures, and
9 specifically the one that we have talked about so much,
10 don't tell me what you just told me? It says that you
11 will do the procurement without regard, and now you are
12 telling me that no, that isn't what you really do. I am
13 having trouble reconciling the testimony.

14 I don't understand the reason for the
15 disclaimer.

16 A (WITNESS YOUNGLING) I don't think I said
17 anything different than what we said before. The point
18 is, quality in this particular application is the review
19 to ensure that the engineering documents are looked at
20 to the maximum extent possible. In other words, we
21 can't identify every transistor that is in that station
22 to make sure we have every one covered. We know the
23 general types. We know the applications where they are
24 generally, and we go out and we buy those.

25 There may be a special type of transistor that

1 we may not choose to carry in stock. The point is,
2 those documents are reviewed when we make our selection
3 as to the types of transistors that we want to keep and
4 the types of resistors that we want to keep and so
5 forth. The technical people make that judgment and that
6 is the kind of quality that is being put in.

7 Now when the parts are specified and gone out
8 to be bought, we look at those engineering documents to
9 ensure that the same kind of specifications that are in
10 those documents are met and the consumables put in
11 stock.

12 Q What you just said is not compatible in my
13 mind with the disclaimer without regard. You just very
14 carefully gave what I would call "due regard" to the
15 application in which it is going to be used.

16 A (WITNESS YOUNGLING) That same regard would
17 apply whether I was going to put that transistor in a
18 pressure transmitter associated with the reactor
19 protection system or if I were going to put it in just a
20 readout of circulation water pump discharge pressure in
21 the control room -- one being a very safety-related
22 application and the other not being a safety-related
23 application -- because that transistor would be the same
24 transistor in both applications.

25 It would have the same specifications

1 associated with it, and we buy that transistor. The
2 only thing is, when I put it in that circuit associated
3 with the reactor protection system, it would be done
4 under the administrative controls that I described to
5 the NPC counsel.

6 Q Well, what I guess I still don't see is what
7 instructions you give to Procurement so that you have
8 those components that you think are the better quality
9 in stock. That is what is mysterious to me -- how
10 procurement knows what to do.

11 A (WITNESS YOUNGLING) Procurement, if you mean
12 the procurement people, purchasing people, they buy what
13 we specify. It is the technical people at the plant
14 staff who are making the day-to-day judgments on the
15 consumables to be bought and their application. They
16 make the judgments. It is not the purchasing people
17 that are doing that.

18 Q You see, once again I think you are telling me
19 that they give "due regard." They don't abide by the
20 "without regard".

21 (Witnesses conferring.)

22 A (WITNESS YOUNGLING) We are trying to clarify
23 as best we can that statement means without regard to
24 quality from the point of view as to whether the
25 procurement is being made as a safety-related

1 procurement or non-safety-related procurement.

2 The implications of making that procurement as
3 a "safety-related" procurement could preclude us from
4 being able to purchase those consumables. As soon as we
5 designate that as a safety-related procurement document,
6 that implies the application of some level of Appendix
7 B. Number two, it implies the application of 10 CFR
8 Part 21, and the vendors cannot and do not meet those
9 requirements.

10 And when we come to the point where we may not
11 be able to buy that transistor under those situations,
12 that is what I guess I have been trying to say all
13 along. I hope that helps.

14 Q I found it very helpful. Thank you.

15 It is in, you said, "safety-related", so that
16 puts it in a specific context of the jargon that has
17 been going on in this room with respect to Appendix B on
18 the transistor -- that it might not be appropriate at
19 all for some particular component, but the criteria of
20 equal or better quality would apply.

21 A (WITNESS YOUNGLING) Yes, sir.

22 JUDGE CARPENTER: It is a matter of emphasis
23 and display of policy attitude that I think has led to
24 the belaboring on this disclaimer, starting off with the
25 section, putting it in the very front, I think. And I

1 think you have clarified it.

2 BY JUDGE MORRIS:

3 Q Gentlemen, I just had a couple of things I
4 wanted to seek some information on.

5 One, is any member of the panel a member of
6 ASQC?

7 A (WITNESS KELLY) Yes, I am.

8 Q Any others?

9 (No response.)

10 Q How long have you been a member, Mr. Kelly?

11 A (WITNESS KELLY) I am not sure exactly. I
12 believe it has been about nine years.

13 Q Have you attended meetings at some frequency?

14 A (WITNESS KELLY) I usually attend the annual
15 Energy Division, which used to be the Nuclear Division,
16 meetings, and I have attended some of their courses that
17 they have also given. I am a member of the Inspection
18 Division, the Energy Division, and the Reliability
19 Division of ASQC.

20 Q Do you routinely get the publications that
21 relate to quality assurance for nuclear plants?

22 A (WITNESS KELLY) Yes. I get the Quality
23 Progress magazine, which is the magazine for ASQC. I
24 also get the Quality Journal, which is an optional
25 journal from the Society.

1 Q From your exposure to the activities of the
2 Society and its members, how would you rate the QA
3 program at Shoreham with respect to the QA programs at
4 other nuclear plants?

5 A (WITNESS KELLY) My personal opinion is that
6 we are equal to or better than the average.

7 Q Mr. Muller, do you see the publications of
8 ASQC?

9 A (WITNESS MULLER) I do read them occasionally,
10 specifically the Quality Progress. I have not read one
11 in the past few months, though.

12 Q My colleague points out there may be some
13 members here who read the record that don't know what
14 ASQC stands for.

15 A (WITNESS KELLY) The American Society for
16 Quality Control.

17 Q On a different subject, Mr. Kelly, would you
18 or do you conclude that Mr. Muller has as much
19 independence from a plant operating staff in conducting
20 his quality assurance activities as you do?

21 A (WITNESS KELLY) Yes, sir, and that is also
22 based not just on my opinion. It is also based upon the
23 auditing activities we have done of the CQA organization
24 since 1976 that is conducted by my particular division.

25 Q Have you looked particularly at this aspect of

1 independence?

2 A (WITNESS KELLY) Not specifically as an audit
3 attribute, but in the carrying out of the audits to
4 verify their compliance with all of their procedures and
5 the dealings with the people in the station OQA
6 organization, it would become quite obvious to us over
7 that period of time if there was any undue pressure
8 imposed upon them by the plant manager or any other cost
9 considerations that were imposed upon them.

10 And that has definitely not been the case. We
11 have seen them to have total sufficient independence as
12 is necessary to perform their function.

13 Q So you know of no instance where there was
14 lack of independence?

15 A (WITNESS KELLY) No, sir.

16 JUDGE MORRIS: Thank you.

17 BY JUDGE BRENNER:

18 Q But, Mr. Kelly, would you expect any problem
19 of undue pressure to have reared its head before
20 operation, or is that a predicted fear that would become
21 more plausible if it exists when you have the plant in
22 an operational mode?

23 A (WITNESS KELLY) Since the same program --
24 that is one of the advantages, I believe, of the
25 operational QA program, is the fact that we have applied

1 that program to the startup effort and worked all the
2 bugs out of the procedures during the startup testing
3 phase.

4 There is a lot of activity going on, a lot of
5 testing, definitely an interest upon the company to get
6 the job finished as expeditiously as possible. So I
7 would say if there were going to be pressures applied,
8 there would have been pressures applied to the station
9 OQA similarly as during operations, and that was not the
10 case. They have been free to perform their function as
11 necessary.

12 Q Did your audits disclose to you, Mr. Kelly,
13 any noteworthy examples in which Mr. Muller's
14 organization adversely affected the startup schedule due
15 to some quality problems that they found?

16 A (WITNESS KELLY) Well, they routinely write
17 the LILCO deficiency reports. There are audit findings
18 that is going to have, when you have a non-conformance
19 and you have to have a correction performed, that
20 inspection that in some way is going to affect your
21 marching forward.

22 Q I was wondering beyond that generalization if
23 you had an example or two in which there was really
24 stress put on the startup program as a result of
25 deficiencies found by the OQA organization.

1 A (WITNESS YOUNGLING) Yes, Judge. I think I
2 can speak to that.

3 Q I will give you an opportunity because you
4 would have been the one addressed, but I want to know if
5 Mr. Kelly saw anything in the audits as the basis for
6 some of his previous answers.

7 A (WITNESS KELLY) Nothing specifically that
8 comes to my mind of appreciating magnitude.

9 Q Mr. Youngling?

10 A (WITNESS YOUNGLING) Yes. There was one
11 particular instance that comes to mind. Back in May of
12 1981 we were performing -- we were starting to perform
13 the integrated flush on the primary system. The
14 integrated flush is a mass flush of the systems that are
15 in communications with the reactor pressure vessel.

16 In the signing off of the prerequisites prior
17 to starting that test, there are various witness points
18 that the OQA people put in place when we developed the
19 procedures, and there was a particular witness point at
20 a particular prerequisite dealing with a proof that we
21 had performed a flushing associated with the tailpipes
22 and the safety relief valves, that there was an adequate
23 cleanliness level in those tailpipes before we started,
24 that required us to go back to the construction
25 organization, since they had done the work for startup.

1 And I can remember, because I was in the
2 control room, us having to wait for about six hours to
3 produce that documentation out of the file for the QA
4 people to see before they would sign the prerequisites.

5 Generally, the quality people in the
6 establishment of the prerequisites, that is an area
7 where there is a great deal of diligence and we have to
8 produce that documentation for them to show that we are
9 ready to perform this test or the test that we do. That
10 is one particular instance that comes to mind.

11 Q Did you disagree with the OQA organization as
12 to what they thought was necessary as a prerequisite in
13 that instance, or were they clearly correct and,
14 therefore, you had no choice but to go along?

15 A (WITNESS YOUNGLING) They were correct in
16 wanting to see the documentation, surely. We knew the
17 lines were flushed. They wanted to see the
18 documentation; they were right.

19 Q While undoubtedly annoying at the time to you,
20 do you think that type of six-hour delay is equivalent
21 to having to shut a plant down in terms of the stress
22 that might arise between the OQA organization and the
23 plant manager?

24 A (WITNESS YOUNGLING) I don't think I could
25 draw a parallel there. I don't think I could do that.

1 Q Do you mean you can't compare the two, or the
2 two in the comparison are not comparable because one is
3 greater than the other?

4 A (WITNESS YOUNGLING) I think the latter, yes.

5 Q There would be no more stress in a situation
6 where the plant might have to be shut down: is that
7 what you are saying?

8 A (WITNESS YOUNGLING) I would say that with the
9 plant at full power there would certainly be a higher
10 stress level, yes.

11 Q For a plant that was shut down and ready to go
12 up, as the plant manager was concerned but not ready to
13 go back up as far as OQA was concerned, that situation,
14 too, would give rise to possibly more tension than the
15 situation of startup that you referred to, isn't that
16 correct?

17 A (WITNESS YOUNGLING) Yes. I think it could,
18 yes. There would be a balance that would have to be
19 drawn in that situation that you mentioned relative to
20 the startup.

21 JUDGE BRENNER: Mr. Ellis.

22 FURTHER REDIRECT EXAMINATION

23 BY MR. ELLIS:

24 Q On that point, Mr. Youngling, Mr. Muller, Mr.
25 Kelly -- anybody -- have there been instances where OQA

1 has had an observation or a finding that the startup
2 organization of the plant staff has disagreed with and
3 OQA has held its ground, to your knowledge?

4 (Witnesses conferring.)

5 A (WITNESS MULLER) Mr. Ellis, it has been our
6 policy to hold our ground from repair reworks to
7 witnessing of flushes all the way through.

8 Q All right. But have people whom you have
9 audited disagreed with you as to the accuracy or
10 validity of your judgments that you have made in that
11 connection?

12 A (WITNESS YOUNGLING) There have been times
13 where we have disagreed with the basis of an audit
14 finding, where we were able to provide to the OQA people
15 adequate documentation or additional justification to
16 show that the audit findings was perhaps not correct,
17 and in the converse condition there have been instances
18 where we have done the same process and it has shown
19 that the OQA people are truly correct, and rightly so
20 correct.

21 Q Well, have there been any instances that you
22 are familiar with where your organization or the plant
23 staff has been able to eliminate an audit observation or
24 a finding without going through the process of either
25 justifying it or finding out that it is right?

1 A (WITNESS MULLER) No, sir.

2 A (WITNESS YOUNGLING) No. Once that finding is
3 identified, we have to respond to it. Now what they
4 will do is they will close it right at the exit
5 interviews and that will show in the exit report.

6 A (WITNESS MULLER) But it would also show why
7 it was closed out -- what action was taken to close it
8 out. We wouldn't just close it out and not provide any
9 information.

10 (Counsel for LILCO conferring.)

11 Q Mr. Youngling, you mentioned one example where
12 the startup program had been affected or impacted in
13 terms of its schedule by audit findings. I take it
14 there were -- have there been other instances where the
15 startup program schedule has been affected by the
16 activities of OQA?

17 A (WITNESS YOUNGLING) Right off the top of my
18 head I can't think of any additional areas, no.

19 Q Well, when OQA audits a startup organization
20 and comes up with a finding, does that have an effect on
21 the startup program and the schedule?

22 A (WITNESS YOUNGLING) Generally, those findings
23 are handled on a parallel basis unless it precludes us
24 from going forward. But generally they are handled on a
25 parallel basis.

1 Q Do you want to add anything?

2 A (WITNESS YOUNGLING) Well, if you mean by a
3 finding, as I said, if it precludes us from going
4 forward, if the quality people find something that they
5 are concerned about which requires us to go back and
6 make an engineering change, make a rework, yes, that
7 would put a delay in the process. We would have to do
8 things over or get some additional engineering
9 accomplished.

10 Q All right. Has that occurred on more than
11 just the occasion you just testified to in response to,
12 I think, Judge Brenner's question?

13 (Witnesses conferring.)

14 A (WITNESS YOUNGLING) Most of that occurs
15 through the LDR program, the deficiency report program,
16 as a result of surveillances that the OQA people do
17 against our testing and our component level testing.
18 They may see during the component test a particular
19 aspect that they are unhappy with that may result in us
20 having to go and get some additional engineering
21 justification to show that we are in compliance or the
22 engineering review may show that we have to make a
23 change.

24 Those kinds of situations have occurred, yes.

25 A (WITNESS MULLER) Mr. Ellis, Mr. Youngling

1 just mentioned one activity. He mentioned
2 surveillance. That occurs during an audit and review
3 process also. We would issue the deficiency reports,
4 which would cause startup to go back, either have the
5 work redone or go to engineering for further evaluation
6 of the process. So yes, we do hold them up -- I mean in
7 the sense that we just don't let them continue when
8 there is something identified that is wrong that has to
9 be corrected.

10 Q My questions -- I think I have inadvertently
11 used the term "audit", and I haven't included
12 surveillances, inspections and other activities of OQA.
13 But given all of the activities of OQA, Mr. Muller, you
14 said that it does hold them up. Have those instances
15 actually occurred where they have been held up?

16 A (WITNESS MULLER) Sure. I mean, that happens
17 on a continuing basis.

18 Q And does it occur in instances where there are
19 differences of judgment between an OQA personnel and a
20 startup personnel or a plant staff personnel?

21 A (WITNESS MULLER) Yes, it does. Once again,
22 the LDR is issued. It has to be dispositioned and the
23 disposition has to be agreed to by both the
24 dispositioner and the operating QA section.

25 Q Well, Mr. Kelly, in your audits and, Mr.

1 Youngling, in your management of the startup
2 organization, have there been any instances where --
3 well, let me ask Mr. Kelly. Have there been any
4 instances that you have seen in your audits of the OQA
5 organization where LDRs or other observations and
6 activities by the OQA organization have been affected or
7 gotten off track because of pressures or views of the
8 plant staff or the startup organization?

9 A (WITNESS KELLY) No, there has not been any
10 instance where that has occurred, and we audit all of
11 the activities of the OQA organization, which would
12 include their auditing process, their non-conformance
13 control and corrective action programs, just to name a
14 few.

15 (Counsel for LILCO conferring.)

16 Q Mr. Youngling, I think you may have covered
17 this, but let me be clear about this. Mr. Dynner asked
18 you about space program suppliers. Does simply having
19 what I think he termed a "good QA program" equate to
20 safety-related procurement, or are there other
21 regulations involved for the vendor in safety-related,
22 as designated as a requirement for procuring
23 consumables?

24 (Witnesses conferring.)

25 A (WITNESS YOUNGLING) In addition to the

1 requirements of Appendix B for safety-related
2 procurement, there is also the requirement under Part 21
3 of 10 CFR Part 21 which has to be picked up by the
4 vendor supplying the components and parts.

5 Q Do you know whether --

6 (Counsel for LILCO conferring.)

7 Q Based upon your experience, when Part 21 first
8 came out, was that a problem for suppliers of components
9 of various kinds?

10 (Witnesses conferring.)

11 A (WITNESS YOUNGLING) Yes, it was.

12 Q Can you elaborate on that?

13 A (WITNESS YOUNGLING) The industry -- during
14 both the development and after Part 21 went into effect,
15 there were certain vendors that made decisions that they
16 no longer wanted to be involved in the nuclear industry
17 as a result of the Part 21 requirements. Some of them
18 took not only their entire product line or parts of
19 their product line out of the availability for nuclear
20 application --

21 JUDGE BRENNER: What was their problem? They
22 didn't like to disclose their defects?

23 WITNESS YOUNGLING: I guess you would have to
24 really talk with them.

25 JUDGE BRENNER: Well, you are the one who your

1 counsel thinks is expert enough to talk about what the
2 problems are. That, in itself, is intriguing, but since
3 he believes you are, and since you have answered so far,
4 my question was a logical follow-up. If you don't know,
5 then that could be your answer.

6 (Witnesses conferring.)

7 WITNESS YOUNGLING: I am sure there were
8 considerations relative to the legal liabilities
9 associated with it and a great deal of concern.

10 JUDGE BRENNER: Maybe it was a good thing to
11 weed out vendors who had problems with part 21 from
12 supplying products to nuclear power plants. Do you have
13 an opinion on that?

14 WITNESS KELLY: It may have accomplished some
15 good -- I think it did -- also a lot of harm, in my
16 opinion, as far as -- because of the legal liabilities
17 that companies were not willing to assume because of
18 negligible economic benefit to them by being suppliers
19 to the nuclear program. I think we lost a lot of good
20 suppliers from the industry.

21

22

23

24

25

1 BY MR. ELLIS: (Resuming)

2 Q Do you know, Mr. Youngling, whether there are
3 civil and criminal penalties attached to Part 21?

4 A (WITNESS YOUNGLING) Yes, there are.

5 Q Do you know whether that was also a
6 consideration?

7 A (WITNESS YOUNGLING) I'm sure it was.

8 Q Mr. Youngling, I think you indicated that
9 consumables and the procedure indicates that the
10 consumables are purchased to equal or better than the
11 original. If the original was purchased with specified
12 quality standards, would the replacement part be
13 purchased with equivalent or higher quality standards?

14 A (WITNESS YOUNGLING) The replacement would be
15 purchased with higher quality standards, yes.

16 Q And I am not sure whether you testified, but
17 if it were purchased to mil. spec originally, would it
18 be purchased at least to a mil. spec otherwise?

19 A (WITNESS YOUNGLING) Yes, I did testify that,
20 yes.

21 JUDGE BRENNER: You are getting a little
22 repetitious, Mr. Ellis. Maybe it is inevitable after
23 all of the testimony we have had. But as long as I
24 interrupted anyway, let me clarify for the record. I
25 take it a mil. spec is military specifications; is that

1 correct?

2 WITNESS YOUNGLING: Yes, Judge.

3 BY MR. ELLIS: (Resuming)

4 Q Now, you indicated you had discussions with
5 G.E. Is that the basis for your testimony where you
6 indicated to the best of your knowledge they acquired
7 consumables in the same way that LILCO does?

8 A (WITNESS YOUNGLING) Yes, we did. We did have
9 communications and discussions with them on the
10 consumable aspects, yes.

11 Q Mr. Muller -- I think it was Mr. Muller -- you
12 were asked a number of questions by Mr. Dynner on
13 NUREG-0731, Suffolk County Exhibit No. 87. Well, excuse
14 me. Before I do that, Suffolk County Exhibit No. 77.
15 Do you have your copy of that before you? That is the
16 EEI Nuclear Plant Staffing Survey.

17 A (WITNESS MULLER) Yes, I do.

18 Q All right. You were asked questions
19 concerning footnotes that appear on page 2. I believe
20 it was Footnotes 2 and 3. Can you now explain the
21 meaning of those footnotes?

22 A (WITNESS MULLER) Yes. I spoke to Mr. Hammond
23 on the telephone after I testified, and the footnotes
24 mean what they say. For Footnote No. 2, plant staffing
25 totals only include the QC function, whether or not

1 personnel report off site or on site. What Mr. Hammond
2 did in his telephone survey was determine the number of
3 people required to support the QC effort at the plant on
4 a full-time basis. This meant that if there were five
5 people performing the QC function at the plant,
6 regardless of who they reported to, the numbers in the
7 tables would be five, the table number three for Note
8 No. 3. The plant staff totals are not QA function even
9 if the personnel work on site. This included the number
10 of people involved in the QA effort at the plant. They
11 were not assigned full-time basis at the plant. It
12 didn't matter who they reported to. These people were
13 not included in the tables.

14 [Counsel for LILCO conferred.]

15 JUDGE BRENNER: Mr. Ellis, if you asked this
16 when you asked your questions, I apologize because I
17 missed it. Did you find out, Mr. Muller, if those
18 footnoes refer only to the list in the beginning as
19 distinguished from the individual sheets that you have
20 attached from the separate plants?

21 WITNESS MULLER: Those notes apply throughout
22 the BWRs, PWRs, the mixed multi-unit utilities.

23 JUDGE BRENNER: I thought we straightened all
24 of this out better once before.

25 THE WITNESS: Those footnotes apply to the

1 report completely, not just the page 2.

2 JUDGE BRENNER: As I turn through the exhibit,
3 Suffolk County Exhibit 77, there is a separate sheet for
4 each of the BWRs that are included in the exhibit.

5 WITNESS MULLER: That is correct.

6 JUDGE BRENNER: Does that footnote apply to
7 the way personnel have been reported in those separate
8 sheets?

9 WITNESS MULLER: Yes, it does.

10 JUDGE BRENNER: And with those footnotes you
11 see no inconsistencies or discrepancies in the way
12 things are actually reported on those sheets in
13 comparison to the footnote and in comparison to the list
14 at the beginning in terms of the totals?

15 WITNESS MULLER: I did not find any
16 inconsistencies, no.

17 JUDGE BRENNER: Well, plow through the record
18 we had last time on it.

19 WITNESS YOUNGLING: Judge, there was one
20 inconsistency that I might as well point out to you -- I
21 see I have it here in my notes, which may help me -- in
22 the Fitzpatrick station. If you will look at the
23 summary in the front, Fitzpatrick has 238 listed, okay?
24 I am on page -- well, under staffing list, the second
25 page. And if you go back to their detailed breakdown

1 page, if you were to add up all of those people that
2 were shown on there, you will find out that it adds up
3 to 241. So the three QA people that are listed in the
4 QA column are not included in that summary up front, and
5 that is in accordance with Note No. 3.

6 So when LILCO used that Fitzpatrick number, we
7 used the number of six. I think the total number listed
8 in there should be nine.

9 BY MR. ELLIS: (Resuming)

10 Q The total number listed where, Mr. Youngling?

11 A (WITNESS YOUNGLING) In the detailed breakdown
12 under QA/QC.

13 JUDGE BRENNER: Well, I don't remember. I
14 think last time on the record we looked at Cooper as an
15 example, too, and it raises a similar difference in
16 breakdown although not as easily explained because of
17 the way they are labeled. Their additional three is
18 QA/QC, and this is what gave me problems in
19 understanding the footnote before and that is why I
20 asked Mr. Muller the question I did now, and I'm still
21 not sure I understand what it is all about, but if it is
22 in the record, I will understand it later when I put it
23 together. If it is not in the record, I will never
24 understand it. As of this moment, I don't know if I
25 need to understand it.

1 [Counsel for LILCO conferring.]

2 BY MR. ELLIS: (Resuming)

3 Q Mr. Youngling, tell me once again where the
4 nine goes. I missed that.

5 A (WITNESS YOUNGLING) If you look at the
6 Fitzpatrick detailed breakdown where it says in-plant
7 QA/QC, if you add up all of those people, you come out
8 to ten. Take the secretary out, that leaves nine QA/QC
9 people.

10 Q So for Fitzpatrick, then, would this mean that
11 their OQA, or their analog of the Shoreham OQA would
12 have nine personnel?

13 A (WITNESS MULLER) No, that would be six.

14 Q Would the extra three, then, be offsite people
15 involved in onsite activities?

16 A (WITNESS MULLER) In accordance with Note 3,
17 yes.

18 JUDGE BRENNER: Mr. Ellis, do you have more
19 important things in your final follow-up?

20 MR. ELLIS: Yes, I do.

21 JUDGE BRENNER: Okay, because this day has
22 begun to drag, and you see what happens. If we had
23 acceded to your request to run longer on Friday two
24 weeks ago, we would still be here, let alone trying to
25 finish up Tuesday in New York and let alone running late

1 yesterday. So you severely underestimated what you were
2 going to do as well as the other parties, and that is my
3 point.

4 MR. ELLIS: Well, I accept some of that; but
5 on the other hand, if we look at -- well.

6 JUDGE BRENNER: I know, his questions gave
7 rise to your questions, but not on this last exhibit, at
8 least in my mind, for reasons I have already stated.

9 MR. ELLIS: I think, though, you started with
10 a week of OQA and then an extra six hours, and that
11 hasn't been me.

12 JUDGE BRENNER: I am merely talking about your
13 latest estimates over the last day and a half as to what
14 you had for follow-up. If you had told me originally
15 three days instead of one day, that would have been more
16 palatable. That is my only point. And I want attorneys
17 to be more realistic in the future. You used your
18 estimates partially to pressure everybody into certain
19 time frames yesterday, and that is part of my annoyance,
20 in addition to time frames on the Friday of the week
21 before Thanksgiving. So more realistic estimates would
22 be helpful, and I don't think you are being productive
23 in the last five minutes. The time hasn't been graded;
24 it is the productivity. And I am only talking about the
25 last few minutes, and that is why I asked my question.

1 I certainly agree you have had much less redirect than
2 there has been cross, but that wasn't my point.

3 All right. Let me keep quiet so we can make
4 progress.

5 BY MR. ELLIS: (Resuming)

6 Q Mr. Muller, look at NUREG-0731, which was
7 marked as Suffolk County Exhibit No. 87, please.

8 A (WITNESS MULLER) I have it.

9 Q Okay. Mr. Dynner there tried, I think
10 unsuccessfully, to have you say that Figure No. 1 was
11 the preferred or the best organization, and I think the
12 record reflects that you pointed to the language on page
13 4 indicating that it was a representative-type
14 organization which may be satisfactorily used; not the
15 best, preferred. Is there any other language in
16 NUREG-0731 that also supports your point in that
17 connection?

18 A (WITNESS MULLER) Yes. On page 2 there is the
19 indication that the organizational structure and the
20 technical resources available to each utility will have
21 to be -- the evaluation will have to be made on a
22 subjective basis.

23 Q What are you referring to on page 2?

24 A (WITNESS MULLER) The fourth paragraph.

25 Q Okay. Would you read the sentence or sentences

1 that you are referring to? Does that start with "An
2 additional point"?

3 A (WITNESS MULLER) Yes. An additional point is
4 deserving of special mention. Evaluation of the
5 organizational structure and the technical resources
6 available to a utility will have to be made on a largely
7 subjective basis. Variations in the size, operating
8 philosophy and basic organizational structure of the
9 various utilities preclude a staff-imposed "best"
10 solution to a perceived problem.

11 Q All right, Mr. Muller. Look now if you would,
12 please, at Figure 1 which Mr. Dynner asked you some
13 questions about. You will see Figure 1 has a solid line
14 going from quality assurance to the block that has plant
15 manager or assistant plant manager. What does that
16 solid line indicate to you?

17 A (WITNESS MULLER) That solid line also
18 connects to the operations manager, the maintenance
19 manager, technical manager, training manager, radiation
20 protection manager, security, administrative services.
21 That line would indicate that the quality assurance
22 would have the same responsibility and the same
23 reporting to the plant manager as the other
24 organizations.

25 Q Now, there is a footnote, though, to the

1 quality assurance that says, "reports offsite to the
2 director of operational quality assurance." Is there
3 any indication or any definition there given of whether
4 "reports" there means functional, administrative,
5 communications, any or all of those?

6 JUDGE BRENNER: Is your question is there any
7 explanation on the chart or anywhere in the document?

8 MR. ELLIS: I will ask him first about the
9 chart.

10 WITNESS MULLER: There is no definition on the
11 chart, and I don't remember any definition specifically
12 within the NUREG as far as what that solid line means.

13 JUDGE BRENNER: You don't remember any
14 questions and answers of yesterday bearing on that
15 subject?

16 WITNESS MULLER: We had mentioned functional,
17 administrative, and I don't think those terms were
18 defined within the NUREG.

19 MR. ELLIS: Judge Brenner, to save time, if
20 there is a specific reference that you are familiar with
21 that I have missed, perhaps we ought to refer to it now,
22 and if the witness is wrong, we can get it out right now.

23 JUDGE BRENNER: I think it is already in the
24 record. I am confident it is already in the record. We
25 are going to pursue this more with the Staff anyway

1 since it is their document.

2 BY MR. ELLIS: (Resuming)

3 Q Mr. Muller, the footnote, as far as you know,
4 could that be reporting in terms of communications to an
5 offsite director of operational quality assurance?

6 A (WITNESS MULLER) It could be, yes.

7 Q If it were a functional administrative
8 reporting, would you expect the same solid line to be
9 drawn from the quality assurance box to the plant
10 manager box?

11 JUDGE BRENNER: I will let him answer, but I
12 think given everything else he has said about his
13 knowledge of the chart, you are going way beyond what he
14 can state as distinguished from just speculation. You
15 are asking him, if he would draw the chart, would he
16 draw it that way if it meant a functional administrative
17 connection offsite. Is that right?

18 MR. ELLIS: Judge Brenner, I think yesterday
19 led to extensive questioning of the document when it was
20 not the document they had prepared, but I think he was
21 asked how he interpreted it and he is now giving his
22 views about how he interpreted it. Now, that may be
23 different from what the NRC intended and it may be
24 different from how the County reads it. It may be, but
25 he does have a reason for it, as he has testified, it is

1 a solid line.

2 JUDGE BRENNER: I know, but you got that
3 answer already. Okay, let him answer. You are right.
4 You made that objection, and in light of our overruling
5 that objection, I will let you ask this question.

6 WITNESS MULLER: I think if there was no
7 indication of functional authority, the QA section would
8 not even appear on that organizational chart. That does
9 indicate some line of authority, a clear line to the
10 plant manager.

11 BY MR. ELLIS: (Resuming)

12 Q All right. I believe you were also asked some
13 questions, Mr. Muller, about Figure 2 on NUREG-0731, and
14 that appears on page 13. Is there any indication in the
15 report concerning whether that figure would be suitable
16 for a single plant, nuclear plant utility like LILCO?

17 A (WITNESS MULLER) No. On page 12, paragraph
18 1, Section 1, under organization, there is a sentence,
19 "This figure is considered to be representative of the
20 utility with a medium size commitment to nuclear power
21 since the utility with a single nuclear power plant
22 would probably not have the resources to establish
23 separate organizational units for all the areas shown in
24 the figure.

25 Q Look at LILCO Exhibit 38, which was the figure

1 for the WASH-1284 document which Mr. Dynner asked you
2 some questions about.

3 Oh, one other minor point, Mr. Muller, while
4 we are on Suffolk County Exhibit 87. What is the date
5 of that document?

6 A (WITNESS MULLER) The date of the NUREG-0731
7 is, date published, September 1980.

8 Q Do you know whether the SER was published
9 before or after that date?

10 A (WITNESS MULLER) The SER was published in
11 April of 1981.

12 Q So that would be after the date that
13 NUREG-0731 bears, the draft?

14 A (WITNESS MULLER) Yes, sir.

15 Q Okay, look at LILCO Exhibit 38, please.

16 A (WITNESS MULLER) If I could have a couple of
17 seconds.

18 [Pause.]

19 JUDGE BRENNER: That is the one you couldn't
20 find last time either, which is bound in on the November
21 19th transcript.

22 [Discussion off the record.]

23 WITNESS MULLER: I have it, Mr. Ellis.

24 BY MR. ELLIS: (Resuming)

25 Q All right. Yesterday you indicated that the

1 functional solid line, the line that is labeled
2 "functional" from the QA supervisor to the plant
3 superintendent, that in your view "functional" included
4 administrative. And there is a dotted line from the QA
5 supervisor to the manager of QA operation labeled
6 "communications." Did those lines, in your opinion,
7 represent the kind of relationship that you have with
8 the plant manager at Shoreham and Mr. Gerecke, the
9 department head of the QA Department?

10 A (WITNESS MULLER) Yes, they do.

11 Q And you were also asked questions concerning
12 the fact that there is a vice president of quality
13 assurance, whereas at LILCO there is a vice president of
14 engineering that has those responsibilities. Given
15 that, is there any difference, in your opinion, in
16 substance between the structure for OQA reporting
17 between the LILCO and Exhibit 38?

18 A (WITNESS MULLER) No, sir, I don't believe
19 there is any difference in substance.

20 Q Mr. Muller, has any representative of the
21 County ever indicated to you a number for staffing of
22 OQA?

23 A (WITNESS MULLER) No, sir.

24 MR. ELLIS: No further questions.

25 JUDGE BRENNER: I always stand to be

1 corrected, but I certainly didn't hear much new ground
2 there, so we are going to be very aggressive as to the
3 follow-up, if any, limited to the last round.

4 Do you have any questions?

5 MR. DYNNER: I have only one question and it
6 refers to the testimony in answer to the questions asked
7 by Mr. Ellis concerning the LDRs and CARs and other
8 aspects that might have interfered with the work in
9 connection with the effect of the OQA section.

10 FURTHER RECROSS EXAMINATION

11 BY MR. DYNNER:

12 Q Can you tell me, Mr. Muller, during calendar
13 year 1981 how many LDRs and how many CARs did OQA
14 section issue for the entire plant during that entire
15 year?

16 MR. ELLIS: I object. I don't see how that is
17 related to the total number.

18 JUDGE BRENNER: He has only got one question;
19 let him ask it. I don't know what I am going to do with
20 the answer either, but I am going to let you ask it.

21 MR. DYNNER: Thank you.

22 BY MR. DYNNER: (Resuming)

23 Q Isn't it true, Mr. Muller, that during the
24 entire year of 1981, the OQA section issued a total of
25 only 100 LDRs and only 16 CARs?

1 A (WITNESS MULLER) I'm just trying to confirm
2 that.

3 [Panel of witnesses conferring.]

4 A (WITNESS KELLY) Mr. Dynner, could you tell us
5 where you got that number from?

6 Q Do you have your 1981 annual report?

7 A (WITNESS KELLY) Yes.

8 [Pause.]

9 Q You might look on pages 9 and 10.

10 A (WITNESS MULLER) Yes, Mr. Dynner, during 1981
11 we issued 100 LDRs, 16 CARs, and in addition to that, we
12 issued 53 audit findings.

13 [Panel of witnesses conferring.]

14 MR. DYNNER: I have no further questions.

15 MR. ELLIS: Judge Brenner, I think that leaves
16 an inference and I am entitled to follow up with more
17 questions.

18 JUDGE BRENNER: Let me ask the Staff if they
19 have anything.

20 MR. BORDENICK: No questions.

21 JUDGE BRENNER: Go ahead, Mr. Ellis.

22 FURTHER REDIRECT EXAMINATION

23 BY MR. ELLIS:

24 Q Were you done answering Mr. Dynner's question?

25 A (WITNESS MULLER) I was finished. I'm not

1 sure if Mr. Youngling had anything he wanted to add.

2 Q Is the number of audit findings, CARs and
3 LDRs, in your view attributable to pressures of cost or
4 schedule or the quality of the work being observed and
5 monitored?

6 A (WITNESS MULLER) It is attributable to the
7 quality of the work. If we found something that was not
8 correct, we would have written it up whether it would
9 have been a CAR, an LDR or an audit finding, depending
10 upon how we found the problem.

11 A (WITNESS YOUNGLING) I would also like to add
12 to that that a certain proportion of those LWRs, and I
13 don't know what the number is, are written by my people
14 because the LILCO LDR is my mechanism to identify a
15 deficiency and those LDRs are written against quality
16 problems or deficiencies or problems with the
17 performance of testing.

18 JUDGE BRENNER: Since you are sitting back
19 from the microphone, I am going to infer you are done.

20 MR. ELLIS: Yes, sir, I am. I said one, and
21 for once, I meant it.

22 JUDGE BRENNER: I took it that way.

23 BOARD EXAMINATION

24 BY JUDGE BRENNER:

25 Q We have one more area, and it may or may not

1 be one question, of Mr. Youngling, that we are not going
2 to allow cross-examination on because it is for our
3 interest and it doesn't relate to the contention, but we
4 felt that since we have the benefit of the startup
5 manager here as a witness under oath, we can directly
6 ask you, Mr. Youngling, in your capacity as startup
7 manager and in your professional opinion, when would the
8 plant realistically be ready for fuel load? And I don't
9 want to hear about corporate policy or what the vice
10 president thinks you should say on the stand, which was
11 a vague illusion to some testimony I heard here from
12 another witness that I was most unhappy with, but your
13 own professional opinion: and you can tell anybody else
14 that that was the requirement here.

15 A (WITNESS YOUNGLING) Judge Brenner, the
16 present schedule was predicated on the Construction
17 forces clearing the primary containment on November 1st,
18 which allowed Startup to go in and perform the Type A
19 integrated leak rate test which was scheduled to occur
20 around Thanksgiving. Construction did not clear
21 containment until the 23rd of November. We readjusted
22 the schedule and we are now looking at pressurizing the
23 containment on or about the 6th of December, and we
24 anticipate to be done with the integrated leak rate
25 testing by the 11th or the 12th of December.

1 If we are able to achieve that aggressive
2 schedule, that would be about eight days ahead of the
3 original December 20th date to complete that activity.
4 So despite Construction being late in getting out of
5 containment, we still may be able to improve and
6 hopefully meet the original targetted schedule. That
7 would remove about a three-week delay that is presently
8 being shown in the February date.

9 Q For the record at this point why don't you
10 give us the date presently being shown.

11 A (WITNESS YOUNGLING) The date that is
12 presently shown on the project schedule is February
13 23rd, 1983 for fuel load.

14 Q Now, it is that date plus a three-week delay
15 presently shown?

16 A (WITNESS YOUNGLING) The present critical path
17 is showing three weeks behind schedule.

18 Q I'm not sure I understand. Do I add three
19 weeks to February 23rd or does that include the three
20 weeks, recognizing what you said?

21 A (WITNESS YOUNGLING) No, you would have to add
22 three weeks to it. Now, what I am saying is if we are
23 able to achieve the aggressive schedule that we have set
24 up, we would have removed the delay that was imposed
25 upon us by the late clearing of containment. Now, if we

1 achieve that milestone or that aggressive schedule --
2 which, incidentally, we have done in the past, we have
3 been able within the Startup organization to make up
4 ground that the Construction people have put us behind
5 in because of various reasons, for engineering and so
6 forth. So I am confident that we can do that.

7 Now, other areas that I am concerned about, I
8 am concerned about the radiation monitoring system. It
9 is a prototype system. It is the number one off the
10 line from the vendor. We have been experiencing some
11 problems with it in bringing it up. I am concerned
12 about it.

13 In addition, I am concerned about the area of
14 completion in the plant, painting, insulation work and
15 so forth. A very aggressive scheduling will have to be
16 maintained to ensure that we can complete that work in
17 the early part of 1983, which will allow us to move into
18 the fuel load condition.

19 As far as the machinery is concerned, as long
20 as I can make up that ground, I feel confident that we
21 can have the machinery ready. I am concerned about the
22 areas that I mentioned and I am concerned about the
23 radiation monitoring system.

24 Q In terms of if -- I'm sorry, go ahead. Had
25 you finished?

1 A (WITNESS YOUNGLING) If things don't come
2 together, I can see us losing some ground beyond the
3 February 23rd, but I don't see us slipping well beyond
4 that.

5 Q In terms of the uncertainties and the systems
6 you indicated that you had some concerns about, when in
7 January would you know whether your concerns were
8 realized or not, if January is the right time?

9 A (WITNESS YOUNGLING) I have told the vice
10 president-nuclear that come the 15th of January, we will
11 be in a very good position to assess where we are.

12 JUDGE BRENNER: Okay, thank you. It is much
13 easier to get a direct answer, which we appreciate, when
14 somebody is here as opposed to all of these written
15 status reports and, as I said, reports of what somebody
16 thought you should say in light of what other people
17 were projecting.

18 I think we are finished with your testimony,
19 subject to some of you having to come back for some of
20 the questions we have asked in the QA/QC area. I am not
21 sure whether that is all of you, but in case we don't
22 see any of you again in the hearing, we do very much
23 appreciate your time here. It is difficult being a
24 witness. It is not made any easier by pressures outside
25 the hearing, which we know you have and which all of us

1 have to various degrees, and we thank you for your time
2 and your attempt to enlighten us. Sometimes we are
3 denser on some points than on others and we need more
4 enlightening, and that is what the process is all about,
5 so thank you very much.

6 I don't know if Mr. Muller is going to get
7 more sleep when he goes back home with that baby or more
8 sleep here.

9 WITNESS MULLER: No, Judge Brenner, we have
10 been very lucky once again. We have a 12-hour schedule
11 set up and there haven't been any problems.

12 [Laughter.]

13 JUDGE BRENNER: Well, we ought to get you to
14 schedule these hearings for us.

15 [Laughter.]

16 JUDGE BRENNER: We will take a break until
17 11:25 and then we will begin with Mr. Hubbard on the
18 stand.

19 [Recess.]

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1 JUDGE BRENNER: We are ready to go on the
2 record and we are up to Mr. Hubbard as a witness.
3 Welcome back to the stand, if that is the right word.
4 Whereupon,

5 RICHARD B. HUBBARD
6 was recalled as a witness by counsel for Suffolk County
7 and, having been previously duly sworn, was further
8 examined and testified as follows:

9 MR. LANPHER: Judge Brenner, I think Mr.
10 Hubbard was previously sworn, I think on May 4.

11 I would like to have four documents marked as
12 exhibits. First, as Suffolk County Exhibit 89-A, a
13 document entitled "Prepared Direct Testimony of Richard
14 B. Hubbard on behalf of Suffolk County Regarding Suffolk
15 County Contentions 12, 13, 14, and 15, Quality
16 Assurance/Quality Control," and it is dated June 29,
17 1982, and it has a summary of the testimony, a table of
18 contents, and has 98 numbered pages.

19 (The document referred to
20 was marked Suffolk County
21 Exhibit Number 89-A for
22 identification.)

23 MR. LANPHER: I would like to have marked as
24 Suffolk County Exhibit 89-B a document entitled
25 "Attachments to Prepared Direct Testimony of Richard B.

1 Hubbard on behalf of Suffolk County", regarding the same
2 Contentions and bearing the same date. And, for the
3 record, it contains ten attachments which are listed on
4 the second page as part of the testimony, but given its
5 size we would have it marked as a separate sub-exhibit.

6 JUDGE BRENNER: All right.

7 (The document referred to
8 was marked Suffolk County
9 Exhibit Number 89-B for
10 identification.)

11 MR. LANPHER: I would like to have marked as
12 Suffolk County Exhibit 89-C a document entitled "Errata
13 to Prefiled Direct Testimony of Richard B. Hubbard on
14 Suffolk County Contentions 12 through 15," and it
15 consists of four pages.

16 We also handed out yesterday a revised table
17 as part of the errata, which has been inserted in the
18 reporter's copy and I believe everyone got that. Yes,
19 it is a new page 47 to Mr. Hubbard's prefiled testimony.

20 (The document referred to
21 was marked Suffolk County
22 Exhibit 89-C for
23 identification.)

24 MR. LANPHER: On the errata I have two minor
25 erratas to the errata.

1 JUDGE BRENNER: On page 47, that would already
2 be in as 89-A, so we don't have to worry about that.

3 MR. LANPHER: Yes, but I have inserted a new
4 page in the reporter's copy. On the Errata of Suffolk
5 County 89-C, while we are on that, the third, under the
6 column "lines", the third item has line 5. It should be
7 line 4.

8 And about halfway down the page, the largest
9 textual portion under "description of change", the last
10 word is "complement" and it should be "implement."

11 I should note that the errata pertains to
12 Suffolk County Exhibit 89-A. There are some
13 typographical errors in Suffolk County Exhibit 89-B
14 which we have not made changes to, except there are
15 three or there are four that we think ought to be made,
16 and if I could make them orally -- I am afraid they are
17 not included in the errata sheet.

18 JUDGE BRENNER: Did you include them in the
19 reporter's copy?

20 MR. LANPHER: The changes have been made in
21 the reporter's copy.

22 First, the list of attachments in Suffolk
23 County Exhibit 89-B has attachment 2 described as
24 Appendix 1 to Suffolk County Contention 12, and that is
25 a correct description. However, when you look at

1 Attachment, the cover sheet to Attachment 2 in the
2 exhibit, it is labeled "Letter, Lanpher to Brenner,
3 dated March 15," and I won't go into the history of why
4 this mistake was made, but it just conforms the
5 description of Attachment 2 to what is on the front
6 listing of the attachment.

7 And then if you go through there are three
8 changes I would like to make in Attachment 5. First, on
9 page 5-6, the first line, it should be "50.55(e)" rather
10 than "3".

11 Page 5-35, the first line is "I&E Inspection
12 77-17," not "16".

13 The final change is on page 5-56, and after on
14 the first line -- after "Appendix B" insert three
15 words: "welds" -- w-e-l-d-s -- "welds numbered 17."

16 Now I would like to have marked as Suffolk
17 County Exhibit 89-D a document entitled "Supplemental
18 Direct Testimony of Richard B. Hubbard in response to
19 Board Question," and it consists of eight typed pages.

20 (The document referred to
21 was marked Suffolk County
22 Exhibit 89-D for
23 identification.)

24 DIRECT EXAMINATION

25 BY MR. LANPHER:

1 Q Mr. Hubbard, do Exhibits 89-A -- Suffolk
2 County Exhibits 89-A and 89-B together, as corrected by
3 Exhibit 89-C, constitute your direct prefiled testimony
4 on Suffolk County Contentions 12 through 15?

5 A (WITNESS HUBBARD) Yes, sir.

6 Q To the best of your knowledge, is that
7 testimony, as corrected, true and correct?

8 A (WITNESS HUBBARD) Yes, sir.

9 MR. LANPHER: I think I will do it separately
10 at this point. We would like to move the admission of
11 the prefiled direct testimony, Suffolk County Exhibit
12 89-A, B and C, into evidence, and then we will take up
13 the supplemental testimony.

14 JUDGE BRENNER: Off the record for a minute.

15 (A discussion was held off the record.)

16 JUDGE BRENNER: Back on the record.

17 All right. In the absence of any objections,
18 we will admit Suffolk County Exhibits 89-A, B and C into
19 evidence. Mr. Ellis, I am sorry. Because of the bulk
20 of their totality, even though we could separate out
21 parts of them, there is no need. We will leave them all
22 as exhibits and we will not bind any of them in.

23 MR. ELLIS: I am sorry. I should have asked
24 sooner, Judge Brenner. I am not sure what arrangements
25 we had made previously. Many of the attachments are not

1 documents prepared by MHB or Mr. Hubbard, and, for
2 example, speeches by Chairman Palladino --

3 JUDGE BRENNER: Yes. But that is why we have
4 motions to strike in advance of all of this so we don't
5 have to deal with this at the time the testimony is
6 admitted.

7 MR. ELLIS: But the motion to strike would be
8 whether it was relevant. I am talking about whether it
9 is admitted for the truth of what is asserted.

10 JUDGE BRENNER: No, sir. The motion is to
11 strike or to not admit any of the testimony. They are
12 sometimes inartfully termed motions to strike because
13 the testimony physically exists, but, as we have
14 discussed at least one time, they are motions to not
15 admit for whatever evidentiary reasons that could have
16 been apparent prior to cross examination.

17 We had lengthy discussions in the beginning of
18 this case as to that, and if you had an evidentiary
19 problem, that is different than one that could arise
20 only after cross examination. But if you had an
21 evidentiary problem of not admitting them because he is
22 not the author, that is clearly something that could
23 have and should have been raised by virtue of the motion
24 to strike, and I just don't want to hear it now.

25 MR. ELLIS: Well, then --

1 JUDGE BRENNER: You could state it for the
2 record, but I am unlikely to grant it unless you really
3 pique my interest on something therein. But go ahead
4 and state it.

5 MR. ELLIS: Well, I do object to the
6 introduction into evidence for the truth of the matters
7 asserted of the attachments that were not authored by
8 Mr. Hubbard or his company, because I think they are
9 hearsay. I am not under the impression that those had
10 to be made in a motion to strike, but I may be in error,
11 and I assume that when the Board said are there any
12 objections at the time the material was offered is the
13 time to make that objection.

14 JUDGE BRENNER: Well, I guess I don't really
15 know why I said any objections, given the motion to
16 strike procedure. Put once in a while something could
17 pop up. For example, we could have forgotten that we
18 granted motions to strike, in part due to the passage of
19 time, or things like that.

20 And although it was my recollection that we
21 denied all the motions to strike with respect to Mr.
22 Hubbard's testimony, I could have been wrong, and that
23 would have been an opportunity for you to say that.

24 We are not going to grant your objection for
25 reasons that there are many attachments here and the

1 considerations could vary on your objection, depending
2 upon the attachments, and it would have taken some
3 consideration by us, which we would have been willing to
4 give over the many months. We had time to give such
5 consideration.

6 I am not going to belabor the record and bog
7 down the proceeding now, and it is for that very
8 reason. In addition, the simplistic fact that he is not
9 the author is not in and of itself a reason.

10 MR. ELLIS: Well, I hadn't finished.

11 JUDGE BRENNER: I'm sorry. I thought you
12 were. I apologize.

13 MR. ELLIS: The other objection I would like
14 to state for the record is that many of these are
15 lengthy documents and they may be just in a footnote or
16 just a passing reference to them, and they may be fairly
17 lengthy documents, and it has generally been that we
18 admit only for the matter on which there is testimony,
19 and not for the whole document.

20 So that would be an additional basis of the
21 objection that I would state.

22 JUDGE BRENNER: Yes, and do you recall when
23 the County had a similar problem with your testimony, it
24 was taken care of in advance among the parties with a
25 little bit of some it raised before us? But in reality

1 we didn't have to rule so much as encourage, and that
2 was the purpose of that type of thing.

3 I can assure you that if there is some major
4 point buried in those attachments that we hear about for
5 the first time on findings, which is different than
6 where the focus has been in the written testimony -- the
7 base written testimony -- we are not suddenly going to
8 say, "Oh, yes, there is something," and rely heavily on
9 it.

10 So obviously there are gradations, and what
11 Mr. Hubbard thought was most important, presumably, he
12 did choose to include in his testimony, the base
13 testimony. Now the inclusion may be by reference to
14 other documents, and he has done that on occasion. But
15 as far as we are concerned, that reference certainly has
16 highlighted those portions of that document to us.

17 But I am not precluding the fact that we may
18 use other things in there, and we could have taken care
19 of this much better. Where would we be in this
20 proceeding if we stopped at the time of admission of
21 testimony with the witnesses on the stand, for example
22 with the many LIFE witnesses sitting here, if we
23 followed the procedure? I have seen that happen in
24 other hearings, and that is why we adopted many
25 different procedures, not the least of which was the

1 motion to strike over the many months of this hearing to
2 avoid that.

3 And that has certainly been the spirit, if not
4 the letter, of what we have been doing, and the point
5 you are raising now is inconsistent with that. And if I
6 wanted to deal with it now, I think you will agree I
7 couldn't do it very rapidly. Do you agree with that, or
8 is it something -- I can't suddenly say, "oh, yes, he
9 hasn't authored the documents. We won't admit them."

10 It is not tha simple, is it? I guess you
11 don't want to agree or disagree.

12 MR. ELLIS: I think I may have just a
13 different view, Judge Brenner, and I can understand your
14 view, and I think in your view it would not be a simple
15 matter. Yes, sir, I understand that.

16 JUDGE BRENNER: Well, there are exceptions in
17 the Federal Rules of Evidence and courts for the use of
18 documents by experts, even before we get into the other
19 argument that we should be even more liberal. So even
20 if we were strictly following the court procedure in the
21 Federal Rules of Evidence, it wouldn't be that simple.

22 I do wish, for your benefit, we had had this
23 conversation other than the moment he is on the stand,
24 and I think everything we have done made that clear,
25 that that would be our intent and purpose.

1 MR. LANPHER: Judge Brenner, I would move the
2 admission of Suffolk County Exhibit 89-D.

3 JUDGE BRENNER: This one's a little different
4 in the sense that you didn't have any prior opportunity
5 to file motions to strike, so at this time my request
6 for objections is a little bit more sincere, if there
7 are any.

8 MR. ELLIS: Judge Brenner, I am going to ask
9 for grace again. We received this yesterday, I believe,
10 and I would like some time to look at it. I won't be
11 inquiring into it today, and I will try to look at it as
12 quickly as possible and get back to the Board on it
13 tomorrow.

14 JUDGE BRENNER: That is acceptable to us. Let
15 me make a statement about it, and this may guide you.

16 We did ask Mr. Hubbard to respond to our
17 question. We think this writing does in fact respond to
18 the question, as asked, and, in fact, is reasonably
19 restricted to the questions asked. We perhaps
20 inartfully and without thinking permitted him to do it
21 orally. We think what the County has done is an
22 improvement which perhaps we ourselves should have asked
23 for for the benefit of the Board and the parties of
24 having it in writing. And, quite frankly, we appreciate
25 their making the effort to put it in writing.

1 As I said, we would have allowed them to do it
2 orally, of course, so we do appreciate it. This also,
3 when I said "makes it easy for the other parties", gives
4 you an opportunity to see if there is something we would
5 object to other than on the spot at the time of the oral
6 response, and we will give you that opportunity tomorrow
7 morning on it.

8 All right. Let's hold off on it now and
9 perhaps since it is separated out to some extent, in
10 addition to being an exhibit, if we do admit it into
11 evidence, at the appropriate time we will bind it in
12 also.

13 MR. LANPHER: My motivation otherwise --

14 JUDGE BRENNER: You wanted to do it first?

15 MR. LANPHER: Well, it doesn't matter to me.
16 I originally had intended to ask him basically this
17 question and then have him respond orally before I
18 turned Mr. Hubbard over for cross examination.

19 If they are going to hold up examination on
20 it, I would -- that is fine. If, for some reason, the
21 Board does not want to admit this at a later date, I
22 think Mr. Hubbard should have an opportunity to respond
23 to the inquiry which you had raised.

24 JUDGE BRENNER: Well, you heard my comments.
25 We are going to take care of it in some way, but I don't

1 want to preclude LILCO from seeing something in there
2 that we on our own didn't see. That is why we have
3 parties to tell us things.

4 MR. ELLIS: Yes. I just wanted to be clear I
5 am not saying I have looked and I think I see a problem
6 with it. I am saying I have not looked at it.

7 JUDGE BRENNER: I understand.

8 MR. LANPHER: Judge Brenner, in light of
9 deferring that, and given the large audience that we
10 have here, Mr. Hubbard is going to forego providing a
11 summary, an oral summary. I think his views will come
12 out and so he is available for cross examination.

13 JUDGE BRENNER: I want to make the comment --
14 and you can respond or not respond -- in fact, I am
15 giving you ample opportunity not to respond so you don't
16 have to worry about posturing that you could have made
17 that very same comment many days in Long Island also.
18 That is, there was no audience other than the
19 participants in the proceeding.

20 All right. He is available for cross
21 examination.

22 MR. ELLIS: Judge Brenner, I intend to, since
23 the Board will know and also, to some extent, Mr.
24 Hubbard and other parties, will know, I intend to go
25 first to the basic area of qualifications. Then I have

1 a number of questions just to clarify. I don't intend
2 to explore some things in great deal on the errata that
3 I need to understand in order consider.

4 And then I will be going to III on the cross
5 examination plan.

6 JUDGE BRENNER: I may have noted at the
7 time -- if I didn't, let me note it now -- we did
8 receive, as we had requested, LILCO's revised cross
9 examination plan very timely in accordance with the
10 adjustments we made along the way on November 18, and we
11 appreciated that.

12 It looks like -- one reason I raised it was to
13 think about when we would get the revised cross plan
14 from the County of the Staff's witnesses. It looks like
15 Tuesday would be fine, in that the Staff is unlikely to
16 start first thing Tuesday, and that will give you at
17 least a day more than you may have been previously
18 contemplating -- that is, the weekend and Monday -- so
19 that is all right with us, if that helps you.

20 MR. LANPHER: That was the assumption I was
21 proceeding under. Some of the things I will want to
22 include will probably depend, for obvious reasons, on
23 some of the examination of Mr. Hubbard, so that will be
24 helpful.

25 MR. ELLIS: Judge Brenner, I think I would

1 also like to state maybe I am becoming excessively
2 sensitive.

3 JUDGE BRENNER: Only because it has been a
4 long week or long weeks for all of us here, so don't
5 apologize.

6 MR. ELLIS: I originally estimated two days
7 with Mr. Hubbard, I think, and I no longer am confident
8 about that estimate, and I wanted you to know that
9 fairly early. Although I am not in a position now to
10 tell you how long, I do not think it will be on the
11 order of the other side of the coin, but I think it
12 could be three to four days, is my best guess. And I
13 will continue to try to give the Board and the parties a
14 better estimate and revised cross plan, if that appears
15 appropriate.

16 JUDGE BRENNER: Okay. Let me go off the
17 record for a minute.

18 (A discussion was held off the record.)

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

20 You had just given us your revised estimate,
21 which we appreciate, and the fact that you will keep us
22 updated and as you see the need to do that, and we
23 understand the sequence you have given us so far from
24 the cross plan.

25 CROSS EXAMINATION

1 BY MR. ELLIS:

2 Q Mr. Hubbard, it is true, isn't it, that you
3 have never been involved or employed by a utility to
4 participate or play any role in the operation of a
5 nuclear power plant?

6 A (WITNESS HUBBARD) That is correct.

7 Q And I think, as you have testified in 7B, you
8 are not certified or licensed as an operator of a
9 nuclear power plant, are you?

10 A (WITNESS HUBBARD) That is correct.

11 Q In the course of your employment at GE, were
12 you ever assigned as a resident at any operating nuclear
13 power plant?

14 A (WITNESS HUBBARD) I'm not sure what you mean
15 by "resident". I, for GE, visited a number of the
16 plants to resolve engineering problems and quality
17 problems. In fact, Mr. Robare, the present GE quality
18 or project manager, worked for me and I assigned him to
19 LILCO when I was responsible for the project engineers.
20 So I visited a number of the sites in an official
21 capacity.

22 Q Have you ever been assigned as a resident to
23 remain at the plant by GE?

24 A (WITNESS HUBBARD) No, I have not, at a
25 nuclear construction site. I did work for GE's

1 installation service engineering and I was a resident at
2 a steel mill for a number of months during the startup
3 of the steel mill.

4 Q Have you ever developed or participated in the
5 development of a quality assurance program for an
6 operating nuclear power plant?

7 A (WITNESS HUBBARD) I have not been hired by a
8 utility to do that. However, I did review the
9 Monticello and Prairie Island quality programs for the
10 State of Minnesota. I reviewed quality programs at
11 other plants as part of doing probabilistic risk
12 assessments, and while I was at GE I was responsible for
13 the spare and renewal parts warehouse, where we provided
14 the quality equipment for the operating plants.

15 I also am a member of the IEEE Committee that
16 is writing the quality assurance standards and, in fact,
17 during the time we were away in August I was Chairman of
18 the Committee that was preparing the standards on
19 replacement parts for Class 1 equipment or temporary
20 Chairman, at that time.

21 And I also have prepared two, or was on the
22 committee that prepared two of the other IEEE standards,
23 one of them having to do with calibration, and another
24 having to do with calibration of maintenance and test
25 equipment. And this was also during the operation

1 phase. And, likewise, another one -- N45 2.4,
2 Insulation Inspection and Testing of Instrumentation
3 Electrical Equipment. I am a member of the committee
4 that is responsible for that.

5 Q Mr. Hubbard, let me repeat my question. Have
6 you ever developed or participated in the development of
7 a quality assurance program such as the one that we have
8 been reviewing in this proceeding for an operating
9 nuclear power plant?

10 I didn't ask you whether you reviewed it. I
11 asked you whether you developed or participated in the
12 development of a quality assurance program for an
13 operating nuclear power plant.

14 A (WITNESS HUBBARD) Mr. Ellis, I think my
15 previous answer showed that, for example, that the
16 operating QA program has to meet certain of the ANSI
17 standards. I was one of the co-authors of the ANSI
18 standards that the OQA program is being developed to
19 meet.

20 I would add one further thing. In my mind,
21 quality assurance is quality assurance. The same
22 process and discipline apply, whether it is operation or
23 whether it is manufacturing. I mean, the 18 criteria
24 are the 18 criteria and they apply during design and
25 they apply during installation, and they apply during

1 construction and they apply during operation.

2 Q Mr. Hubbard, perhaps we are going to move
3 quicker if you will give me a yes or no and then
4 whatever explanation you want to give me. You realize
5 we have been talking about the Quality Assurance Manual
6 for Shoreham and the QAPSS, the procedures. You are
7 familiar with those?

8 A (WITNESS HUBBARD) Yes, sir.

9 Q Have you ever developed or participated in the
10 development of a quality assurance program for an
11 operating nuclear power plant?

12 A (WITNESS HUBBARD) I believe I have answered
13 that twice before. I thought my first answer was I said
14 that I had not written a manual for a utility, and then
15 I went into how I have reviewed it for a number of
16 parties and how the manual -- well, I will just leave
17 the answer the way it was. I thought I answered it
18 directly the first time.

19 Q Perhaps you did. So your answer is that you
20 have not written manuals or procedures for an operating
21 quality assurance program for an operating nuclear power
22 plant. Is that correct?

23 A (WITNESS HUBBARD) That is correct, sir.

24 Q Is it also true that you have never been
25 involved in the implementation or been responsible for

1 the implementation of an operating quality assurance
2 program for an operating nuclear power plant?

3 A (WITNESS HUBBARD) That is correct.

4 Q I think you already indicated that you have
5 never been part of the organization that managed or ran
6 a nuclear power plant. Is that correct?

7 A (WITNESS HUBBARD) It would be helpful if we
8 could be more specific with definitions. What was your
9 question -- manage?

10 Q You have never worked at an operating nuclear
11 power plant, have you, Mr. Hubbard?

12 MR. LANPHER: Excuse me. Could I get a
13 clarification? Do you mean employed by the utility? He
14 already testified he has gone to plants when he was with
15 GE.

16 JUDGE BRENNER: I think that clarification
17 would be useful. The earlier question that you
18 withdrew, you used the word "involved". Given what Mr.
19 Hubbard has done, those kind of words will create
20 problems.

21 MR. ELLIS: I agree.

22 JUDGE BRENNER: You can use a word like
23 "involved" when the answer is going to be "I never had
24 anything to do with any of it," but it is not that
25 simple with Mr. Hubbard.

1 BY MR. ELLIS: (Resuming)

2 Q Have you ever been employed by a utility or
3 any other entity to participate in any facet of the
4 operation of a nuclear power plant -- an operating
5 nuclear power plant?

6 A (WITNESS HUBBARD) As my resume would
7 indicate, I have not been hired by a utility to write
8 the procedures for an operating plant. However, when I
9 was at General Electric one of my responsibilities was
10 managing the quality program for the spares warehouse
11 and we provided all of the spares that came from General
12 Electric for operating nuclear power plants.

13 I also was responsible for the quality program
14 for things that failed at operating plants, such as
15 feedwater spargers and core spray spargers and reactor
16 internals and things of this sort when we would be
17 manufacturing those as replacement items. So I am
18 familiar with the quality standards that were required
19 for replacements at operating nuclear plants, again, as
20 well as being on the national committee writing the
21 standard for them.

22

23

24

25

1 Q You indicated, you said all the spares for
2 GE. That is not entirely accurate, is it? You weren't
3 responsible for fuel, were you?

4 A (WITNESS HUBBARD) That is correct, Mr.
5 Ellis. All of the spares came from GE's San Jose
6 headquarters.

7 Q So that would have been the Control and
8 Instrumentation Department?

9 A (WITNESS HUBBARD) It was more than that, Mr.
10 Ellis, because there were things such reactor internals
11 and various other parts that had been left over from the
12 turnkey days. So for General Electric, the spares that
13 were produced in response to what I might call
14 engineered equipment procurement, large things like
15 pumps and so forth, those were in the spares warehouse
16 in San Jose. There were also spares there from the
17 turnkey days. There were spares there that we
18 manufactured, special, one-of-a-kind things such as the
19 feedwater spargers and nozzles and things of that sort,
20 as well as the electronic area of control and
21 instrumentation. So it was broader than just the
22 products manufactured in San Jose.

23 Q I think you've already testified that you have
24 not prepared manuals, section manuals or procedures for
25 operating quality assurance for a nuclear power plant.

1 Is it also true that you have not prepared sections of
2 FSARs dealing with operating quality assurance for
3 nuclear power plants?

4 A (WITNESS HUBBARD) I have not prepared the
5 section of the FSAR for the utility for an operating
6 plant, that is correct. When I was at GE I did
7 participate in the writing and review of the GE portion
8 of the PSAR, and what sometimes in earlier days was also
9 a writeup of GE and the FSAR, as well as what is in
10 FESSAR and the GE topical report.

11 Q Now, my question, though, my question was
12 about the operating quality assurance section of the
13 FSARs. Is it your testimony that while you were at GE
14 you did that, you prepared sections relating to
15 operating quality assurance?

16 A (WITNESS HUBBARD) I'm sorry if that answer
17 was confusing, Mr. Ellis. I thought I had answered no,
18 that I had not done that portion for the utility.

19 JUDGE BRENNER: I think Mr. Ellis' problem
20 might be that when you did reference the fact that in
21 writing the GE portion of PSARs and also some FSARs with
22 respect to special type things such as GESSAR, he is
23 unsure as to whether those writeups involved OQA matters.

24 WITNESS HUBBARD: Well, the whole matter of
25 what's in a FSAR as it relates to GE is, in my opinion,

1 somewhat confusing, because in FSARs some have a
2 description of what GE did which comes from the PSAR or
3 the GESSAR sorts of writeups. But those particular
4 types of writeups, my understanding is, are not reviewed
5 by the staff at the operating license stage. So there
6 are parts in the FSARs that I had a hand in, both
7 writing and reviewing, but I don't think that those are
8 relied upon by the staff because they don't rely upon
9 anything in the FSAR having to do with the Section 17-1.

10 Section 17-2, having to do with operating QA,
11 is relied upon by the staff, I understand.

12 JUDGE BRENNER: Did you write anything that
13 would be the equivalent of the operating QA such as
14 might be found in today's FSARs in Section 17-2 for
15 GESSAR, for example, which you referenced, or for
16 anything else?

17 WITNESS HUBBARD: I can't recall that. I can
18 recall very specifically being involved in the writeup
19 of the GE topical reports and also what is the standard
20 FSAR writeups. What appears at the operating license
21 stage I haven't checked all of the plants on; but, in
22 general -- well, it would have been a description of
23 what GE did.

24 BY MR. ELLIS: (Resuming)

25 Q So that would have been the equivalent of

1 Section 17-1 and not 17-2 relating to operational QA, is
2 that right, Mr. Hubbard?

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

4 Q A few moments ago you indicated you had
5 reviewed quality programs at I think you said
6 Monticello, is that right?

7 A (WITNESS HUBBARD) Yes, sir.

8 Q Is that the operating quality assurance
9 program?

10 A (WITNESS HUBBARD) Yes, sir.

11 Q In what capacity and for what purpose did you
12 review that program?

13 A (WITNESS HUBBARD) Following the accident at
14 Three Mile Island the State of Minnesota at the request
15 of the Governor, I believe, came up with approximately a
16 nine-member committee to do a safety assessment of the
17 safety of the Prairie Island and Monticello operating
18 nuclear plants. And as the first phase of this
19 independent review committee, they went out and selected
20 a consultant to come in and draft or review the safety
21 of the plants and then develop a study plan for the
22 state to implement. And we were hired to do that, and
23 in that capacity I did review the operating QA programs
24 at both Prairie Island and Monticello.

25 Q Did you submit any report in writing in that

1 connection?

2 A (WITNESS HUBBARD) Yes, sir. And that is
3 listed in my list of publications. That is number 23.

4 Q What are you referring to now?

5 A (WITNESS HUBBARD) This was the list, the
6 attachment to the 7-B testimony. Well, at the time of
7 7-B there were lengthy qualifications that were entered
8 into the record, and on page 7 of that, item 23 has the
9 Monticello and Prairie Island reference.

10 I also did a similar thing like that for the
11 Department of Energy. It is an on item number 18 in the
12 list of publications. It is "Improving the Safety of
13 LWR Power Plants," Publication ALO-62. That was a study
14 that my company and I personally did for Sandia
15 Laboratories for the Department of Energy, looking at
16 ways to improve the safety of operating plants. And
17 that again went into quality assurance.

18 JUDGE BRENNER: As long as we are at it, Mr.
19 Lanpher, do you remember what transcript page we bound
20 those qualifications in? It was a page I once had
21 committed to memory.

22 MR. LANPHER: I don't, but I do have that list
23 of the documents, and maybe over lunch --

24 JUDGE BRENNER: I think we have got the
25 reference now.

1 BY MR. ELLIS: (Resuming)

2 Q On the -- I think you indicated you developed
3 a plan for the safety assessment of Monticello and
4 Prairie Island. Am I correct you developed a plan for
5 the safety assessment?

6 A That is correct. We went out, and we reviewed
7 a number of areas, and what we basically did is we said
8 improving safety, there is really three ways you can do
9 it. One is to reduce the probability of accidents, and
10 we went into programs to reduce accident probability.
11 Then the second block was looking at ways to reduce the
12 consequences of accidents, and we went into programs
13 that they could consider for consequence reduction. And
14 then the third we said was an umbrella over all of this
15 having to do with probability and consequence. It was
16 what we called operating effectiveness. And those were
17 things like quality assurance and training and a number
18 of other areas, and we went into programs in that area,
19 saying that a balanced expenditure of funds by the state
20 should go to all three areas, not just what typically
21 had been done going into the probability reduction areas
22 of equipment.

23 Q Mr. Hubbard, my question was -- and let me
24 state it more specifically -- did you just prepare the
25 plan for the safety assessment, or did you actually do

1 the safety assessment?

2 A (WITNESS HUBBARD) That is a difficult
3 question to answer, Mr. Ellis, and try to understand the
4 difficulty. We had to do some amount of safety
5 assessment to prepare the plan, and we prepared the plan
6 based upon our preliminary assessment. It was typically
7 in the engineering work like phase I and phase II, so
8 what we did was phase I where we scoped out what should
9 be done in the more detailed studies.

10 We had to do some amount of study to arrive at
11 what the elements of the program ought to be. We did
12 not do the detailed study, however, the followup to our
13 recommendations.

14 Q So you and your organization did not do a
15 detailed assessment of the operating quality assurance
16 programs at Prairie Island or Monticello, did you?

17 A (WITNESS HUBBARD) Well, I don't know what you
18 mean by the word "detailed."

19 Q Well, I just used your word, Mr. Hubbard.

20 MR. LANPHER: I object to that. That was not
21 his word in that context, the context of the question
22 that Mr. Ellis asked. So I think it is a legitimate
23 statement by Mr. Hubbard that he doesn't understand what
24 Mr. Ellis means by "detailed."

25 JUDGE BRENNER: I agree with what Mr. Lanpher

1 just said. In any event, we're going to get to Mr.
2 Hubbard's explanation either way.

3 Can you explain what you did with respect to
4 your assessment of the operating quality assurance
5 program there, Mr. Hubbard, and then let Mr. Ellis and
6 everybody else decide whether it is detailed or not
7 detailed?

8 WITNESS HUBBARD: We looked at staffing
9 levels. We looked at organization. We looked at the
10 procedures to see how detailed they were, how complete
11 they were, things of that sort.

12 BY MR. ELLIS: (Resuming)

13 Q Is that all reflected in your document that
14 you said was the development of the study plans for
15 Prairie Island and Monticello?

16 A (WITNESS HUBBARD) Whatever we concluded is in
17 there. I have to frankly say it has been a long time
18 since then, so I don't recall what is there. But
19 whatever we did is there, and it is a publicly available
20 document.

21 Q Where is it publicly available?

22 A (WITNESS HUBBARD) It is available from the
23 State of Minnesota.

24 Q Do you have a copy?

25 A (WITNESS HUBBARD) No, I don't. I think --

1 well, I was going to say my recollection is we provided
2 that document to Mr. Williams back in May or so. We
3 went through each of our professional qualifications and
4 a number of our publications that were circled, and I
5 can't recall at this time which ones we provided, but
6 whichever ones you asked for.

7 JUDGE BRENNER: When you said you didn't have
8 a copy did you mean that you didn't have one here or you
9 don't have one anywhere?

10 WITNESS HUBBARD: I think there is one in San
11 Jose.

12 JUDGE BRENNER: You just meant you didn't have
13 one here?

14 WITNESS HUBBARD: I do not have one here.

15 JUDGE BRENNER: We are looking for a logical
16 break point for lunch, Mr. Ellis, and we could do it now
17 or in a few minutes if you want to get a few more
18 questions in.

19 MR. ELLIS: Maybe a few more might be useful,
20 Judge.

21 JUDGE BRENNER: Not too many more.

22 MR. ELLIS: Not too many.

23 BY MR. ELLIS: (Resuming)

24 Q After you developed the safety assessment plan
25 were the safety assessments carried out by some other

1 entity?

2 A (WITNESS HUBBARD) I don't know the answer to
3 that. We did present it, and then it went to the
4 legislature, and I don't know if phase II ever took
5 place.

6 Q You never checked on that at all?

7 A (WITNESS HUBBARD) No, we didn't, because it
8 was an understanding that whoever did phase I was not
9 going to do phase II.

10 Q And so you've never made any effort to find
11 out whether the study plan that you developed was ever
12 used or put into effect?

13 A (WITNESS HUBBARD) That is correct.

14 I might add to that, Mr. Ellis -- well, I
15 won't.

16 Q Have you reviewed the Shoreham QA Manual and
17 the QAPS procedures?

18 A (WITNESS HUBBARD) Yes.

19 Q When did you do that?

20 A (WITNESS HUBBARD) Starting when we obtained
21 in April of this year -- I had reviewed some of them
22 before that time. We had received in 1977 and I guess
23 early 1978, I obtained some of the procedures, and we
24 reviewed them at that time. So I have reviewed them
25 over a number of years.

1 Q At the time that you reviewed them in April of
2 this year and earlier is it your view that there were
3 specific deficiencies in them?

4 A (WITNESS HUBBARD) Yes.

5 Q Can you show me where in your testimony there
6 is any reference to any specific deficiency in any
7 manual paragraph or manual section or QAPS?

8 A (WITNESS HUBBARD) Yes.

9 Q Okay. Show me.

10 JUDGE BRENNER: Is this your idea of a few
11 quick questions before we break? I don't know if the
12 answer is going to be short or long, but you've invited
13 him to go through the testimony of many pages.

14 MR. ELLIS: Well, let me ask --

15 JUDGE BRENNER: I mean you can do it, but why
16 don't we do it after the break rather than before?

17 MR. ELLIS: Well, let me ask a question, and
18 then he can do that over the break. But let me ask a
19 question that might lead to it.

20 BY MR. ELLIS: (Resuming)

21 Q You said that you -- at the time that you
22 reviewed it in April of this year and earlier that you
23 were reminded that there were specific deficiencies in
24 the procedures and the manual. Are we talking about on
25 the order of magnitude of fewer than five or more than

1 five?

2 A (WITNESS HUBBARD) I think one has to -- I
3 think in direct answer it is greater than five, and I
4 would like to add to that that we have to put that
5 question in the context. The context of the contention
6 was that the FSAR didn't say whether and how, so first
7 of all I personally looked at the FSAR to see if that to
8 me described an adequate QA program, and I concluded it
9 didn't, and I thought -- and that is what the contention
10 was. But I thought well, I can't stop really there
11 because I'm going to come to the hearing, and you're
12 going to say well, that is not what we rely on anyway;
13 it is really the manual. Then I went to review the
14 manual.

15 JUDGE BRENNER: And lo and behold --

16 WITNESS HUBBARD: There were two manuals, and
17 I thought if I reviewed that and I got to the hearing,
18 they will say well, we have got a third manual. And
19 that is exactly what happened. We came here and I saw a
20 new manual for the first time, and then I thought well,
21 now we're going to have to go into the procedures that
22 back up the manual. And, frankly, I had not reviewed
23 those in the same level of depth that I wanted to to put
24 in the testimony. I thought that I could do a lot of
25 that work and it would all -- by the time I got to the

1 hearing it would not have proven to be of great value.
2 So I had to make an assessment within the limited time I
3 had of what I could do, so I started with the FSAR and
4 then went to the manual and then looked at the
5 procedures.

6 BY MR. ELLIS: (Resuming)

7 Q Are you saying that not until the QA hearings
8 began did you become aware of the existence of what is I
9 believe Attachment 4 to the LILCO testimony?

10 A (WITNESS HUBBARD) That is correct. That
11 manual is dated June 21 or May 21 or something. That
12 was the first time I had seen that, and we were --
13 during discovery, as I outlined in my testimony, we were
14 given two operating QA Manuals, an operating QA Manual
15 and a draft operating QA Manual. And we were also given
16 an audit report where it was said that you should
17 combine them into one manual, which I understood you
18 were doing.

19 And in looking at my allocation of time, and
20 in particular, since the contention had to do with the
21 FSAR, I decided I was not going to spend a lot of time
22 in the testimony going into a manual which I figured I
23 was going to see a new manual of by the time I got on
24 the witness stand.

25 Q Well, do I understand then that the level of

1 detail and specificity of procedures was never in your
2 mind in the scope of the contention?

3 A (WITNESS HUBBARD) I did not say that, Mr.
4 Ellis. My personal philosophy is that the contention
5 says that there is not enough description in the FSAR,
6 and I related that to what was in emergency planning a
7 few years back; that there would just be a few words in
8 the FSAR, a short section saying yes, we have an
9 emergency plan, and then separately you had to go look
10 at the emergency plan.

11 Well, now, you know, after Three Mile Island
12 and things like that -- I was recently involved in
13 Diablo Canyon -- now all of a sudden the emergency plan
14 is part of the record. Rather than have a short
15 description of what is in the emergency plan and in the
16 FSAR, the emergency plan is what is really looked at.
17 And then, as you are aware, and back to the emergency
18 plan, there are emergency operating procedures. So I
19 felt quality assurance should go in the same direction;
20 that that is what was always intended by the
21 regulations; that what would be reflected in the FSAR
22 was not something cursory that describes some
23 commitments, but rather a rather laidout QA program.
24 And that is what I was looking for as part of meeting
25 the contention that says the FSAR should have enough to

1 demonstrate how the QA program is being implemented.

2 Q Mr. Hubbard, you said that the regulation --
3 presumably you were referring to 50.34(b)(6)(ii) -- was
4 always intended to require presumably the detail of the
5 manual and the procedures. Isn't it true, though, that
6 it has always been construed differently; that is, that
7 the NRC and industry have construed it differently to
8 require the level of detail that you now see in the FSAR
9 for Shoreham?

10 A (WITNESS HUBBARD) I don't believe that is
11 true, Mr. Ellis. There are about 36 topical reports
12 which have been docketed that I was aware of and
13 approved; and so I think a number of the AEs, the
14 utilities and the manufacturers are providing much more
15 information about exactly how they are implementing
16 their QA program.

17 So I think that your view might have been
18 correct a number of years ago, but dating back to '75
19 and on people have tended to provide more and more
20 information.

21 Q You say "people," Mr. Hubbard. Let's be
22 specific. Can you cite me an FSAR currently on file for
23 an operating plant that has the manual and the
24 procedures included as a part of the description of the
25 operating quality assurance program?

1 A (WITNESS HUBBARD) Well, I would like to
2 answer your question and then go on. You said manual
3 and procedures. I have not -- my recommendation was not
4 manual and procedures, but I wanted to clarify that.

5 I haven't made a study of FSARs to know in
6 detail what utilities are putting in them. I have
7 looked at a number of them, and I have looked at a
8 number of topical reports.

9 Q So wouldn't it be fair then to conclude, Mr.
10 Hubbard, that you are not familiar then with the way the
11 NRC has construed the requirements of 50.34(b)(6)(ii)?

12 A (WITNESS HUBBARD) I think it would be better
13 for the NRC to say what they mean by that. I have read
14 their standard review plan where it says they should
15 determine whether and how, and I know in my own mind
16 what it means to say how. And I also remember in 1972 I
17 was audited by the ASME to get an N stamp for GE, and
18 the first time they came in to audit the GE program we
19 had a QA Manual that was much like what is in the FSAR,
20 and I have to say we didn't pass; that they said that
21 that was not adequate; that they wanted a manual that
22 really demonstrated how we planned to implement the
23 program.

24 I will never forget that because I learned
25 right then and there they wanted to know who does what,

1 when and how, and they expected that to be in the
2 manual. And while it was a painful experience in 1972,
3 over the years I found that that was the right thing to
4 do. So when I look at how now, that is the thing I look
5 at, whether it says who does what, when and how.

6 Q Mr. Hubbard, that was ASME and not the NRC,
7 isn't that correct, and that was a manual and not an
8 FSAR, is that correct?

9 A (WITNESS HUBBARD) That is correct. That was
10 a manual that gave us a code stamp. That was also what
11 the NRC, at that time the AEC, relied upon for that part
12 of the GE program.

13 MR. ELLIS: Judge Brenner, this might be an
14 appropriate time to break.

15 JUDGE BRENNER: You did that just in time to
16 avoid my comment that counsel lose the right to pick a
17 convenient time if the time by experience proves
18 constantly to be too inconvenient.

19 (Laughter.)

20 JUDGE BRENNER: All right. We will break for
21 an hour and a half, until 2:00.

22 (Whereupon, at 12:30 p.m., the hearing was
23 recessed for lunch, to be reconvened at 2:00 p.m., the
24 same day.)

25

1 AFTERNOON SESSION

2 (2:00 p.m.)

3 JUDGE BRENNER: We are ready to proceed, in
4 fact, continuing the cross examination.
5 Whereupon,

6 RICHARD B. HUBBARD
7 resumed the stand and was further examined and testified
8 as follows:

9 CROSS EXAMINATION -- Continued

10 BY MR. ELLIS:

11 Q Mr. Hubbard, before the lunch break we were
12 talking about the development of study plans that you
13 did with respect to Prairie Island and Monticello. In
14 developing those study plans how long did the actual
15 work of that development of the study plans last?

16 A (WITNESS HUBBARD) Mr. Ellis, you will have to
17 refresh my memory, but I believe we started in February,
18 and as I recall, in September presented a final draft of
19 that to the Nuclear Review Committee for the State of
20 Minnesota.

21 Q It is dated in August, isn't it?

22 A (WITNESS HUBBARD) Well, the report may be. I
23 think the report is dated in August. We had a public
24 presentation of the results of it, and as I recall that,
25 that happened in September.

1 Q The actual work --

2 MR. LANPHER: Could I interrupt? There is
3 something with the microphones. We are getting a
4 ringing sound.

5 JUDGE BRENNER: Off the record.

6 (Discussion off the record.)

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

8 BY MR. ELLIS: (Resuming)

9 Q Well, Mr. Hubbard, you've indicated the report
10 of the study work began in February, and the report is
11 dated August of 1980. What I want to know from you is
12 what amount of time was devoted to actual work on the
13 development of the study plans?

14 A (WITNESS HUBBARD) For clarification, do you
15 actually mean man-weeks or man-months or elapsed time?
16 I mean what kind of time are you talking about?

17 Q Can you give it to me in any of those
18 parameters?

19 A (WITNESS HUBBARD) I think there were around
20 20 weeks' worth of effort, man-weeks that went into that
21 total study, something in that neighborhood.

22 Q All right. And you also testified earlier
23 that there were several phases and that operational QA
24 was only one part of one of those phases. Of the 20
25 man-weeks approximately what percentage was devoted to

1 operational QA?

2 A (WITNESS HUBBARD) That is really hard to
3 define, but I would say somewhere on the order of two
4 weeks to five weeks or something of that sort. I do
5 remember February because we toured both of the plants
6 and interviewed the people, and that was in February in
7 Minnesota and you don't forget that. So there were a
8 couple of days doing that, and we not only talked about
9 QA but we did look at the training, and we looked at
10 some other things within the plant. I would say
11 probably two to five weeks.

12 Q Well, in terms of actually reviewing manuals
13 and procedures are you saying that it was between two
14 and five weeks of actually reviewing manuals and
15 procedures for the operating QA of two plants?

16 A (WITNESS HUBBARD) Yes, Mr. Ellis. And,
17 again, these are two plants that are owned by the same
18 company. My recollection is not that great, but I think
19 they had the same quality program at both plants. I
20 know in some of the areas we looked at it was the same
21 at both. It was more or less like a corporate plan. I
22 think that was the case in quality assurance. But I
23 have not read that report in a long time.

24 Q It was not part of your assessment, was it, to
25 -- or strike assessment. You were developing study

1 plans, and in your development of the study plans it was
2 not part of that, was it, to determine whether the
3 operational quality assurance program was being
4 effectively implemented?

5 A (WITNESS HUBBARD) I think in the narrow
6 context of your question the answer would be yes.

7 Q Yes, that it was part of it? No, I think you
8 are right.

9 A (WITNESS HUBBARD) I am agreeing with your
10 statement in the narrowest sense. I think in a broader
11 sense they wanted an impression from us, was that an
12 area that needed to be looked into some more, and in
13 terms of being looked into in the phase II, what aspects
14 should be looked into. And so we did an evaluation to
15 that limited extent.

16 JUDGE BRENNER: Mr. Hubbard, I'm sorry. I
17 forgot to bring your qualifications and publication list
18 back up here with me. Could you remind me again who
19 that study was done for?

20 WITNESS HUBBARD: It was done for the
21 Minnesota Pollution Control Agency. However, they were
22 doing the work for a Governor's committee that was
23 established to look into the safety implications of the
24 accident at Three Mile Island as it related to the
25 actually three operating plants in the State of

1 Minnesota. So while we were paid by the MCPA, we
2 officially -- all our contact was with the members of
3 the review board. We were essentially their technical
4 arm.

5 JUDGE BRENNER: I guess I misheard the state
6 before, or perhaps I thought one of the plants was in
7 Wisconsin, and both plants are in Minnesota.

8 WITNESS HUBBARD: That is correct, sir. The
9 two, Prairie Island, which is a dual plant, and
10 Monticello. Prairie Island is a PWR, and Monticello is
11 a BWR.

12 JUDGE BRENNER: Thank you.

13 BY MR. ELLIS: (Resuming)

14 Q So that I am clear, Mr. Hubbard, I think what
15 you indicated is that it was not part of your
16 development of the study plans to make an assessment to
17 determine whether the OQA program was being effectively
18 implemented, but that you did look to see whether the
19 program should be part of a second phase, is that
20 correct?

21 A (WITNESS HUBBARD) Yes. With these caveats.
22 We looked at it in terms of things like staffing level
23 and like the details that were in the procedures, and as
24 I said before, to see what sorts of procedures were
25 covered by the program. There are reviews and then

1 there are reviews. And the impression I guess I would
2 like to give is that it was a type of review that would
3 take two to five weeks to do.

4 Q But in looking at the level of detail, you did
5 not look to see, did you, how the actual implementation
6 of the program was being effectively or ineffectively
7 carried out?

8 A (WITNESS HUBBARD) Well, I will define
9 "implemenation" as did we go out and re-radiograph a
10 weld to see if it was properly welded. If you mean
11 implementation that way, we did not go out and see that
12 like a repair weld that in fact had been properly done
13 and properly QA-ed. We did not take as-built drawings
14 and compare those against the plant to see if the
15 inspection as-builts had been done; so we didn't go look
16 at hardware to see if in fact the QA program had been
17 properly implemented. We did, looking at I&E reports to
18 see what they had been cited for, we looked at staffing;
19 we looked at details in the manuals -- these sorts of
20 things that one can do rather readily.

21 Q So you did not look to see then whether the
22 OQa program and the level of detail in the procedures
23 was being adequately understood and effectively
24 implemented in terms of what actually went on in the
25 plant?

1 MR. LANPHER: I object. I think that has been
2 asked and answered. If he has specific activities that
3 he wants to ask did you do this, that, I think, is a
4 much better way to get at it.

5 JUDGE BRENNER: I think it is starting to get
6 a little repetitive, but there is some problem with the
7 language back and forth in the questions and answers,
8 and he is trying to nail it down. But I've got to
9 believe there -- well, I'm going to allow that question,
10 but I think there is definitely a more efficient way of
11 finding out what the extent of this one study is.

12 We have been talking about this one study for
13 a long time now and not in terms of the details of the
14 study, but it is in the realm of qualifications to find
15 out what the extent is. And I think you have to balance
16 that against the importance in terms of our ultimate
17 findings on this issue here before us.

18 MR. ELLIS: Yes, sir. I will do that. I
19 would hope that I would be granted some leeway in terms
20 of the length of time, differential lengths of time of
21 examination; and I will do my best to move it along.

22 JUDGE BRENNER: I'm not talking about total
23 time. I'm merely talking about the efficiency of this
24 one subpart.

25 Well, I will take a chance and say a little

1 more. You've got a witness who has some involvement,
2 quote, unquote, with the nuclear industry. We know what
3 that is. It is on the record. You can continue to
4 explore that on the record. I think it is absolutely
5 appropriate for LILCO as a cross examiner to probe the
6 particulars of that involvement vis-a-vis what Mr.
7 Hubbard is now saying in this testimony on this issue.

8 And I recognize what you are asking about is
9 certainly pertinent to that, but I don't want to hear
10 about everything he has ever done or not done in nuclear
11 power throughout his professional lifetime just for that
12 purpose. You can focus much more sharply on that, and
13 in addition to these questions in the nature of voir
14 dire, which importance I'm not dismissing. There is
15 also going to be the equally important area of our
16 assessing what Mr. Hubbard is saying from the substance
17 of his testimony, both oral and written, and that, too,
18 will have a lot to do with the weight which we ascribe
19 it; that is, the extent to which is conclusions are
20 supported by rational bases.

21 And we can and will do that also with Mr.
22 Hubbard as well as each and every other witness. So I
23 hope we don't spend two days talking about a lot of
24 studies he may have done and then suddenly get squeezed
25 when we are getting to questions about the bases and the

1 substance of what it is he has to say and what he has
2 said in testimony. So I'm talking about that balance.

3 MR. ELLIS: Yes, sir. I will keep that in
4 mind.

5 JUDGE BRENNER: Do you want to re-ask the last
6 question?

7 MR. ELLIS: Can I have it read back?

8 (The Reporter read the record as requested.)

9 WITNESS HUBBARD: I guess the key words are
10 "adequately understood and implemented." We did
11 interview some of the people to get their understanding
12 of the QA program and its requirements in terms of
13 implementation. We did review the I&E reports that had
14 given an independent assessment of how well the program
15 had been implemented, but we did not, as I said before,
16 do independent tests ourselves to verify implementation,
17 or we didn't -- we did, as I recall, look at like a
18 quality record center to just see their procedures for
19 how records came in and how they were filed and things
20 of that sort.

21 So it's very difficult. The word "implement"
22 is really difficult to say. I mean we looked at what we
23 thought was enough to give us an indication of what
24 needed to be assessed further, if anything, in their
25 program.

1 BY MR. ELLIS: (Resuming)

2 Q I think you indicated you interviewed some of
3 the people to get some understanding of whether they
4 understood the procedures, and you found that was
5 adequate to tell you whether they understood the
6 procedures, and the procedures were of a sufficient
7 level of detail, is that right?

8 A (WITNESS HUBBARD) No, Mr. Ellis. The first
9 part of your question the answer was yes. We did
10 interview some people to see if they understood the
11 program. And then the second part is we looked at the
12 procedures to see what level of detail was there.

13 Q Is that the end of your answer?

14 A (WITNESS HUBBARD) Yes, sir.

15 Q Did you conclude that there was an adequate
16 level of detail in those procedures?

17 A (WITNESS HUBBARD) To be honest, I can't
18 recall.

19 Q And as far as the implementation, the other
20 aspect of implementation that you referred to, you said
21 that you referred to an I&E report to give you some
22 sense of whether the program was being adequately
23 implemented, and in your view an I&E report is a basis
24 for doing that, I take it.

25 A (WITNESS HUBBARD) First, I would like to

1 correct that. If I said "an I&E report," that is not
2 what I meant to say. I thought I said "I&E reports."
3 And part of that was at the insistence of the Governor's
4 committee. There had been allegations of one sort or
5 another about quality assurance, so they specifically
6 asked us to review some of the I&E reports and the
7 responses to the I&E reports. So part of it was done at
8 the direction of the committee, and part of it was we
9 did independently to get a broader assessment of what
10 had gone on in the area of implementation in the history
11 of the plant more or less.

12 And, yes, I do think that is a valid way to
13 get an outside assessment.

14 Q How many I&E reports, roughly, did you look
15 at, approximately?

16 A (WITNESS HUBBARD) I can't recall the number,
17 Mr. Ellis. It would be more than 10 and fewer than 100.

18 Q And did you conclude on the basis of the I&E
19 reports that the program was being effectively
20 implemented at those two plants?

21 A (WITNESS HUBBARD) I wish I had the report so
22 I could see what we did conclude. I don't recall that
23 we concluded either it was effectively being implemented
24 or it wasn't. I think we used that to conclude what
25 should be looked into in phase II, what should have the

1 priority, and that was the purpose for which we were
2 looking at them.

3 I think we also answered some questions about
4 some allegations to say that we didn't think that those
5 should be looked into any more, that they had been
6 looked into adequately.

7 (Counsel for LILCO conferring.)

8 Q Can you recall today whether operational QA
9 was one that had been looked into adequately or not?

10 A (WITNESS HUBBARD) What I was talking about in
11 terms, Mr. Ellis, of being looked into, there were
12 aspects of operational QA like certain things that had
13 occurred at the plant and allegations concerning those,
14 and as I recall, there was some pressure in this
15 particular area -- and I can't even recall what it is --
16 that ought to be looked into more. And our
17 recommendation was that it had been adequately addressed
18 already by the NRC.

19 (Counsel for LILCO conferring.)

20 Q Mr. Hubbard, I think you said your experience
21 relating to OQA programs also extended to a DOE report.
22 What plants were involved in that report?

23 A (WITNESS HUBBARD) No specific plants, Mr.
24 Ellis. That was a general report we did for DOE in
25 terms of the research programs of where we thought

1 emphasis should be on safety improvement.

2 Q Well, that study or that review then did not
3 involve any review of any QA Manuals for the operating
4 phase or any QA procedures for the operating phase of a
5 nuclear power plant?

6 A (WITNESS HUBBARD) That is correct. It was
7 more general recommendations in the QA area.

8 Q Mr. Hubbard, you indicated you looked into
9 staffing. Have you ever made any formal study or
10 assessment of the manpower requirements for an operating
11 quality assurance organization or section for an
12 operating nuclear power plant?

13 A No, I have not. However, as my resume states,
14 I did have approximately 200 people working for me at
15 GE, and as part of that process I went through the
16 budgeting and planning, both yearly budgets and ten-year
17 forecasts of personnel, so I am familiar with doing that
18 particular task, and I did that in my previous job.

19 Q When you say you're familiar with doing that
20 kind of task, I take it that you mean the task in the
21 very generic sense about how one goes about projecting
22 how much time has been used in the past for certain
23 tasks and how much is going to be used in the future?

24 A (WITNESS HUBBARD) Well, that is part of it.
25 You know, you start with a list of tasks you're going to

1 perform, like, for example, procurement quality
2 assurance. I had at GE 11 or 14 receiving inspectors
3 and three or four engineers who were on the road and in
4 vendor shops, and I would get from the procurement
5 people each year some sort of a number of how many
6 purchases were going to be made, what types and things
7 of that sort. And based upon that volume, and also we
8 had things in the way of productivity improvements and
9 so forth that we had to be making that we could then
10 come up with a total number to do a certain task. That
11 would be what I would call based upon previous
12 experience.

13 Then in other areas like at General Electric
14 we started doing system testing called the power
15 generation control complex. We at General Electric
16 prefabricated the entire control room and then my people
17 did the system test on that. So we removed work that
18 had been done in the field into the factory, and that
19 was part of when General Electric was going to
20 mini-computers and CRT displays and so forth. And we
21 felt that that couldn't be just shipped to the field in
22 pieces.

23 So there I had to estimate in advance how much
24 time it would take and how many people it would take.
25 And also as part of that I had to estimate how much

1 equipment would be taken, because as part of that at
2 General Electric and also in my resume we purchased
3 about \$1.2 million worth of test equipment, and I had to
4 go in front of the various levels of review, including
5 vice presidents and so forth, and describe both how long
6 this test would take, what sort of test it would be, and
7 then also what equipment was needed to do that.

8 And as part of this test we also had to build
9 a facility that cost about \$12 million, so I had to get
10 approval for that. And also as part of that we looked
11 into moving the whole operation to North Carolina from
12 San Jose. So I went through going to North Carolina and
13 interviewing craftsmen and things like that to see if we
14 could have the right labor force to do the job in North
15 Carolina.

16 So I feel I have had experience in both
17 looking at the past to come up with some idea of
18 manpower and then also having an estimate to estimate
19 what manpower and equipment might be needed to do a QA
20 function.

21 Q Well, from your testimony I take it that you
22 agree -- well, strike that.

23 You indicated, Mr. Hubbard, that you need to
24 understand the tasks and duties, and you had that
25 understanding at GE because you worked there, and you

1 supervised these people on a daily basis, right?

2 A (WITNESS HUBBARD) That is correct, although
3 when I say supervise 200 people on a daily basis, I had
4 managers who reported to me, and they in turn had
5 managers who reported to them, so I was somewhat removed
6 from the day-to-day inspections.

7 Q And you relied on them as well, I suppose, for
8 some projections?

9 A (WITNESS HUBBARD) That is correct.

10 Q Well, have you ever made any study or
11 assessment of each of the tasks and duties of members of
12 an operating QA section of an operating nuclear power
13 plant?

14 A (WITNESS HUBBARD) No.

15 Q We may come to this later, Mr. Hubbard, but so
16 I don't forget it, you said you looked at the staffing
17 levels of Prairie Island and Monticello. Prairie
18 Island, how many units is that?

19 A (WITNESS HUBBARD) That is a dual unit.

20 Q How about Monticello?

21 A (WITNESS HUBBARD) That is a single unit BWR.

22 JUDGE BRENNER: You realize that that last
23 one, although taking only a few seconds, was repetitious.

24 MR. ELLIS: I do not realize that he testified
25 that it was a double unit. If he did, I'm sorry.

1 JUDGE BRENNER: He did.

2 MR. ELLIS: I apologize.

3 JUDGE BRENNER: All right. Let's proceed.

4 MR. ELLIS: That wasn't the point anyway.

5 JUDGE BRENNER: Just ask the next question.

6 MR. ELLIS: That was just a predicate anyway.

7 BY MR. ELLIS: (Resuming)

8 Q Mr. Hubbard, how many were on the OQA section
9 or organization at Monticello?

10 A (WITNESS HUBBARD) I don't recall, but I
11 recall it was a small number.

12 Q You would agree with me, Mr. Hubbard, wouldn't
13 you, that the experience of working in and being part of
14 and managing an OQA section of a power plant is
15 important experience that should enable one to be able
16 to make assessments as to manpower levels?

17 A (WITNESS HUBBARD) Could we get that broken up
18 into something smaller?

19 MR. LANPHER: I was going to object.

20 JUDGE BRENNER: Let me hear it again. I think
21 it is answerable.

22 MR. LANPHER: I just want to hear it. I think
23 there are two parts of it, though.

24 JUDGE BRENNER: Mr. Hubbard, you let your
25 lawyer object and you testify.

1 Well, let's have it read again.

2 (The Reporter read the record as requested.)

3 JUDGE BRENNER: I think that is a perfectly
4 appropriate question.

5 WITNESS HUBBARD: The first part on
6 experience, I think that is valid, just like a lot of
7 other experience is valid. And then the second part is
8 whether it should enable one to make manpower
9 projections.

10 Again, I think yes, it should; and the problem
11 I have had is that I have been trying to find out some
12 level of work like number of POs or number of field
13 inspections or number of audits or number of
14 surveillances and things of that sort I'm used to
15 looking at when I do manpower projections.

16 And, frankly, in terms of LILCO's specific --
17 and Shoreham, I've yet to see that. I see either
18 allocations in one case, or I see answers in the other
19 case. And there are some rules of thumb that I am
20 familiar with about how many people it takes to do
21 various sorts of tasks. For example, my experience was
22 running a machine shop took fewer inspectors than an
23 electronics --

24 JUDGE BRENNER: Mr. Hubbard, I'm going to
25 interrupt because I've discouraged counsel from talking

1 about this. You have to try to stay more concise and to
2 the question, and you've gone beyond it now. But as
3 long as I've jumped in, what is a PO?

4 WITNESS HUBBARD: A purchase order. Excuse me.

5 BY MR. ELLIS: (Resuming)

6 Q I take it then, Mr. Hubbard, that you have not
7 made any assessment of whether the Shoreham OQA staffing
8 level of 14 for the first year of operation is adequate
9 or not.

10 A (WITNESS HUBBARD) It is correct that I have
11 not made a detailed assessment of that. As we discussed
12 in settlement discussions, I think 14 is in the right
13 ballpark for the first year. And I would have been
14 happy with that sort of a commitment beyond the first
15 year.

16 Q Mr. Hubbard, have you ever been qualified or
17 certified under any established industry standards to be
18 a quality assurance inspector in a nuclear power plant?

19 A (WITNESS HUBBARD) No.

20 Q Do you know whether such standards exist?

21 A (WITNESS HUBBARD) Yes.

22 Q Have you ever been qualified or certified
23 under any established industry standard to do an audit
24 or to lead an audit in an operating quality assurance
25 program in a nuclear power station?

1 A (WITNESS HUBBARD) No, not an operating
2 plant. I have done audits at a manufacturing plant. I
3 was responsible for the entire audit program.

4 Q Were you qualified or certified under any ANSI
5 standard? Certified?

6 A (WITNESS HUBBARD) Well, the problem is I was
7 the one that did the certifying. I certified that my
8 people were competent to audit, so I was the one that
9 approved them.

10 Q But were you qualified or certified under the
11 industry standard?

12 A (WITNESS HUBBARD) As I recall, I was.

13 Q What industry standard?

14 Q Well, it would be the predecessor of N45.2.23
15 on qualification of audit personnel. As part of the
16 inspections the Nuclear Regulatory Commission did at
17 General Electric, we had to show that the people were
18 qualified to do the work they were doing, and we kept
19 lists at that time of training and qualifications of the
20 people, and I would certify, for example, nondestructive
21 examination personnel and our auditors and things like
22 that.

23 Q That qualification or certification that
24 you're referring to, is that for an operating nuclear
25 power station or was that for GE?

1 A (WITNESS HUBBARD) Well, it was for GE, and
2 that N45.2.23 applies across a wide spectrum.
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1 Q I take it you have never led or performed any
2 audits or inspections at an operating nuclear power
3 plant in accordance with N45.2.23?

4 A (WITNESS HUBBARD) That is correct.

5 Q Have you ever been involved in the site
6 construction of a nuclear power plant?

7 A (WITNESS HUBBARD) Yes.

8 Q Would you tell me what your involvement was?

9 A (WITNESS HUBBARD) Well, when I managed the
10 project engineers at G.E., the application engineers, as
11 I mentioned before, when I assigned Mr. Robare to the
12 Shoreham project I was responsible for working with
13 Stone & Webster and LILCO to provide the technical
14 information about the design of the electrical portion
15 of the G.E. systems for instrumentation and control,
16 including the process computer.

17 I also in that had the people who did the
18 application engineering on the balance of the plant
19 computed, the turbine startup systems, the turbine
20 control systems that were on the computer. We would do
21 the block diagramming and then turn that over to
22 programmers to do the programming, and in that then I
23 visited a number of sites when there were problems with
24 the process computer in terms of fuel calculations and
25 other matters and recording that was being done, so that

1 was an aspect that had to do with the design of the
2 plant.

3 Then later on when I became manager of quality
4 assurance, I visited a number of plants to see if the
5 G.E. equipment was properly installed and to answer
6 questions they had about complaints. Also -- well, it's
7 hard to summarize all of that experience, so I will
8 leave it at that point.

9 Q All right, let me be more specific. It's
10 true, isn't it, that you have never been involved in the
11 site construction, being at the site in the construction
12 of a nuclear power plant? Your involvement has been
13 from San Jose, is that correct?

14 A (WITNESS HUBBARD) Yes, sir, but with the
15 caveats that I have been to the site. The design work
16 is not done at the site.

17 Q I will come to design shortly, but you
18 understood my question to refer to construction, didn't
19 you?

20 A (WITNESS HUBBARD) I am defining it, yes, Mr.
21 Ellis, as construction in the narrowest sense. In a
22 broader sense, doing construction, you buy material, and
23 like you might buy an instrument from somebody. At
24 General Electric I had people who were responsible for
25 going out and doing the quality on instruments and

1 valves that were purchased, for example. So there were,
2 depending upon your definition of construction, if it is
3 the broader one about actually going ahead and buying
4 things and doing maintenance work and some of that, yes,
5 I have had people doing it but I have not worked at a
6 site.

7 Q You say you have had people doing it who
8 reported to you?

9 A (WITNESS HUBBARD) Yes, sir.

10 Q And you haven't actually worked at the site?

11 A (WITNESS HUBBARD) That is correct in the
12 narrowest sense.

13 Q And in terms of the experience that you have
14 heard people like Mr. Museler and Mr. Arrington or Mr.
15 Gerecke have had, that isn't experience that you have
16 had, is it, relating to the construction of a nuclear
17 power plant?

18 A (WITNESS HUBBARD) Well, I looked to see what
19 the requirements were for the LILCO QA manager because I
20 thought we might talk about this.

21 Q Well, can you answer my question first in
22 terms of experience rather than qualifications?

23 MR. LANPHER: I object to him interrupting the
24 witness. He is attempting to answer.

25 JUDGE BRENNER: I agree. Let the witness

1 answer. When you ask a question like that which is so
2 broad in scope, he is entitled to start including things
3 in his answer like he started including. You asked him
4 to compare certain things and he is entitled to start
5 talking about the qualifications for the position.

6 MR. ELLIS: Judge Brenner, all I asked him was
7 whether he had that kind of experience. If he wants to
8 say yes or no and then explain it, that would be fine,
9 but I think I am entitled to an answer.

10 JUDGE BRENNER: I disagree with you in this
11 sense: "that kind of experience" with reference to three
12 people is awfully broad, and he started out by saying he
13 looked at the qualifications and experience. I don't
14 remember the exact words.

15 MR. ELLIS: I will withdraw the question.

16 MR. LANPHER: Judge Brenner, Mr. Hubbard was
17 in the middle of trying to make a point. I think he is
18 entitled to finish the answer if he wants to. I don't
19 know if he wants to or not. But you don't interrupt a
20 witness and then say I will withdraw the question.

21 JUDGE BRENNER: The withdrawal was subsequent
22 to the acceptance, if you will.

23 MR. LANPHER: If he doesn't want to, I'm not
24 instructing him to.

25 JUDGE BRENNER: Fair enough, Mr. Lanpher. The

1 problem is you may have heard enough that you don't like
2 the answer. I'm not saying that is the case, but as a
3 general theoretical proposition, that is the harm in
4 allowing the withdrawal of a question after the answer
5 was begun.

6 I am going to let you answer, Mr. Hubbard, but
7 I also implore you to try to stay on the point of the
8 questions, recognizing that different questions require
9 different ranges of the scope of the answers.

10 WITNESS HUBBARD: Well, I thought of Mr.
11 Gerecke first.

12 JUDGE BRENNER: Just answer the question. You
13 don't have to explain why you were answering the way you
14 were. Just go into your answer.

15 WITNESS HUBBARD: Well, I first thought, well,
16 Mr. Gerecke is the QA manager and so I went to a thought
17 in my own mind. Well, one is when I was at G.E. we
18 built things for -- we, General Electric -- built things
19 for the submarines, and so the QA program that I managed
20 at G.E. covered submarines or that area as well as --

21 JUDGE BRENNER: Mr. Hubbard, I hate to do the
22 kind of thing I told Mr. Ellis not to do, but you have
23 lost me now. And while you may have some connection in
24 your mind, let's stay focused.

25 WITNESS HUBBARD: Mr. Gerecke came from the

1 submarine program in the broadest possible sense.

2 JUDGE BRENNER: If you want to entice our
3 interest, and this is a practical suggestion, start out
4 with the context of what you have been asked about, that
5 is, at a nuclear power plant under construction, and
6 given that question, the qualifications of those three
7 individuals, and talk about their qualifications and
8 experience or lack thereof in that context. I am sure
9 you could make your point other than by starting out
10 with submarines, even though it is possible you might
11 end up there.

12 MR. ELLIS: Judge --

13 JUDGE BRENNER: Wait. I don't want to
14 interrupt again.

15 WITNESS HUBBARD: Well, I am going to make it
16 basically short.

17 JUDGE BRENNER: Good.

18 WITNESS HUBBARD: I did look in Appendix B at
19 the LILCO QA manual, which is Attachment 4 to their
20 prefiled testimony, and it lists the qualifications and
21 experience level for QA people, including the QA
22 Department manager, and I am not going to read it
23 because it says what it says. But based upon what it
24 says, in my experience I would be fully qualified to be
25 the Quality Assurance Department manager for LILCO, and

1 we spent a lot of time here talking about QA experience
2 in Operations, and it doesn't jump out to me that that
3 was part of the requirements to be the LILCO QA
4 Department manager. It talks about technical and
5 administrative responsibilities, and I have had at
6 General Electric eleven years of management, of which
7 five of it was in Quality Assurance and about six of it
8 in Engineering, and I am a registered quality engineer
9 in the state of California, and I do have a bachelor's
10 degree in engineering.

11 JUDGE BRENNER: You may have forgotten, and
12 with all of the interruptions it would be perfectly
13 understandable, that Mr. Ellis' question focused on the
14 experience and qualifications with respect to the
15 construction activities at the plant, as I recall. He
16 had asked you other questions about operating QA, and
17 you brought that in now; but if I recall correctly, what
18 about experience and qualifications with respect to the
19 construction of a nuclear power plant, yours relative to
20 those of the three individuals Mr. Ellis chose to
21 reference?

22 WITNESS HUBBARD: Judge Brenner, that is a
23 very difficult question to answer because when they
24 started --

25 JUDGE BRENNER: I didn't ask the question, so

1 don't blame me; but go ahead.

2 WITNESS HUBBARD: I have to put it into
3 context. The experience I have had at a construction
4 site is obvious on my resume. I mean we have been
5 seeming to be fencing about this. My experience has
6 been at a manufacturing plant where we do design and
7 manufacturing. I think we were doing the same
8 activities that are done at a construction site, in case
9 that hasn't been clear. I then looked at what LILCO
10 said were the requirements for a QA Department manager.
11 I would have met those requirements.

12 JUDGE BRENNER: Give me one second.

13 [Board conferring.]

14 JUDGE BRENNER: Mr. Ellis, if you are
15 interested in exploring what Mr. Hubbard's
16 qualifications and experience is with respect to the
17 many different aspects and attributes, if you will, that
18 have been inquired into so far in this long litigation
19 on these issues, you are going to be a lot more
20 productive and efficient if you take each of those
21 attributes and ask Mr. Hubbard what he knows about them
22 and explore how analogous what he has done with them in
23 his work for G.E. or elsewhere is to what is done at a
24 plant site like Shoreham as opposed to these things --
25 how long did you spend writing this report, have you had

1 any involvement with that.

2 Ask him what he knows about calculations, ask
3 him what he knows about storage of equipment and
4 cleanliness, et cetera, application of heat, all of
5 those many things. If you want to try to draw the
6 inference that he doesn't know very much about them,
7 that is the way to get at it. And if he says, well, I
8 did that at G.E., then you can find out how close what
9 he did at G.E. is to what is done, what the differences
10 are, whether the differences matter and so on if that is
11 what you want to do.

12 MR. ELLIS: Judge Brenner, I will do that. I
13 do believe there has been some utility in what I have
14 done and in what has been heard, but I will do what you
15 suggest.

16 BY MR. ELLIS: (Resuming)

17 Q Mr. Hubbard, have you ever developed or
18 implemented an equipment storage program for the
19 construction phase of a nuclear power plant?

20 A (WITNESS HUBBARD) No.

21 Q Have you ever conducted, led or participated
22 in a formal audit of any aspect of the construction
23 phase, the site phase of a nuclear power plant?

24 A (WITNESS HUBBARD) No, with a caveat, again,
25 that that is just the construction part of the site

1 activities in the narrowest sense.

2 Q Have you ever developed or implemented a
3 document control program for the construction phase of a
4 nuclear power plant?

5 A (WITNESS HUBBARD) No, Mr. Ellis. I think I
6 need to add one thing, that, for example, back to your
7 question on storage, that is covered by N45.2.2, and
8 that same ANSI standard is the one that applies to
9 manufacturers. Likewise in auditing, the national
10 standards, the ones that set up the requirements, just
11 like Appendix B, those requirements are across the
12 board. They are not just construction or just operation.

13 Q Have you ever been or have you ever developed,
14 implemented or been responsible for implementing a
15 program in compliance with NRC Reg Guide 1.39 relating
16 to housekeeping during the construction phase of a
17 nuclear power plant?

18 A (WITNESS HUBBARD) No.

19 [Counsel for LILCO conferring.]

20 Q Have you ever developed or implemented
21 calculation control procedures in connection with the
22 design and construction of a nuclear power plant?

23 A (WITNESS HUBBARD) Yes.

24 Q What system is that?

25 A (WITNESS HUBBARD) You said design and

1 construction, and at General Electric I was responsible
2 for developing the ASME QA program. That included
3 design for the codes and for pressure bearing materials,
4 and part of that was design control and part of that was
5 control of calculations, so I was responsible for
6 setting some of the overall program parameters. The
7 engineering people then wrote some of their own
8 procedures, and engineering, much like Stone & Webster
9 engineering procedures, EP&P's at General Electric, and
10 those I reviewed to see that they were consistent with
11 the QA program requirements that I had outlined.

12 Likewise, in 1974, I believe it was, when the
13 NRC started their vendor audit program, the I&E people
14 from Region 4, the first vendor they came to visit was
15 General Electric, and so I participated there again
16 looking at the design and manufacturing QA program. So
17 in the calculation area in terms of design, I did have
18 responsibility for that.

19 Q Let me ask you, Mr. Hubbard, are you a member
20 of the American Society of Quality Control?

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

22 Q Are you a member of the American Nuclear
23 Society?

24 A (WITNESS HUBBARD) No, I am not. My partner,
25 Mr. Bridenbaugh, is, however, so I get all of their

1 material.

2 Q Do you agree with Mr. Burns that the American
3 Society of Quality Control Engineers is a preeminent
4 society in the United States in applied statistics and
5 the QA area?

6 A (WITNESS HUBBARD) No.

7 Q Have you ever developed or implemented a
8 program for statistical assessment of the effectiveness
9 of a quality assurance program for the construction or
10 operational phase of a nuclear power plant?

11 A (WITNESS HUBBARD) No.

12 [Counsel for LILCO conferring.]

13 Q Have you ever used or developed any
14 statistical methods to be used in selecting samples or
15 sample sizes to be included in design and construction
16 verification programs for nuclear power stations?

17 A (WITNESS HUBBARD) Yes.

18 Q What statistical methods?

19 A (WITNESS HUBBARD) Well, for example, I worked
20 to come up with a number in Settlement Agreement 31 that
21 you would look at 2400 attributes, and if 15 violations
22 were found, that that was the cut-off criteria on
23 electrical separation. I have had familiarity with mil
24 standard 105(d) for a number of years because at receipt
25 inspection at General Electric we did sampling and so a

1 general familiarity with it in that sense. I have been
2 involved in it as part of the ongoing review of Diablo
3 Canyon because there there have been samples taken and
4 then based upon that there have been projections made
5 about the quality of Diablo Canyon, and I participated
6 in discussions with the NRC and the independent
7 reviewers on what the sample sizes should be and how
8 they should be selected to draw valid inferences.

9 There are some more, but those are some
10 examples.

11 Q Well, let me see if I have them all, and we
12 will come to this part later in the testimony, but you
13 have got Settlement Agreement 31. Is that in this case?

14 A (WITNESS HUBBARD) Yes, sir.

15 Q And was a statistical method used there for
16 selecting a sample size?

17 A (WITNESS HUBBARD) Yes. It was 15 out of
18 2400, which was a 99/99 criteria, and that was partially
19 based on I had done some work reviewing some work that
20 the NRC had done at the Marble Hill plant where they
21 found problems with concrete, and the NRC had said that
22 they should take enough samples of concrete to get 95/95
23 degree of assurance. And it looked to me like for
24 something like electrical separation you want something
25 higher than that, so rather than put 99/99 into the

1 agreement on SC 31, we went out and calculated the
2 numbers and then put the numbers in, and that is how we
3 got the 15 out of 2400.

4 Q And you mentioned mil standard 105(d), Diablo
5 Canyon, and what was the fourth one?

6 A (WITNESS HUBBARD) Well, the fourth one would
7 have been Marble Hill. I looked at it to see if the
8 Commission had ever used statistical techniques when
9 they had to do what you might call an independent
10 review, and I found at Marble Hill they had used a 95/95
11 criteria.

12 Q And that was not adequate in your view, is
13 that right?

14 A (WITNESS HUBBARD) That was not adequate for
15 electrical separation. I also got involved in that. I
16 had done some work on the South Texas project where
17 people wanted to take audits to make an extrapolation
18 from a sample to the total population, and then I have
19 general statistical background from my MBA program.

20 Q Did that general statistical background from
21 the MBA program relate in any way to the use of sample
22 sizes for -- well, strike that question.

23 The MBA program didn't -- was that just a
24 general course in statistics? Is that what you are
25 referring to?

1 A (WITNESS HUBBARD) I can't remember how many
2 courses I had in statistics, but I had a couple of them
3 as part of the MBA program, yes, sir.

4 Q Okay. You have told me about Settlement
5 Agreement 31, mil standard 105(d), and you said Diablo
6 Canyon. Were you the one who developed or did you
7 participate in the development of the statistical
8 sampling methods used in the design and construction
9 verification programs for Diablo Canyon?

10 A (WITNESS HUBBARD) I participated to the
11 extent that I made recommendations to the independent
12 auditors and to the NRC that statistical methods should
13 be used. In other words, the problem was the people
14 wanted to take a small sample and from that extrapolate
15 to the total population, and so I suggested and made a
16 number of recommendations upon how that should be done,
17 so that there was some validity and that you would have
18 a maximum confidence that the results you got were
19 indeed repeatable and valid.

20 Q Without going into detail, could you give a
21 name or a label to the statistical method that you
22 recommended be used?

23 A (WITNESS HUBBARD) Well, first of all, the
24 threshold question was should statistics be used at all,
25 and there was one point of view that said they should

1 just take samples on a judgment basis, and based on
2 that, extrapolate to the whole population. So our first
3 recommendation was that statistical techniques were
4 valid and should be used so that when one got through,
5 one could say some degree of confidence.

6 I remember we had that -- well, so that was
7 the first recommendation, that statistical techniques be
8 used for sampling. And then secondly we did mention the
9 95/95 criterion. That seemed to us to be a minimum
10 threshold because this got into also what a valid sample
11 size would be like. I remember one example that they
12 were going to look at, like, ten valves and draw some
13 inference about that to the whole plant. We said, well,
14 if you are going to have any degree of confidence in
15 that, you need more than ten, and based upon some
16 statistical techniques we said what the appropriate
17 sample sizes should be.

18 Q That is what I was after there. Can you tell
19 me what techniques?

20 A (WITNESS HUBBARD) This was just a simple
21 looking at a population, and based upon that population,
22 of taking the first sample, to then say what degree of
23 confidence you would have in that. This was basically
24 sampling.

25 [Discussion off the record.]

1 JUDGE BRENNER: Mr. Ellis, are you just after
2 the name of that statistical sampling technique in Mr.
3 Hubbard's view?

4 MR. ELLIS: Yes. If I go into too much
5 detail, I don't think that would be --

6 JUDGE MORRIS: Let me interject. Mr. Hubbard,
7 isn't this a standard way of doing business that is
8 described in any textbook in statistics?

9 WITNESS HUBBARD: Yes. I wasn't trying to
10 imply we were using stratified sampling or anything like
11 that. That is why I was struggling with the words. This
12 was just the broadest possible, the minimum way of doing
13 it without getting into the complexity.

14 JUDGE MORRIS: It is a routine way of
15 calculating confidence limits, right?

16 WITNESS HUBBARD: Yes, sir.

17 BY MR. ELLIS: (Resuming)

18 Q Mr. Hubbard, is there any judgment involved in
19 deciding that a threshold level of 95/95 that I think
20 you mentioned in connection with Diablo Canyon is
21 appropriate?

22 A (WITNESS HUBBARD) Yes.

23 Q Mr. Hubbard, have you ever participated in
24 performing, checking, evaluating, or reviewing design
25 calculations for the construction of a nuclear power

1 plant?

2 A (WITNESS HUBBARD) Yes.

3 Q And on the basis of that do you know the
4 number of even the order of magnitude of the number of
5 design calculations involved in the design and
6 construction of a nuclear power plant?

7 A (WITNESS HUBBARD) No, but if you look at each
8 manufacturer and then the systems all the way rippling
9 through, I mean it is a very large number.

10 [Counsel for LILCO conferring.]

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1 O Mr. Hubbard, let me return for a moment to
2 some points that I meant to follow up that we were doing
3 before lunch.

4 You indicated prior to lunch that you had
5 concluded that there were deficiencies -- I think you
6 said more than five and fewer than, or just more than
7 five -- in the LILCO operating quality assurance
8 procedures.

9 MR. LANPHER: Excuse me. I object. I believe
10 that is a mischaracterization. I think he said in his
11 review of the manual.

12 MR. ELLIS: Well, if I am incorrect, he can
13 correct me.

14 JUDGE BRENNER: My recollection in the series
15 of questions that he is following up on is that he had
16 both the manual and the procedures in some of the
17 questions and only the manual in other questions. So we
18 will know what it says after. I think they are both
19 there, but I just wanted to say that.

20 It may well be that the particular question to
21 which the "more than five" was the response did not
22 include both, but the series of lead-ups included both,
23 so I don't remember, and that is the reason I don't
24 remember. But we can let the witness straighten it out
25 here.

1 MR. ELLIS: For the record, I thought it was
2 the procedures, but I could be mistaken.

3 JUDGE BRENNER: Well, which was it, Mr.
4 Hubbard? Do you remember, when you said "more than
5 five?"

6 WITNESS HUBBARD: I don't recall.

7 JUDGE BRENNER: Okay. Do you want to go into
8 that area now?

9 MR. ELLIS: Yes, sir.

10 JUDGE BRENNER: All right.

11 BY MR. ELLIS: (Resuming)

12 Q Mr. Hubbard, I think you testified before
13 lunch that you had reviewed the procedures in about
14 April of this year and had concluded that there were
15 deficiencies. Is that correct?

16 A (WITNESS HUBBARD) Yes, but I would have to
17 put it back into the context to be sure we are talking
18 about the same thing. It is set out in section VI.B.1
19 at page 68 of my testimony. I started out reading the
20 FSAR and found that there was a lack of detail there,
21 and then I went to the operational QA manual and I found
22 that there were two manuals.

23 And my view, as I state in the testimony, it
24 looked to me that there was going to be a third by the
25 time we got to hearings, which turned out to be true.

1 And so -- and then I went beyond that and I started to
2 look at some of the implementing procedures. Some of
3 them I had in April through discovery, and I looked at
4 those at that time in a general way to see if the
5 requisite detail was there.

6 And then some of them I didn't get until the
7 LIICO prefiled testimony was turned in in, I believe,
8 June. So it has been an evolving process.

9 Q Well, you did have some procedures, as you
10 have testified, in April and you did review them, as you
11 stated, and you did find some specific deficiencies,
12 didn't you, in April?

13 A (WITNESS HUBBARD) Yes, and the example I used
14 was special processes. I thought I would take one and
15 just trace it through the three levels of documents. So
16 I started with the FSAR to see if it said who does what,
17 when and how, and it didn't say it. Then I went to the
18 manual and it didn't say it. And then I thought, well,
19 now I will go to the implementing procedure; and see if
20 it is described there, and I looked at all three and it
21 wasn't.

22 And I did that for a couple of the criteria.
23 Criteria 9 is the one I mention in my testimony.

24 Q All right. You have talked about what the
25 procedure or what process you followed, and you referred

1 to page, I think, 68. Can you show me anywhere on page
2 68 or following where you mention the procedure for
3 special processes?

4 (Pause.)

5 It may be there, Mr. Hubbard. You referred to
6 68, but I don't see it, and you're going to have to find
7 it for me.

8 A (WITNESS HUBBARD) I don't believe that I went
9 in and critiqued each of the -- well, critiqued that
10 particular procedure. I did it myself out of -- well,
11 part out of curiosity. I wanted to see what was really
12 the program because while I was testifying that the FSAR
13 didn't have an adequate description. I thought maybe I
14 would find an adequate description somewhere else, and
15 if I did, that was going to influence my opinion.

16 And then I tracked it through the three
17 levels. So the only level that is there, as I
18 mentioned, 17.2.6 of the FSAR. Then following that I
19 mention in the prefiled testimony that I did not review
20 the manual in depth because I thought the manual was
21 changing and I don't recall that I mentioned any of the
22 implementing procedures at all in the prefiled
23 testimony.

24 Q You said it would influence your opinion.
25 What did you mean by that?

1 A (WITNESS HUBBARD) Well, I guess there is form
2 and there is substance, and I was concerned, first, from
3 a form standpoint, if there was enough information in
4 any one place to document how, and that is form.

5 And that then substantively I was more
6 concerned. I thought, if the substance were there but
7 maybe not quite where in my opinion it should be, then I
8 would be less concerned.

9 And so then I went to the implementing
10 procedures to see if in terms of substance it was really
11 there, and I found it wasn't. So I thought well, now I
12 have more reason to be concerned about the form, because
13 when I really go to prob: the substance, it is not
14 there.

15 Q And I take it special processes was one you
16 considered very important?

17 A (WITNESS HUBBARD) I think it is
18 extraordinarily important because people in the field
19 are going to be replacing things and manufactured
20 equipment, like doing resoldering or rewelding and
21 things of this sort, and I know in a manufacturing plant
22 there is a lot of workmanship standards and controls on
23 processes and I have had a lot of discussions with my
24 cohorts on the National Standards Committee of IEEE that
25 is writing the standard on replacement parts.

1 And I knew that that was a problem that my
2 cohorts in the utilities had talked to me about, how
3 they really did a good job in that area. It was
4 something that concerned them.

5 Q So you went from the FSAR to the manual to the
6 procedure back in the time frame of April and found
7 several of them were deficient, in your opinion,
8 specifically deficient. Isn't that right? And you
9 mentioned only one area in your testimony, without even
10 mentioning the procedure. Is that correct?

11 A (WITNESS HUBBARD) Yes, Mr. Ellis. You used
12 the word "only". I felt in terms of the time I had to
13 prepare this that I did the best I could. And
14 subsequent to filing the testimony, as I am sure you are
15 aware, I read a lot of those procedures in detail and we
16 have been talking about them for the last three months.

17 Q It is true, isn't it, Mr. Hubbard, that you
18 have never furnished LILCO with any list of what you
19 thought was wrong with the specific procedures?

20 A (WITNESS HUBBARD) We made -- that is not
21 correct, Mr. Ellis, in the broadest sense. We made an
22 offer to provide that list, if LILCO would be willing to
23 go to an outside third party and have them come in and
24 review the operating QA program. And my personal
25 opinion was that I could not see the value of giving you

1 the complete list prior to cross examining you. It
2 would just be a pattern right through what we were going
3 to ask questions on.

4 But we did express, and I personally
5 expressed, a willingness to provide those comments if
6 you were willing to have an outside third party do the
7 review.

8 (Counsel for LILCO conferring.)

9 Q Mr. Hubbard, the other loose end I wanted to
10 pick up related to the review of other OQA manuals and
11 procedures. You have mentioned the work that you and
12 your company did in connection with the development of
13 study plans for the Minnesota Pollution Control Agency.
14 Other than that and what you have done in connection
15 with this litigation, have you reviewed the OQA manuals
16 and procedures for other nuclear power plants?

17 A (WITNESS HUBBARD) Yes, to some degree. I
18 reviewed the ones of Houston Lighting and Power, as part
19 of the ongoing South Texas proceeding. I looked at some
20 of those.

21 And as part of the Diablo Canyon review for
22 the last year and a quarter I have looked at some of
23 their QA procedures.

24 Q Are you talking about operating QA or quality
25 assurance for the construction phase?

1 A (WITNESS HUBBARD) At South Texas, these were
2 operating QA procedures, and at Diablo Canyon, as I
3 recall, they were using some of the same procedures for
4 design and construction that they used for operation.
5 There wasn't this demarcation.

6 Diablo is a little different. PG&E is their
7 own architect-engineer and constructor, so they tend to
8 have more one system for the entire program.

9 Q Did you prepare any written assessment of the
10 operating QA programs or procedures or manuals in these
11 two instances?

12 A (WITNESS HUBBARD) I think yes, in the
13 narrowest sense, that in Diablo Canyon there is a very,
14 well, 100-page affidavit or so that I prepared, I think
15 in the spring of this year, that goes into their
16 procedures, and some inadequacies in them.

17 And then on South Texas I wrote some prefilled
18 testimony on that and I know operating QA was a part of
19 it, but that never went to hearing and I can't even
20 recall what I said, to be honest.

21 Q But you actually discussed the procedures in
22 your testimony in those instances. Is that right?

23 A (WITNESS HUBBARD) I cannot recall the
24 detail. My recollection is that was part of the
25 prefilled testimony. That wasn't the essence of it. The

1 essence of it, of the South Texas testimony, was that
2 Brown & Root should not be retained to do both the
3 construction and engineering. And subsequently the
4 utility agreed with me and so I never testified.

5 Q Did you rely on either of those two documents
6 in connection with your testimony in this case?

7 A (WITNESS HUBBARD) Yes. I relied on the
8 Diablo Canyon affidavit to some degree because one of
9 the questions at Diablo was when the various NPC QA
10 regulations came about, the things about importance to
11 QA, and when the various ANSI standards were issued, and
12 some of that.

13 That was work that I had background material
14 that I had originally developed for Diablo Canyon and
15 South Texas, and as part of that work I also looked at
16 some Appeal Board decisions and Licensing Board
17 decisions in the area of quality assurance to get some
18 idea of what the standards had been in the past for an
19 acceptable quality program.

20 So that is where, as I recall, I found the
21 Midland case, where there was the discussion that you
22 had -- the management attitude was really important and
23 you had to define the details. So I guess like
24 everybody else, every piece of testimony you do builds
25 on everything you have done before. That is surely the

1 case here.

2 Q Do you have a copy of those?

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

4 JUDGE BRENNER: Of what?

5 MR. ELLIS: The Diablo Canyon affidavit and
6 his Houston testimony.

7 WITNESS HUBBARD: I don't have a copy with
8 me.

9 BY MR. ELLIS: (Resuming)

10 Q Well, could we be furnished with copies?

11 JUDGE BRENNER: Why are you asking now for the
12 first time?

13 MR. ELLIS: Because I don't know. Maybe they
14 are on the list of publications and I missed it, but I
15 don't believe they are. And if they are cited in his
16 testimony, I missed it too.

17 JUDGE BRENNER: Are they cited in the
18 testimony, Mr. Hubbard?

19 (Pause.)

20 JUDGE BRENNER: I didn't want you to go
21 through the testimony.

22 WITNESS HUBBARD: I don't think that either of
23 them are cited in the testimony. The South Texas one I
24 don't have listed on my list of publications and
25 testimony because I never ended up presenting it.

1 JUDGE BRENNER: It was just a simple
2 question. You don't have to explain why or why not yet,
3 and maybe never.

4 Is there any problem in getting them copies,
5 Mr. Lanpher, promptly? Any legal problems?

6 MR. LANPHER: No. I've got no legal problem.
7 The South Texas one I personally don't have a copy of.
8 The Diablo Canyon one I guess we have got in the
9 office.

10 JUDGE BRENNER: All right. Why don't you get
11 together and also maybe involve the Staff, if it was
12 actually filed in the docket, and just see if you can
13 get them? I think we have finished the subject.
14 Tomorrow morning let us know if there is a big problem
15 in getting them.

16 MR. LANPHER: I will let you know tomorrow
17 morning. I'm going to have a hard time getting him the
18 Diablo one by tomorrow.

19 JUDGE BRENNER: Well, maybe the Staff can help
20 you out also.

21 MR. BORDENICK: I was going to say if they
22 were in fact filed, if you would give me some kind of
23 identification I can make arrangements to get copies for
24 everyone, if they were in fact filed.

25 WITNESS HUBBARD: Both of them were in fact

1 filed. In fact, I was deposed on South Texas.

2 JUDGE BRENNER: This is getting out of control
3 and it's only Thursday. I'm not interested in all the
4 details. Just get them. In fact, we have a docket room
5 downstairs, too, and the Appeal Board has a docket room,
6 but I would rather the parties do it among themselves in
7 the first instance, and I am sure you can all cooperate
8 and perhaps save Mr. Lanpher a trip to his office, if
9 you can find it somewhere in Bethesda, or save a
10 messenger a trip out.

11 But I'm sure ingenuity will prevail and you
12 can all figure out how to get copies from somewhere in
13 the fastest possible fashion.

14 Maybe we should take a break at this point, as
15 long as we have interrupted. We will come back at 3:45.

16 (A brief recess was taken.)

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1 JUDGE BRENNER: All right. We are ready to
2 continue.

3 BY MR. ELLIS: (Resuming)

4 Q Mr. Hubbard, Attachment 1 to your testimony,
5 your experience and qualifications, was that written by
6 you?

7 A (WITNESS HUBBARD) Yes.

8 Q The reason I ask is it is in the third person,
9 and I just wanted to confirm that it was written by you.

10 MR. LANPHER: You mean Attachment A?

11 WITNESS HUBBARD: It is Attachment 1 which is
12 Attachment A.

13 MR. LANPHER: We have it both ways. I
14 apologize.

15 JUDGE BRENNER: We will call it Attachment 1
16 to be consistent.

17 Off the record.

18 (Discussion off the record.)

19 JUDGE BRENNER: Back on the record.

20 BY MR. ELLIS: (Resuming)

21 Q Mr. Hubbard, you would agree with me, wouldn't
22 you, that the statement that appears in the middle of
23 the first paragraph of Attachment 1 to your prefiled
24 testimony to the effect that you have 17 years of
25 experience in the design, manufacture, construction and

1 operation of nuclear generation facilities, that the
2 vast bulk of that 17 years has been in connection with
3 the design and manufacture and not the construction and
4 operation, isn't that right?

5 A (WITNESS HUBBARD) Yes.

6 MR. ELLIS: Judge Brenner, I am now, as I
7 indicated at the outset, I am going to ask some
8 questions concerning the errata sheet so that I can
9 understand how that affects the subsequent examination;
10 and then I will go to another area of the cross plan.

11 JUDGE BRENNER: Judge Morris has some
12 questions in the area of qualifications, and maybe this
13 would be a good time to get those.

14 BOARD EXAMINATION

15 BY JUDGE MORRIS:

16 Q Mr. Hubbard, have you had an opportunity to
17 have discussions with LILCO management on quality
18 assurance?

19 A (WITNESS HUBBARD) Yes.

20 Q Could you describe those, I mean in terms of
21 the persons with whom you've had discussions and what
22 the subjects were?

23 A (WITNESS HUBBARD) First of all, I had
24 discussions with Mr. Gerecke back in the 1977-78 time
25 period about some of the procedures. Prior to that when

1 I was at General Electric one of the utilities that
2 audited us was LILCO. We had about 71 audits per year,
3 so I had discussions with LILCO and Stone and Webster
4 personnel at that time.

5 More recently, starting in May, I met with Mr.
6 Pollock and Mr. Navarro. Mr. Navarro is assistant to
7 the Chairman of the Board, Mr. Pierce, and also Mr.
8 Museler, to try to work out a settlement on the design
9 and construction, because the County had long had an
10 interest in having an independent design review and
11 physical inspection.

12 And in addition to Mr. Navarro and Mr. Museler
13 and Mr. Pollock, we also met with the president of the
14 company, Mr. Ewell, and I can give my view of those
15 discussions.

16 On the construction end of the review we had,
17 I think, minor differences of opinion of what should be
18 looked at. We had a large difference of opinion in the
19 design review area that LILCO had hired Teledyne to look
20 at one mechanical system, a piping system designed by
21 Stone and Webster. And the County's view was that an
22 electrical system should be looked at as well as an air
23 system, and that it would be good to look at a
24 GE-designed piping system as well as a Stone and
25 Webster-designed piping system.

1 So we had -- we were not able to reach accord
2 in the area of the design review, so we had a number of
3 meetings on those particular subjects, likewise on
4 operating -- part of the settlement discussion also
5 included operating QA. And we had discussions at that
6 time to include operating QA in the larger settlement.
7 It wasn't possible as part of the larger one. We had
8 subsequent discussions that Mr. Dynner outlined to do
9 operating QA separate from design and construction.

10 Prior to that there was a settlement agreement
11 that was turned down by the county legislature last
12 December where we had outlined a design construction and
13 operational QA audit to the turn of \$150,000. And at
14 the time when we started on that back in April or so, I
15 thought that was a pretty good program because -- that
16 would have been the first of a kind because that was
17 really before some of the South Texas and Diablo Canyon
18 problems.

19 And it looked to me that that was a reasonable
20 way to go instead of doing what we are doing here,
21 litigating. And so I worked to develop that with Mr.
22 Minor and Mr. Goldsmith and the LILCO management and
23 recommended that to the legislature. That is what I got
24 a lot of questions on the statistical significance of
25 the small sample sizes we were looking at.

1 Q If I may interrupt, I would really just like a
2 brief synopsis of what you talked about with LILCO
3 management about specifically OQA, if you could limit it
4 to that.

5 A (WITNESS HUBBARD) Well, on OQA we did discuss
6 our view on the reporting chain, the lack of
7 independence.

8 Q The organization?

9 A (WITNESS HUBBARD) The organization. The
10 matter of the lack of detail in some of the procedures
11 and our desire for 40 years really of the number of
12 personnel, that a commitment for just the first year
13 didn't satisfy us. And we pretty much agreed to leave
14 important to safety out of the discussion, the
15 difference between that and safety-related. We felt
16 that that wasn't -- that there were four things we were
17 interested in, and we agreed to leave out the important
18 to safety from the discussions because it looked like we
19 were just pretty much in disagreement on that. But we
20 had some amount of discussions on the other three areas.

21 Q Are you familiar with Suffolk County Exhibit
22 88, the paper by Mr. Haas, published in Nuclear Safety?

23 A (WITNESS HUBBARD) I am the one that found it
24 in reading Nuclear Safety, yes.

25 Q And do you remember the statement he makes on

1 the first page in the second column -- if Mr. Lanpher
2 can find it in a hurry -- under the section labeled
3 "Management Attitude Toward Quality Assurance?"

4 MR. LANPHER: What page?

5 JUDGE MORRIS: The first page, the second
6 column, the first sentence in the section labeled
7 "Management Attitude Toward Quality Assurance."

8 WITNESS HUBBARD: Yes.

9 BY JUDGE MORRIS: (Resuming)

10 Q I will read it. "The attitude of the
11 licensee's management toward QA is of the utmost
12 importance to the success or failure of the QA program."

13 Do you agree with that statement?

14 A (WITNESS HUBBARD) I absolutely agree with
15 that. Mr. Lanpher and I have had some disagreements
16 about my testimony in that particular area.

17 Q I don't think I will consider that in making
18 any decision.

19 (Laughter.)

20 A (WITNESS HUBBARD) I think that is
21 extraordinarily important. I remember in my days at GE
22 that one time the man I was working for said we've got
23 too many watchers and not enough doers, and in talking
24 about QA people as watchers. And that sort of an
25 attitude makes running quality assurance very

1 difficult. I worked for other managers at GE who had
2 absolutely the opposite view of that.

3 But in my personal experience in looking at a
4 number of utility programs in licensing hearings like
5 this is that if you have a man in the top who really
6 believes in that quality discipline that somehow you
7 will end up with a more reliable plant and that you will
8 have that discipline, and it really does start at the
9 top.

10 Q Well, based upon your discussions and exposure
11 and observations of LILCO management, how would you
12 assess their attitude towards quality assurance?

13 A (WITNESS HUBBARD) My view is that LILCO has
14 put quality assurance over to the side, and I will give
15 you the reasons why I say that. Some of it was evident
16 here during the discussions, that instead of the quality
17 assurance manager describing quality assurance we had
18 Mr. Museler, really the production manager, describing
19 it many times. That is one thing, with all due respect
20 to Mr. Gerecke, that I would have expected the quality
21 assurance manager to be leading the discussion here.

22 Secondly, there was a March meeting with
23 Harold Denton where LILCO came in to present their
24 quality assurance program and talk about the need for an
25 independent audit. Mr. Pollock and Mr. Museler made the

1 presentation. Mr. Gerecke didn't say anything other
2 than answer some questions. Mr. Kelly at the end did
3 some talking. And I thought that was really strange
4 that you wouldn't have the quality assurance department
5 giving the presentation about quality assurance.

6 Third, when you read the I&E reports, those
7 reports go to Mr. Pollock's and Mr. Museler's chain.
8 They don't go to the manager of engineering, which is
9 Dr. Cordero, who Mr. Gerecke reports to.

10 So it is clear in my mind that the emphasis in
11 LILCO is on the chain -- that is, the Museler-Pollock
12 chain -- and not the Gerecke-Cordero chain.

13 And so another reason why I would have some
14 concern is that I think QA is a discipline process, that
15 you have to be very disciplined in all of the details.
16 And I heard a lot of testimony that people would go
17 ahead and do something to develop a procedure later,
18 some things of that sort, rather than, you know, you do
19 the procedure first. If you don't have laid out how you
20 do it, you don't do it until you get that defined.

21 So I really hesitate, and that is why I said
22 Mr. Lanpher and I had a disagreement; that I have strong
23 feelings about their attitude, but it is very subjective.

24 Q Well, what about Mr. Ewell? Did you discuss
25 this with him?

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

2 Q Have you discussed similar problems with other
3 utilities or managements of other utilities?

4 A (WITNESS HUBBARD) Yes, in the sense that when
5 I was at General Electric I had like 71 utilities that
6 audited me, and I got an impression there of which
7 utilities I would say put QA on the front burner and
8 which felt that it was just a necessary evil paperwork.

9 Q You used the expression "utilities." What I'm
10 trying to focus on is the attitude of the top
11 management. Are you using those words synonymously or
12 just based upon the people you came in contact with?

13 A (WITNESS HUBBARD) Well, for another example,
14 at GE we put on a quality seminar every year at
15 Silveroto or Napa or you know where I mean, Carmel,
16 where we would invite in the quality assurance
17 management from the utility, the top man, and we would
18 talk about the mutual problems in the industry, and I
19 got to meet the top man at a number of utilities.

20 Q These were top QA people?

21 A (WITNESS HUBBARD) Yes. It was the equivalent
22 of Mr. Gerecke. It would be the vice president-QA or
23 whatever for a number of -- when I use "utilities" I
24 mean in the broadest sense -- power plant owners. It
25 might be TVA. And I got the impression that some of

1 them thought their quality was very important and put
2 some very aggressive people there, and others felt that
3 quality was a necessary evil, so that you would end up
4 with a man from engineering who might be two years from
5 retirement in charge of it. And by that I meant that
6 you could see like they were looking for a place in the
7 organization to find somebody and just put him there.

8 I had that same experience at GE when I took
9 over the quality operation there. One of the hardest
10 things I had to do was remove a lot of personnel.

11 Q If I may interrupt, if I understand you
12 correctly, you are inferring from your contacts with
13 these personnel, which I will label as being at the
14 manager of the QA level, that this reflects an attitude
15 of their superiors, including vice presidents and
16 presidents of utilities.

17 Is that a correct inference?

18 A (WITNESS HUBBARD) Yes, Dr. Morris. What I'm
19 saying is the type of person you have as the quality
20 assurance manager reflects, I believe, the utility's --
21 the president of the company's attitude towards quality.

22 Q But have you had direct conversations with
23 presidents of utilities to discuss this subject?

24 A (WITNESS HUBBARD) No, I have not. That is my
25 view.

1 Q Thank you. I'm afraid this is a little aside
2 from qualification, but it was illuminating on the
3 subject, and I would have gotten to it sooner or later
4 anyway.

5 (Board conferring.)

6 CROSS EXAMINATION -- Continued

7 BY MR. ELLIS: (Resuming)

8 Q Mr. Hubbard, you mentioned a meeting
9 concerning OQA where you said you discussed the
10 reporting chain. You said you were interested in a
11 40-year commitment for the number of personnel, and you
12 mentioned lack of detail and procedures.

13 Isn't it true that, as you have already
14 testified, that you have never indicated to LILCO which
15 procedures you thought should be improved and the manner
16 in which you thought they should be improved?

17 MR. LANPHER: I object. That was asked
18 earlier and answered.

19 JUDGE BRENNER: Well, he's entitled to follow
20 up given the other answer of Mr. Hubbard. That is
21 exactly Mr. Ellis' point. The two statements apparently
22 are not fully consistent, and that is why he is going
23 back to probe it.

24 WITNESS HUBBARD: We did provide examples, Mr.
25 Ellis, of where the procedures were not specific enough;

1 but we did not go in and try to rewrite the procedures
2 for LILCO.

3 BY MR. ELLIS: (Resuming)

4 Q Aren't you talking about meetings, Mr.
5 Hubbard, that occurred after this litigation started?

6 A (WITNESS HUBBARD) Yes.

7 Q And wasn't I present at those meetings?

8 A (WITNESS HUBBARD) Not in all case.

9 Q Or Mr. Earley?

10 A (WITNESS HUBBARD) No.

11 Q Who was present at those meetings?

12 A (WITNESS HUBBARD) In some cases Mr. Reveley
13 was. In some cases there was no attorney there. I have
14 had meetings with Mr. Navarro and Mr. Museler when there
15 were no lawyers present.

16 JUDGE BRENNER: I won't ask you which meetings
17 you did better at. I don't know how to describe it. I
18 have the feeling this afternoon that we were getting odd
19 glimpses into the negotiating process, and I wasn't sure
20 then how we ended up with them except to some extent
21 that maybe the questions led that way and to some extent
22 maybe the answer chose to lead that way. And then we
23 started hearing about the attorney-client relations, and
24 now we're talking -- I don't know what we're going to do
25 with all of this.

1 I will just leave it at that. I'm not cutting
2 anybody off. There are settlement negotiations and then
3 there is litigation.

4 (Counsel for LILCO conferring.)

5 BY MR. ELLIS: (Resuming)

6 Q Mr. Hubbard, isn't it true that I&E reports go
7 to the audited organizations?

8 A (WITNESS HUBBARD) Yes, sir.

9 Q All right. If the organization audited is
10 construction, it would go to construction, wouldn't it?

11 A (WITNESS HUBBARD) The audited organization is
12 LILCO, and so I would have expected that the I&E report
13 would go to the man that the QA manager reports to.

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1 Q Well, let's start with who sends it. I&E
2 sends it, don't they?

3 A (WITNESS HUBBARD) That is correct.

4 Q And they send it to the audited organization,
5 don't they?

6 A (WITNESS HUBBARD) Not necessarily the audited
7 organization.

8 Q Well, if they send it to construction, that is
9 I&E sending it and not LILCO, isn't that right?

10 A (WITNESS HUBBARD) Well, I don't want to get
11 into an argument with you, Mr. Ellis. For example, at
12 General Electric, when we would get an I&E finding, it
13 would go to the man who was responsible for the
14 division, quality assurance, in general.

15 Q Do you know of your own personal knowledge,
16 Mr. Hubbard, that the I&E reports were not sent to Mr.
17 Gerecke, no matter who they were sent to initially by
18 I&E or Mr. Cordero?

19 A (WITNESS HUBBARD) All we have to do is look
20 at the distribution list. It went to Mr. Pollack and
21 there may have been a copy for Mr. Gerecke, but the
22 point was it didn't go to Dr. Cordero, who is the man
23 responsible for the quality assurance department.

24 Q But you are not saying that copies didn't go
25 to Mr. Cordero and Mr. Gerecke. You are just saying

1 that the addressee initially was Mr. Pollack. Is that
2 what you are saying?

3 A (WITNESS HUBBARD) Yes, sir.

4 Q And you indicated that some individuals
5 thought quality was very important and some thought it
6 was a necessary evil in your contacts with Mr. Gerecke
7 or Mr. Novarro or Mr. Museler or anybody else at LILCO.
8 Is there anybody that's ever expressed to you the view
9 that quality is a necessary evil?

10 A (WITNESS HUBBARD) Nobody at LILCO has called
11 it a necessary evil. However, I do have an impression
12 that I have gained about the management's attitude from
13 having talked to them, and my impression of the
14 management attitude of LILCO is that there is more
15 emphasis on the production chain than there is on the
16 quality chain. That is my subjective impression.

17 Q Mr. Hubbard, in your prefiled testimony you
18 note on page 52 that LILCO has spent over 2.4 million
19 manhours on QA/QC. Does that objective evidence reflect
20 to you lack of concern about QA/QC?

21 A (WITNESS HUBBARD) We are mixing apples and
22 oranges. We have been talking about management's
23 attitude and the 2.4 million is just a factual matter.
24 That is how much they have spent. Probably Diablo
25 Canyon spent 2.4 million also.

1 The real point of that was to compare how much
2 the NRC has spent in comparison to the 2.4 million.

3 (Counsel for LILCO conferring.)

4 Q Well, you indicated that the agreement that
5 was turned down by the legislature was the first of a
6 kind and unique. Wouldn't you say that LILCO's
7 willingness to agree to that indicated an interest in
8 quality?

9 A (WITNESS HUBBARD) I think that it did show an
10 evidence that they were willing to discuss the
11 settlement outside the litigation process at that time,
12 and that they would be willing to spend \$150,000 to
13 demonstrate that.

14 MR. ELLIS: Judge Brenner, I am going to go on
15 to another area.

16 BY MR. ELLIS: (Resuming)

17 Q Mr. Hubbard, look at -- I am referring now to
18 your errata sheet. You mention on IV, which is your
19 summary, although your summary is not in evidence there
20 is another place in your testimony where you do change,
21 make that same change. And I believe that is page 96,
22 line 20.

23 The statement originally said that the I&E
24 program focuses only on those systems, structures and
25 components classified as safety-related. You have now

1 changed that to say that, second, the I&E program
2 focuses on those systems, structures, and components
3 classified as safety-related.

4 Is that because you have now learned that the
5 I&E's program focuses on more than the safety-related
6 set of structures, systems, and components?

7 A (WITNESS HUBBARD) Again, I thought it was
8 right to change this because I didn't intend to have it
9 implied that all of the I&E effort went to
10 safety-related and none went anywhere else, and that was
11 really what the word "only" said. And so I wasn't very
12 artful in the way I crafted the wording, and so I felt
13 that it was appropriate to change it.

14 My feeling is that the focus is on
15 safety-related. Also, when I got the LILCO operational
16 QA program manual, while it did say safety-related
17 everywhere in the corporate policy, there is a statement
18 that there are going to be some appendices made for some
19 things that might arguably be important to safety, like
20 fire and security.

21 So it seemed to me that there had been some
22 movement in LILCO, that they had started to look at some
23 things beyond, in their QA program, some things beyond
24 safety-related.

25 (Pause.)

1 Q Are you done, Mr. Hubbard? I couldn't tell
2 whether you were done or not, Mr. Hubbard.

3 A (WITNESS HUBBARD) I'm not sure whether I'm
4 done or not myself, Mr. Ellis. I am thinking.

5 I think I will leave the answer at this time.
6 If you want to go into more detail, we can go into the
7 QA manual and the statement of policy and the number of
8 times the word "safety-related" is used. There is, in
9 the manual, one reference to GDC-1 in an appendix.

10 Q Mr. Hubbard, are you finished?

11 A (WITNESS HUBBARD) Yes, sir.

12 Q Mr. Hubbard, my question had to do with I&E,
13 not with the LILCO QA program or the LILCO QA manual and
14 you have changed it from "only" because, I think your
15 testimony is, you are now aware that I&E focuses on more
16 than just the safety-related.

17 When did you become aware of that?

18 A (WITNESS HUBBARD) Well, let's go back to
19 which "only" are we talking about.

20 Q The only "only" I have talked about is in line
21 three of page four of IV, which I think is the same
22 "only" that I referred to before on 96.

23 JUDGE BRENNER: Mr. Hubbard, it is the one
24 that you underlined in your testimony. Right, Mr.
25 Ellis?

1 MR. ELLIS: That is exactly right, Judge
2 Brenner. It is the one on page 96 at the beginning of
3 the last paragraph.

4 WITNESS HUBBARD: On reflection, I decided
5 that that was too strong a statement and that while my
6 belief still is that it focuses in the main on
7 safety-related, I didn't want to exclude that it does
8 look at some things that are important to safety or even
9 what one might call not even important to safety.

10 BY MR. ELLIS: (Resuming)

11 Q I understand that, Mr. Hubbard. My question
12 was: When did you become aware of the fact that the I&E
13 program focused not only on safety-related?

14 A (WITNESS HUBBARD) I think I always was aware
15 of it and that is why I used the word "focuses", but
16 then, in reading this over in the time I have had
17 between when I filed this, I looked at it and I thought,
18 well, the key thing that I wanted to say was not do
19 exactly what we are doing now -- have a debate about the
20 word "only" or "all."

21 The key point I wanted to make was that I&E
22 focuses on safety-related structures, systems, and
23 components rather than having to have a discussion on
24 what the word "focuses" means.

25 Q Well, it's fair to say, isn't it, Mr. Hubbard,

1 that you have now gone through your testimony fairly
2 carefully to make changes of this sort? Isn't that
3 right?

4 A (WITNESS HUBBARD) Yes, sir.

5 Q Why didn't you change the "only" that appears
6 in the first full paragraph on IV since you now indicate
7 that you were always aware that they didn't focus only
8 on that system and you didn't intend to say that? So
9 you said it and underscored it.

10 MR. LANPHER: Excuse me. Where are you? I
11 missed what you were referring to.

12 MR. ELLIS: I'm sorry. Line one, two, three,
13 four, five, six, seven, eight and nine on IV.

14 JUDGE BRENNER: It would be better for the
15 record if you count silently and only come out with the
16 nine at the end.

17 (Laughter.)

18 WITNESS HUBBARD: Mr. Ellis, I removed the
19 "only" up on line three, which talked about the I&E
20 program, but I had the same confusion maybe you are,
21 that when in an answer a couple of questions ago I had
22 also circled the "only" on the LILCO operational QA
23 program as one I considered changing because the LILCO
24 QA program now does have some appenlices, plus the one
25 that is written, that does go to the on safety-related.

1 So I changed the one up on line three. And I
2 thought about changing the one regarding LILCO.

3 BY MR. ELLIS: (Resuming)

4 Q You gave it pretty careful consideration and
5 decided not to change it on IV, isn't that right?

6 A (WITNESS HUBBARD) I decided not to change it,
7 yes.

8 Q Well, then turn to page 97 at the top of the
9 page, and tell me why you changed that "only" there if
10 you decided to change it there in exactly the same
11 context, didn't you?

12 A (WITNESS HUBBARD) You are absolutely
13 correct. I did. And for exactly the reasons I had
14 given you in the manual that we did receive.

15 Q So -- excuse me. I am sorry. So what you
16 said, then, about the "only" that appears in the first
17 full paragraph on IV in connection with the LILCO
18 operational QA program is not correct in terms of why
19 you didn't change it? That was just a quality assurance
20 type of mistake. Is that right?

21 A (WITNESS HUBBARD) It should be changed to
22 agree with what is on 97 in the conclusions.

23 JUDGE BRENNER: Imagine the time we would be
24 spending on IV if it was in evidence.

25 MR. ELLIS: Well, it is in effect in evidence,

1 and we are going to cover it because it is in 96 and
2 97.

3 JUDGE BRENNER: Yes, I realize that, which is
4 why I only made the comment as opposed to having jumped
5 into all of the questions earlier. We don't pay a lot
6 of attention to that summary in terms of evidentiary
7 value. I don't know if it assists the parties to tell
8 you that or not. ←

9 MR. ELLIS: Yes, sir. I understood that.
10 Nonetheless, there were some changes there that were
11 also made in the testimony that I just need to explore
12 to understand where I stand.

13 BY MR. ELLIS: (Resuming)

14 Q And I take it, Mr. Hubbard, that the change in
15 seven, line seven, on page IV, where you changed "never
16 even" -- where you have "has never even addressed",
17 changed that to "to a limited extent" is because you
18 want your testimony to reflect your knowledge that you
19 had all along that it does go beyond safety-related?

20 A (WITNESS HUBBARD) I think that the way it is
21 changed is a more accurate reflection.

22 Q All right. Look now, if you would, please, I
23 think there is another matchup of VI, a change you made
24 at VI, and I believe you will find that you made the
25 same change on page 98 of your testimony.

1 Do you have that before you?

2 A (WITNESS HUBBARD) Yes, sir.

3 Q Now you have changed that, haven't you, to
4 reflect the accurate fact that LILCO personnel have had
5 direct experience in implementing a quality program at
6 an operating nuclear station?

7 A (WITNESS HUBBARD) That really isn't my
8 conclusion, but it seemed to me that after the testimony
9 was turned in we received the resumes of the LILCO
10 operational QA people and I had a chance to review
11 those, and, as I recall, the three people together had
12 something like 14 years QA experience or something, and
13 it seemed to me I would have, I think, preferred to have
14 a little bit more, in my judgment, because most of it
15 all seemed to be at Shoreham.

16 But it seemed to me that the number of QA
17 people were more important than the experience they had,
18 and so -- and then when I looked at the testimony
19 itself, in the testimony I really addressed the number
20 more than the experience. And so to make it consistent
21 with the testimony that went before, I thought it was
22 more appropriate to change it to the number.

23 Q So, then, when you made your original
24 statement, you agree that you didn't have an adequate
25 factual basis for making it?

1 A (WITNESS HUBBARD) No. I just have more of a
2 factual basis now. In looking at it, I decided that
3 wasn't the key issue.

4 Q Well, you wouldn't have known what their
5 experience was without seeing their resumes, though,
6 would you?

7 A (WITNESS HUBBARD) Well, I had met some of
8 them. I also had the utility audit, which talked about
9 the fact that LILCO was having trouble hiring
10 operational QA people because of the salary scales and
11 the difficulty, and I knew that there was still a lot of
12 contract personnel that were being used to supplement
13 the OQA department.

14 I had a residual concern about the experience
15 of the QA people, about how -- well, how they compared
16 with what I saw, some pretty aggressive people in the
17 construction side of it. And for all of those reasons,
18 in the original testimony I left it. I left in the
19 matter about experience.

20 But then on reflecting on it, I decided, after
21 looking at the resumes and looking at the 14 years or so
22 of experience, that while I continued to have some
23 concern about that, that I would focus on the inadequate
24 number rather than the experience.

25 Q And you thought the construction QA people

1 were certainly adequately experienced and aggressive?

2 A (WITNESS HUBBARD) No.

3 (Counsel for LILCO conferring.)

4 Q Well, when you were comparing the
5 aggressiveness a moment ago, to whom were you comparing
6 the QA and operating QA people?

7 A (WITNESS HUBBARD) The people I had met in the
8 construction department at LILCO -- the Muselers and
9 McCaffreys, and that chain of people.

10 JUDGE BRENNER: How many of each do they
11 have?

12 (Laughter.)

13 JUDGE BRENNER: You are using the plural name,
14 but only meant one with each name?

15 WITNESS HUBBARD: Yes.

16 BY MR. ELLIS: (Resuming)

17 Q You will agree that the Muselers and
18 McCaffreys, as you termed them, are adequately
19 aggressive and interested in quality at Shoreham?

20 A (WITNESS HUBBARD) No.

21 Q So your testimony is you don't think Mr.
22 Museler, then, is interested in quality?

23 A (WITNESS HUBBARD) I have an extraordinarily
24 high regard for Mr. Museler. I think he is very
25 aggressive and runs a very tight ship. However, it

1 seems to me that he has more of a desire to get the job
2 done than to get the job done following the procedures
3 and things of that sort.

4 Q Do you have any personal knowledge of Mr.
5 Museler ever performing a job without regard to
6 procedures?

7 A (WITNESS HUBBARD) No. However, I have a
8 number of audit findings where work as done absent
9 procedures, and we are talking again about a subjective
10 evaluation of one's attitude, and that is why when I
11 said before I had a difference of opinion with Mr.
12 Lanpher, that it really had to do with this whole matter
13 of management attitude. It is a very subjective thing,
14 and so I feel strongly about attitude, but I have to
15 agree that it is very subjective.

16 Q In making the change that you --

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1 JUDGE BRENNER: You're going to have to tell
2 us someday what this disagreement is, if you keep
3 alluding to it, and I'm going to warn you of that
4 danger. The disagreement between you and Mr. Lanpher.

5 (Discussion off the record.)

6 JUDGE BRENNER: Let's go back on the record.
7 I want to keep the answers focused on the questions, and
8 if you seriously think you have an illustration that
9 will help us understand your view of LILCO's attitude
10 and your counsel has no objection, that's fine. But if
11 it really is kind of just a little folksy comment by you
12 as opposed to being pertinent, I would appreciate not
13 getting it on the record. And that is all.

14 It is the distinction between testimony and
15 conversation, which I'm sure we all might thoroughly
16 enjoy outside the record, and also, the efficiency of
17 time here. I'm becoming very concerned, based upon this
18 afternoon, that four days is going to be a wrong
19 estimate. And it has dawned me on me for the first time
20 that at this rate, we're still going to be doing QA in
21 January on areas other than the ones we know we're going
22 to have to come back to as a result of the staff's
23 review. And that is not a proposition that I am going
24 to take happily. If it happens, it happens. But it
25 certainly wasn't the expectation by the Board or by the

1 parties, for that matter, given the estimates.

2 So, let's try to stay with it a little better
3 than we have today. Okay, we will let you pick up the
4 questioning.

5 BY MR. ELLIS (Resuming):

6 Q Mr. Hubbard, another reason for the change
7 that we have been discussing that is on page 98, lines
8 19 and 20 is the fact that you have now learned that the
9 OQA Section has actually been implementing the program
10 for a number of years, isn't that right?

11 A (WITNESS HUBBARD) I was aware before that
12 LILCO was implementing the operating QA program during
13 the startup and testing program, because I've always
14 been aware of that.

15 (Counsel for LILCO conferring.)

16 Q Mr. Hubbard, there was an elimination on page
17 14 in the first line of text of the word "such." As
18 previously stated, "such" referred to an NRC review. Is
19 that no longer true?

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

22 MR. ELLIS: Let me restate it to save time.

23 JUDGE BRENNER: Okay.

24 MR. LANPHER: Thank you.

25 BY MR. ELLIS (Resuming):

1 Q Mr. Hubbard, have you got that change in front
2 of you?

3 A (WITNESS HUBBARD) Yes.

4 Q All right. Why did you make that change?
5 (Pause.)

6 While you are looking at that -- well, go
7 ahead if you can answer the question. Otherwise, I will
8 suggest something to you and see if that is correct.

9 Is this testimony taken from some other
10 document where the "such" made sense?

11 A (WITNESS HUBBARD) I wouldn't be surprised. I
12 think that the "such" might have originally been in when
13 we were talking about an independent review, which is
14 laid out later in this testimony back in what section.

15 Q Well, whatever section it is. I understand
16 you.

17 A (WITNESS HUBBARD) It is Section 6. Excuse me,
18 Section 7.

19 Q Can you tell me whether this section that we
20 are talking about came from some other testimony or some
21 other document that you prepared?

22 A (WITNESS HUBBARD) Yes. I believe this came
23 from an affidavit I wrote on Diablo Canyon where I was
24 getting into the same subject, the importance of QA/QC,
25 as I testified before. I read some of the licensing

1 decisions as part of that particular work. I thought it
2 was equally relevant here.

3 Q You didn't cite it, though, did you?

4 A (WITNESS HUBBARD) No, because they are my own
5 words.

6 Q Mr. Hubbard, look at page 53. There on line
7 17 you changed the term "staff" to "NRR."

8 A (WITNESS HUBBARD) Yes.

9 Q Is that because you now recognize that I&E --
10 or, in recognition of your earlier correction that I&E
11 does address other than safety-related?

12 A (WITNESS HUBBARD) Yes. That is correct.

13 (Counsel for LILCO conferring.)

14 Q I'm not sure that I understand. Maybe you can
15 help me with that sentence. Just for the future it
16 might shorten things. You agree, don't you, that the --
17 well, strike that.

18 The "staff" that appears four or five lines
19 below the "staff" that you changed, should that be
20 changed to "NRR"?

21 (Pause.)

22 A (WITNESS HUBBARD) That is a hard one to
23 answer, Mr. Ellis. With regard to -- because really,
24 the use four lines from the bottom has really two
25 things. One is to look at the QA requirements for such

1 a GDC-1 QA/QC compliance, and both for the NRR and I&E
2 program I didn't see that they had developed criteria
3 for reviewing GDC-1 QA compliance.

4 However, the I&E people do appear to look at
5 some aspects of the QA program which go beyond
6 safety-related.

7 Q Well, let me see if I can understand your
8 testimony. In the first part of the sentence when you
9 changed it from "staff" to "NRR", is it your testimony
10 now that NRR in no way at any time ever considers the
11 QA/QC applied to items not classified as safety-related?

12 A (WITNESS HUBBARD) My testimony is that the NRR
13 review of the QA/QC program addresses only
14 safety-related.

15 (Counsel for LILCO conferring.)

16 Q Well, let me be specific to help. Doesn't the
17 NRR look at things like QA/QC for rad waste?

18 A (WITNESS HUBBARD) Did you say NRR?

19 Q Yes.

20 A (WITNESS HUBBARD) You would have to ask Mr.
21 Gilray about that.

22 Q Well, I'm sure Mr. Gilray would know the
23 answer, but you made a statement here and I'm trying to
24 assess what your position is.

25 A (WITNESS HUBBARD) What I am referring to here

1 is that the NRR review is documented in the SER, and
2 that review talks about safety-related.

3 Q I see. Well apart from the review of this
4 document in the SER, do you have any personal knowledge
5 of whether the NRR review program includes any QA/QC --
6 reviewed any items not classified as safety-related?

7 A (WITNESS HUBBARD) Well, I don't know for LILCO
8 and the Shoreham plant how they would have reviewed
9 anything other than safety-related because the QA Manual
10 only applies to safety-related. So my understanding
11 from discussions with Mr. Gilray is that he had reviewed
12 what is in the FSAR.

13 Now, what is in the FSAR in Section 17.2
14 addresses only safety-related.

15 Q Well, Mr. Hubbard, you will agree with me,
16 won't you, that NRR reviews the QA/QC for such things as
17 rad waste, turbine bypass and other items that are not
18 classified as safety-related, if you know?

19 What I am addressing here in this part of the
20 testimony is the write-up of the NRR review that is in
21 17.2 of the SER, and that applies to only safety-related
22 items. There are some reg guides, for example, that
23 talk about, oh, some turbine valves, that it should meet
24 certain quality standards other than Appendix B.

25 But we are talking about the NRR review in

1 this particular section, and also tied to that is the
2 fact that the LILCO QA Manual, starting with the
3 statement of policy in the front, uses the words safty
4 related.

5 Q Well, Mr. Hubbard, would you agree with me
6 that the second line on page 53 of the first full
7 paragraph, the one which you changed, would be a more
8 accurate representation of your knowleige and your views
9 if it said "A further inadequacy of the QA Branch of NRR
10 review program is that it addresses only the QA/QC
11 applied to items classified as safety-related."

12 A (WITNESS HUBBARD) I had a hard time listening
13 to that. Could you read that back, please?

14 Q Yes, sir, I will. I asked you whether you
15 would agree with me that it would be a more accurate
16 reflection of what you have now testified to to make a
17 further change to that sentence to say that, instead of
18 "NRR" it is the "QA Branch of NRR" that addresses only
19 the QA/QC applied to items classified as safety-related.

20 A (WITNESS HUBBARD) I think it would be. I
21 think I will leave it to say the NRR, based upon what is
22 in 17.2. There may, somewhere in the SER, be another
23 write-up of QA programs other than in 17.2, and if so, I
24 am not aware of it.

25 Q Would it be correct, then, to say that your

1 knowledge of the NRR review is limited to the SER? And
2 to 17.2 of the SER?

3 A (WITNESS HUBBARD) Not completely. I reviewed
4 the standard review plan where it talks about how the
5 review is conducted for both 17.1 and 17.2. I have had
6 discussions with Mr. Haass and Mr. Gilray about what it
7 is they review. I participated in matters of QA review
8 on plants such as Diablo Canyon, South Texas,
9 Commonwealth Edison, where I have heard the staff people
10 discuss what it is they review. And I have had the
11 experience at GE of the I&E people coming in to review
12 the GE program, and in all cases the review was based on
13 what in the Denton memo was called safety-related.

14 (Counsel for LILCO conferring.)

15 Q Well, I hadn't intended to get to this point,
16 but I take it that this -- maybe this will make the
17 Board happy. I will get to a point here.

18 What you are saying reflects, does it not,
19 that NRR applies Appendix B only to safety-related?
20 That is how they construe it, isn't it?

21 A (WITNESS HUBBARD) NRR issued a draft reg guide
22 --

23 Q Could I have a yes or a no answer?

24 A (WITNESS HUBBARD) I am going to go back and
25 say yes or no.

1 JUDGE BRENNER: He means one or the other.

2 (Laughter.)

3 WITNESS HUBBARD: It appears that yes, that
4 the NRR review was only to safety-related. That is in
5 17.2. As we heard from Mr. Haass, in Section 3 of the
6 FSAR there is a commitment to a GDC-1 program on
7 important to safety where apparently, he had no criteria
8 to review that.

9 Now, in my own personal experience I know that
10 this has been a debate within NRR dating back to at
11 least 1975, that the first draft of a QA standard on
12 items important to safety was issued in 1975 within NRR,
13 and there have been numerous drafts since then. So it
14 has been an item that has been under active discussion
15 within the staff for a very long period of time.

16 MR. ELLIS: May I have just the first word of
17 the answer? I wasn't clear whether I got a yes or a no.

18 JUDGE BRENNER: All right, you can ask the
19 witness. I think he said yes, but he didn't say yes.
20 What he followed with was not exactly the same terms as
21 your question, so the simple yes may or may not help you.

22 MR. ELLIS: Let me ask the question again.

23 BY MR. ELLIS (Resuming):

24 Q Doesn't your testimony here reflect that NRR,
25 in practice, construes Appendix B to apply only to

1 safety-related?

2 A (WITNESS HUBBARD) I think that is a question
3 more appropriate to ask NRR, but it appears that the
4 review in 17.2 has only been of safety-related. They
5 don't draw a conclusion there about items important to
6 safety, but not safety-related.

7 MR. ELLIS: Judge Brenner, I will return to
8 this subject, but let me go on and finish this.

9 BY MR. ELLIS (Resuming):

10 Q Mr. Hubbard, --

11 JUDGE BRENNER: What is it you are finishing?
12 I'm not following where you are.

13 MR. ELLIS: The errata sheet.

14 JUDGE BRENNER: I didn't realize we were still
15 on the errata sheet.

16 MR. ELLIS: Yes, sir.

17 JUDGE BRENNER: We're going to adjourn any
18 minute now. Should we do it now or should we do it in a
19 few minutes?

20 MR. ELLIS: Could we do it in a few minutes?

21 JUDGE BRENNER: Yes.

22 MR. ELLIS: Thank you.

23 JUDGE BRENNER: At 5:00.

24 MR. ELLIS: Thank you.

25 BY MR. ELLIS (Resuming):

1 Q Look at page 64 of your testimony where you
2 have deleted "only" on line 23. There is other factual
3 evidence, is there not, in that context?

4 (Pause.)

5 A (WITNESS HUBBARD) Yes.

6 Q Was this section of the testimony taken from
7 some other submission or document that you prepared, or
8 someone else prepared?

9 A (WITNESS HUBBARD) I really don't know. I
10 wrote up some justification in some discussions with
11 LILCO of why they should do this independent inspection,
12 and I also had been doing it for Diablo Canyon. And it
13 was a long time ago when these words were developed. So
14 to make a complete sentence, I am not aware that these
15 words were used before in exactly this way; however,
16 that is possible. I mean, this is a consistent view I
17 have had, that there should be some sort of an
18 independent review.

19 And I also testified in front of Congress last
20 November that that was the case; there should be an
21 independent review.

22 Q Mr. Hubbard, on page 66 there's a sentence at
23 the bottom of the first paragraph that read, prior to
24 your correct, "Thus, the following testimony will
25 address activities that have not yet occurred, but for

1 which a QA/QC program will be required." And you have
2 changed the "that" to "most of which." Now, isn't that
3 inconsistent with your statement that you have known all
4 along that operating QA has been implemented for a
5 number of years at Shoreham?

6 A (WITNESS HUBBARD) Well, as it was being
7 implemented at Shoreham, it was largely with contract
8 people and Stone & Webster, and there were very few
9 LILCO OQA people that were involved in this.

10 But now, as we get into operations, Stone &
11 Webster is going to be leaving and it is going to be
12 left with mainly LILCO doing this, and again, this was,
13 -- I thought that there was a correction that would more
14 correctly reflect my view. So yes, LILCO has had some
15 involvement, though I would say the majority of it has
16 been with contract personnel. And that that is in a
17 position of changing as we go towards operation.

18 Q Weren't the contract personnel operating under
19 the LILCO OQA program?

20 A (WITNESS HUBBARD) That is hard to answer.
21 Stone & Webster has its own QA program also, and then as
22 we talk about the LILCO operation, QA/QC program, we see
23 that there were a couple and we now are down to the one
24 that was submitted with the testimony. And procedures
25 are still being developed. So I think the answer is I'm

1 sure part of it is yes and other parts no.

2 (Counsel for LILCO conferring.)

3 MR. ELLIS: Judge Brenner, I have got one or
4 two more questions in this area but I think that given
5 the circumstances, it might be appropriate to break at
6 this point. And I will be able to give the Board, I
7 think, a more accurate estimate tomorrow of the
8 remainder.

9 JUDGE BRENNER: Why don't you give us the
10 estimate nearer the end of the day tomorrow, and then it
11 will be even more accurate.

12 As always when we have had no advance request
13 to the contrary, we will run from 9:00 until 1:00
14 tomorrow; that is, take two short breaks but no lunch
15 break. And we will begin again at 9:00 o'clock tomorrow
16 morning.

17 (Whereupon, at 5:00 p.m., the hearing in the
18 above-entitled matter was recessed, to reconvene at 9:00
19 a.m. the following day, Friday, December 3, 1982.)

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NUCLEAR REGULATORY COMMISSION

This is to certify that the attached proceedings before the

BEFORE THE ATOMIC SAFETY & LICENSING BOARD

in the matter of: Long Island Lighting Company (Shoreham Nuclear Power
Station)

Date of Proceeding: December 2, 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)