

ORIGINAL

UNITED STATES
NUCLEAR REGULATORY COMMISSION

IN THE MATTER OF:

DOCKET NO: 50-322-OL

LONG ISLAND LIGHTING COMPANY

(Shoreham Nuclear Power Station)

LOCATION: HAUPPAUGE, NEW YORK

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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Docket No. 50-322-OL

Court of Claims,
State Office Building,
Hauppauge, Long Island,
New York

Tuesday, 5 March 1985

The hearing in the above-entitled matter was
convened, pursuant to notice, at 1:30 p.m.

BEFORE:

JUDGE LAWRENCE BRENNER, Chairman,
Atomic Safety and Licensing Board

JUDGE PETER A. MORRIS, Member.

JUDGE GEORGE A. FERGUSON, Member.

APPEARANCES:

On behalf of Long Island Lighting Company:

TIM ELLIS, Esq.
Hunton and Williams
Richmond, Virginia.

ODES L. STROUPE, JR., Esq.
Hunton and Williams,
Raleigh, North Carolina

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On behalf of the State of New York:

ADRIAN JOHNSON, Esq.,
Assistant Attorney General,
New York State Department of Law,
2 World Trade Center
New York, New York

On behalf of Suffolk County:

ALAN DYNNER, Esq. and DOUGLAS SCHEIDT, Esq.,
Kirkpatrick and Lockhart,
Washington, D. C.

On behalf of the Commission Staff:

EDWIN REIS, Esq. and RICHARD GODDARD, Esq.
Nuclear Regulatory Commission,
Washington, D. C.

C O N T E N T S

	<u>Direct</u>	<u>Cross</u>	<u>Board</u>	<u>Redirect</u>	<u>Recross</u>
1					
2	<u>Witnesses:</u>				
3	M. Wayne Hodges)			
	Joseph J. Buzy)			
4	James W. Clifford)			
	Richard J. Eckenrode)				
5	John L. Knox)			
	Carl H. Berlinger)			
6	(Continued)				
7	By Mr. Ellis		28,272		
	By Mr. Dynner		28,316		
8	By Judge Morris			28,367	
9	By Judge Ferguson			28,369	
	By Judge Brenner			28,371	
10	By Mr. Reis			28,377	
11	By Mr. Ellis				28,384
12					
13					
14	<u>Exhibits:</u>				
	(None)				
15					
16					
17					
18	Afternoon Recess:		28,313		
19					
20					
21					
22					
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AGB/EB1

P R O C E E D I N G S

1
2 JUDGE BRENNER: Good afternoon.

3 Let's get the appearances of the parties, starting
4 with the Staff on the Board's left.

5 MR. REIS: I am Edwin Reis, Counsel for the NRC
6 Staff.

7 With me is Richard Goddard, and sitting at counsel
8 table is Ralph Caruso, the project manager.

9 MR. ELLIS: My name is Tim Ellis, of Hunton and
10 Williams. We are here on behalf of the Long Island Lighting
11 Company.

12 With me at counsel table is Odes Stroupe of my
13 firm, and also George Dawe of the Stone and Webster
14 Corporation.

15 JUDGE BRENNER: The County.

16 MR. DYNNER: I am Alan Dynner of Kirkpatrick and
17 Lockhart, Counsel for Suffolk County, New York.

18 With me is Douglas Scheidt of my office.

19 JUDGE BRENNER: Nobody is here from New York State?

20 (No response.)

21 JUDGE BRENNER: When we recessed the week before
22 last, LILCO was going to continue its cross-examination
23 of Staff witnesses who were presently on the stand--

24 Mr. Johnson, you are late. Do you want to give
25 your appearance now?

1 MR. JOHNSON: Adrian Johnson, co-counsel with
2 Fabian Palomino, representing the government.

3 JUDGE BRENNER: New York State is the party.

4 Whereupon,

5 M. WAYNE HODGES,

6 JOSEPH J. BUZY,

7 JAMES W. CLIFFORD,

8 RICHARD J. ECKENRODE,

9 JOHN L. KNOX,

10 and

11 CARL H. BERLINGER

12 resumed the stand and, having been previously duly sworn,
13 were examined and testified further as follows:

14 JUDGE BRENNER: We were in the middle, as I said,
15 or not the middle but at some point in LILCO's
16 cross-examination of these witnesses. There are some potential
17 preliminary matters but unless absolutely essential, I would
18 like to limit the preliminary matters only to those that
19 might affect completing the testimony of these witnesses.

20 MR. REIS: Mr. Chairman, in that connection I
21 think on your encouragement, the Board's encouragement, events
22 have transpired since they last appeared on the stand,
23 essentially discussions with LILCO, and I think it would be
24 best if Mr. Clifford, who took first-hand part in those
25 discussions which we invited the County to attend -- the

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County was invited to attend but, as I understand, did not send a representative, if Mr. Clifford could describe what went on at those meetings. I think that would give a preface for the rest of the testimony this afternoon.

JUDGE BRENNER: No, I don't want to take testimony at this point. Let's find out from Counsel whether anything has changed with respect to the positions of the parties.

MR. REIS: That is exactly what I want Mr. Clifford to address. I can tell you that they met together, that the technical representatives from LILCO and the Staff met together. There were not attorneys present. They tried to see the basis on which LILCO wrote its procedures and what it would do to verify its procedures and what had to be done.

In discussions together they reached certain conclusions as to the validity of the present procedures and what had to be done in the future to improve them to the satisfaction of the Staff, and I wanted Mr. Clifford to address that.

JUDGE BRENNER: Yes, but my concern is I do not want to take oral direct testimony the parties are now hearing for the first time. We had a recess which could have been used for many purposes such as an agreement among the parties, the filing from Counsel telling us what the position of the parties is, an oral description from you as Counsel as to what the situation is, or we can proceed with

AGB/eb4

1 the questions.

2 But I don't know. Counsel, what do you think?

3 MR. DYNNER: I want to register an objection to
4 this, Judge. I left this hearing on February 21st with a
5 statement at that time that our consultant on procedures had
6 gone back to California and that I would try to reach him to
7 see about these pending meetings, and I made the statement
8 on the record at that time that notwithstanding his inability
9 -- presumed inability to attend any meetings between LILCO
10 and the Staff that those meetings could go forward without
11 the County's objecting to them so long as it was hoped that
12 we would receive a report as to what had happened during
13 those meetings.

14 And I used the word, I didn't want to be
15 blind-sided, and I think that the Board understood that and
16 responded in like kind.

17 This is the first that I have heard anything that
18 would even suggest that it is a report of what happened at
19 the meeting which, infortunately we couldn't get our Counsel
20 in to attend last week. So I certainly would like to have
21 the privilege of receiving a complete report about what went
22 on during those meetings before testimony is going to be
23 proffered.

24 JUDGE BRENNER: I understand your point.

25 Mr. Ellis.

AGB/eb5

1 MR. ELLIS: Judge Brenner, the County was advised
2 of these meetings in plenty of time. The meetings took place
3 on Wednesday, Thursday and Friday. Counsel, as Mr. Reis
4 said, were not present. This was strictly a meeting of the
5 experts and I think in terms of time to--

6 I don't know what views -- and I am prepared to
7 explore that by way of questions this afternoon -- what views
8 have changed, but I did report to Mr. Dynner that the job
9 task analysis was being--

10 JUDGE BRENNER: All right. Let's not get into too
11 much detail.

12 MR. ELLIS: Okay.

13 I also want to say that I Federal Expressed to
14 Mr. Dynner, which he should have received Saturday, I
15 Federal Expressed to him the job task analysis; I Federal
16 Expressed to him the revised lesson plan; I Federal Expressed
17 to him the job analysis; and I Federal Expressed to him a
18 schedule having to do with operator training.

19 JUDGE BRENNER: How do you want to proceed? Do
20 you want to continue questioning these witnesses?

21 MR. ELLIS: I am amenable either to proceed by
22 questioning the witnesses, or to have the statement. The
23 statement is going to lead to I'm sure follow-up questions
24 by me and Mr. Dynner, but I am prepared to proceed in another
25 fashion if the Board wishes.

1 I do think that there was information developed in
2 the course of the three days that I am sure the witnesses will
3 want to talk about.

4 I also share the Board's view, by the way, that we
5 are prepared to put other preliminary matters aside to finish
6 this panel, and also to proceed as quickly as possible to
7 Dr. Pischinger and the crankshaft panel before we take up
8 other matters that were raised in the past week.

9 JUDGE BRENNER: I think we are going to have to
10 discuss some things before further witnesses take the stand
11 after these witnesses.

12 (The Board conferring.)

13 JUDGE BRENNER: Mr. Reis, your proposal is
14 inappropriate at best, and it is particularly inappropriate
15 since we emphasized when last we were in session that the
16 parties were to be fully cognizant of what would occur. And
17 for the Staff and LILCO to have meetings among the technical
18 experts without Counsel and then to wait until we begin the
19 session on the record this afternoon to propose that Counsel
20 will hear a report for the first time of what those
21 discussions were, particularly since they may have resulted
22 in some effect on the witnesses' testimony, is just not
23 appropriate.

24 It is a total surprise, and I believe you would
25 feel the same way if you were in the shoes of the County

AGB/eb7

1 right now. I don't understand for the life of me why
2 discussions among Counsel over the telephone or any other
3 means of modern communication did not take place prior to
4 1:30 this afternoon.

5 Can you explain that to me?

6 MR. REIS: Perhaps the discussions could have taken
7 place yesterday afternoon, but that would have been the
8 first time they could have.

9 JUDGE BRENNER: But we emphasized the need for
10 prior communications, a need that should have been obvious.
11 Nevertheless we emphasized it.

12 All right. We are not going to hear testimony for
13 the first time in the course of a statement from the
14 witnesses. I don't know why Counsel can't be prepared.

15 Has the Staff's position changed, the litigative
16 position of the Staff?

17 MR. REIS: Yes, it has.

18 JUDGE BRENNER: Why can't you tell us what that
19 position is?

20 MR. REIS: Okay. The position of the Staff now
21 is that they can work with LILCO. A basis has been found
22 to work with LILCO to get procedures that the Staff can
23 analyze. There has been no settlement on procedures yet. We
24 understand a little further the basis on which LILCO drafted
25 their procedures. We still have to know more about it.

AGB/eb8

1 We still require and want a training program, and
2 to be able to -- as we indicated in the past, to be able to
3 evaluate the training program on the operators of LILCO.

4 JUDGE BRENNER: I take it from your statement that
5 it is still the Staff's position that on the information of
6 record at this time plus the information you would expect
7 your witnesses to continue to give in further examination
8 here would not supply the requisite reasonable assurance that
9 LILCO has carried its burden of proof on the contention.

10 MR. REIS: That is absolutely right, your Honor.

11 JUDGE BRENNER: All right.

12 So the bottom line has not changed. Your--

13 MR. REIS: The bottom line has not changed. We have
14 more information now.

15 JUDGE BRENNER: All right.

16 And you think there could be a potential for change
17 in the future but not on the present record.

18 MR. REIS: That's right, and not at the present time.

19 JUDGE BRENNER: All right.

20 MR. ELLIS: Judge Bienner, that is not my
21 understanding, but I will raise that--

22 JUDGE BRENNER: You will have to discuss it with
23 the other parties--

24 MR. ELLIS: I am also going to ask questions.

25 JUDGE BRENNER: All right. But your questions are

1 going to be to elicit facts from the witnesses, not litigative
2 positions.

3 MR. ELLIS: Yes, sir, but opinions as well.

4 JUDGE BRENNER: All right.

5 Do you have an approximate time estimate?

6 MR. ELLIS: Yes, sir. When I closed last time I
7 think I indicated to the Board that I had, simply because
8 I was switching to the procedures-- Because I wanted to
9 hurry up and finish some things did not mean I was completed
10 with loads. I think I can be done with the questions that I
11 had in two hours.

12 JUDGE BRENNER: All right.

13 I have one preliminary matter that might affect
14 this testimony. In any event it affects testimony we have
15 already had on this subject.

16 We received, in the ordinary course of business,
17 a copy of a letter from Mr. Leonard of LILCO to Mr. Denton
18 of the NRC Staff. It is dated February 8th, 1985, and it is
19 designated SNRC 1144. It purports to revise--

20 "The purpose of this letter is to revise
21 previously transmitted TDI emergency diesel load
22 information."

23 It then purports to revise the LOOP loads as shown
24 in SNRC 1104.

25 The Board doesn't understand the changes in light

1 of our knowledge of 1104 and in light of our knowledge of the
2 changes that were made in evidence before us by LILCO
3 witnesses, particularly at approximately page 33 of the
4 testimony of Dawe et al., and in fact similar changes in the
5 upcoming testimony of Dr. Pischinger et al. at page 13.

6 MR. ELLIS: Judge Brenner, those loads that are
7 listed in Mr. Leonard's letter are the loads that are stated
8 in the errata to our testimony and have been testified to.
9 And I think there was explicit testimony about those loads
10 by LILCO's panel.

11 JUDGE BRENNER: I'm sorry, my point was that the
12 changes that were made to the testimony are different. I
13 understand the loads were changed. That is the confusion.
14 The numbers are different.

15 MR. ELLIS: Let me check on that. I think there
16 may be an error.

17 JUDGE BRENNER: You don't have the answer at this
18 point.

19 MR. ELLIS: Well,--

20 JUDGE BRENNER: Just Yes or No.

21 MR. ELLIS: No, sir, I don't have the answer, but
22 I can tell you that the loads in the errata were the final
23 loads and the SNRC letter was sent to reflect those loads.

24 JUDGE BRENNER: I have an inconsistency, and you
25 will have to check it out and let me know.

1 MR. ELLIS: I will check it out.

2 JUDGE BRENNER: If you need a copy of 1144 I have
3 one.

4 MR. ELLIS: We have it, your Honor.

5 JUDGE BRENNER: All right. If you can get back to
6 us after the break we would appreciate it.

7 Why don't you proceed with your examination at this
8 point, Mr. Ellis?

9 MR. ELLIS: Yes, sir. We will take it up at the
10 break. I think there is something amiss with the 1144
11 because 1144 was intended to reflect the errata rather than
12 other loads.

13 JUDGE BRENNER: I may be in error as to something
14 also so I am only making the inquiry at this point.

15 MR. ELLIS: Judge Brenner, it didn't include the
16 assumed operator error which, if you add it on there, you
17 will then get the figures in the errata. In other words if
18 you were to add to 2743.8 kw the 998 for one core spray, you
19 will arrive at the --

20 JUDGE BRENNER: Let me suggest this. Let's take
21 the break and then give it to me all at once because it is
22 singularly unclear from the face of SNRC 1144 what numbers
23 in SNRC 1104 it is purporting to change, and none of that is
24 in evidence before us.

25 My concern is that some of the numbers that are

1 in evidence before us appear to be different.

2 MR. ELLIS: Yes, sir, we'll deal with it. But I
3 think that is going to be the answer.

4 JUDGE BRENNER: Then 1144 is not written very well
5 because there are certain columns of numbers in 1104 and
6 the numbers that 1144 are giving do not match that column.

7 MR. ELLIS: I agree with you on that.

8 JUDGE BRENNER: All right. Get back to us after the
9 break.

10 MR. ELLIS: Yes, sir.

11 CROSS-EXAMINATION (Continued)

12 BY MR. ELLIS:

13 Q Good afternoon, gentlemen.

14 Let me begin with you, Dr. Berlinger, if I may.

15 Dr. Berlinger, on transcript pages 28,155 and 6
16 you indicated that you had asked LILCO whether LILCO felt
17 the IET information should be used for purposes of defining
18 the MESLs, and that LILCO recommended that it not be used
19 for defining the MESLs.

20 It is true, isn't it, that LILCO's position as
21 you understood it was not that the IET was not a reasonable
22 estimate of the diesel generator emergency loading following
23 a LOOP/LOCA but that it would be better practice to calculate
24 the MESLs from the tables based on measured nameplate values.
25 Is that correct?

AGB/eb13

1 A (Witness Berlinger) Yes, but I would like to explain.

2 Q Go ahead.

3 A (Witness Berlinger) Thank you.

4 The integrated electrical test results, as I
5 mentioned previously, were not an accurate modeling of true
6 plant response to an accident and therefore, they would not
7 be a good choice to estimate values for the MESL but would
8 give you a better estimates of the loads that the plant would
9 have to support, the diesels would have to support in response
10 to an accident than the MESL would be.

11 The MESL was a conservative calculation.

12 Q Thank you.

13 So in your deposition I believe you testified that
14 the IET, while not an exact simulation of the LOOP/LOCA,
15 nevertheless gave you some confidence that the MESLs were
16 conservative. Is that still your testimony?

17 A (Witness Berlinger) Yes, that's correct.

18 Q Dr. Berlinger, at transcript 27,884 --

19 A (Witness Berlinger) Yes, sir?

20 Q -- and following, you indicated that the results
21 of the Staff's review were that you did not have to rely on
22 procedures to determine a positive conclusion with regard to
23 whether or not the diesel generators meet GDC-17. That is
24 correct, isn't it?

25 A (Witness Berlinger) What line are you referring

AGB/eb14

1 to?

2 Q I wan't referring to a specific line, but I will
3 refer you to one if you wish.

4 A (Witness Berlinger) Please, if you could, because
5 I would like to understand the background to this question
6 rfm the transcript.

7 Q Yes. It starts at 27,884, and the particular line
8 I was paraphrasing, Dr. Berliner, is at 27,885, lines 1
9 through 4, and also lines 22 through 24.

10 A (Witness Berlinger) The line references, I would
11 like to explain both of them, or give you my interpretation.

12 MR. DYNNER: Can we have the question either reread
13 or repeated? I have lost track of what the question is.

14 MR. ELLIS: I will reask the question.

15 JUDGE BRENNER: Off the record.

16 (Discussion off the record.)

17 JUDGE BRENNER: Back on the record.

18 Mr. Ellis, ask a particular question.

19 BY MR. ELLIS:

20 Q Dr. Berlinger, I simply wanted to confirm before
21 I asked my question that it is the Staff's position that you
22 do not have to rely on the procedures to determine a positive
23 c onclusion with regard to whether or not the diesel generators
24 meet the GDC-17. That is correct, isn't it?

25 A (Witness Berlinger) I would answer your direct

1 question with a NV, but with an explanation.

2 GDC-17 does not, in our interpretation does not
3 require that we rely on procedures. It is our judgment in
4 interpreting GDC-17 that it is a design criterion and
5 therefore, we would evaluate the design independent of the
6 existence or the non-existence of procedures, and on that
7 basis we would then make a judgment with regard to the
8 adequacy of design.

9 And in fact as we did the design review, we would
10 assume that procedures, normal plant procedures, would be
11 properly written and not impact on the adequacy or the
12 functional -- the ability of the diesel to meet their
13 functional requirements.

14 Q So, Dr. Berlinger, the Staff conclusion stated on
15 page 12 of the December 18th SER that:

16 "The TDI diesel generators at Shoreham
17 will provide a reliable source of standby power
18 in accordance with GDC-17...."

19 that conclusion is independent of the procedures, isn't it?

20 A (Witness Berlinger) That's correct. It is
21 dependent on our evaluation of the design.

22 Q That conclusion then is based, is it not, on the
23 fact that the Staff has concluded that the qualified load
24 bounds the MESLs and, additionally, the diesel generators
25 are capable of withstanding excursions above the qualified

1 load as explained in the December 3rd SER and testified to by
2 the Staff's consultants?

3 MR. DYNNER: Objection. The question is vague and
4 incomprehensible.

5 JUDGE BRENNER: I understood the question. I'm
6 not sure we've got the right kind of witnesses here. This
7 gets to the problem we discussed last time.

8 Are you asking for an opinion that includes the
9 analyses of the operation of the crankshaft and the effect
10 on the blocks, loads above 3300 for short periods of time?

11 MR. ELLIS: Only as to the conclusion, in other
12 words, what the Staff relies upon, not as to the bases for
13 the conclusion, in other words, the analyses that go into
14 the decision that the diesel generators are reliable and
15 adequate at loads above 3300. So it is perfectly appropriate
16 to ask this witness, who is in charge of the entire effort,
17 that fact, that is, ask him what the Staff's conclusion is
18 based upon, not--

19 JUDGE BRENNER: Let me stop you there. Ask it when
20 the next panel is on because it can't be probed.

21 This witness, as we know, is up there without any
22 testimony, he'll be up there the next time without any
23 testimony, but at least you will have a panel there who can
24 supply the basis for that conclusion -- for that aspect of
25 the conclusion which you are now inquiring into.

AGBbrb 1

BY MR. ELLIS:

Q Dr. Berlinger, let me see if I can clear something up as well. Look, if you would, please, at 27,949; and I'll ask you to be looking forward to 27,952, as well.

On 27,949, Dr. Berlinger, you were asked by Mr. Dynner, I think, whether the capacity and capability of EDGs up until this particular case had been determined by having a diesel rated high enough so that its maximum short-term overload rating envelopes not only its highest demand but also the worst single-case operator failure.

And then there was some discussion by counsel and the Board and, ultimately, on 27,952 you said, "Yes," followed promptly thereon by an answer in response to Judge Morris that you were not sure whether or not in the past worst-operator error was required to be assumed in establishing short-term rating.

Do you see all that?

A (Witness Berlinger) Yes, I see it.

Q And what I'm asking you now is that, in light of Judge Morris' question and your answer to that, wouldn't it be fair to say that the capacity and capability of EDGs up and to this particular case hasn't been determined by adding worst-case operator failure in order to determine a short-term rating?

A (Witness Berlinger) Yes. That's correct.

MR. DYNNER: I object, because the question

AGBbrb 2

1 the witness was asked and the answer to the question -- that
2 could be answered --

3 JUDGE BRENNER: Mr. Dynner, I'm having trouble
4 hearing you. I don't know whether it's you or the speaker
5 system.

6 MR. DYNNER: Yeah. It's on. I'll try again.

7 I'm objecting because the question that was proffered
8 and the answer that was given is testimony which could be
9 answered, at least in part, by reference to evidence that was
10 excluded by the Board, namely, the loads and margins at other
11 BWR plants that have been licensed. And what we're getting is
12 testimony which is conclusionary without the ability, because
13 of the exclusion of that evidence of other plants which would
14 allow us to probe, and for the Board to have available to it,
15 the basis for any such testimony. In other words --

16 JUDGE BRENNER: I understand the objection, Mr.
17 Dynner.

18 MR. DYNNER: Thank you.

19 (The Board conferring.)

20 JUDGE BRENNER: We're going to overrule the objection.

21 We attempted to draw a balancing between an inquiry that would
22 be too collateral to be productive, yet nevertheless allow the
23 County to develop some of the information it wished to develop.
24 And we gave the County that flexibility and leeway, and what
25 Mr. Ellis has just inquired into is the very same subject that

AGBbrb 3

1 we allowed the County to ask questions on; and, in fact, the
2 Board asked questions on it also.

3 Now, there is other evidence, to be sure, that we
4 have to match up the present answer with, and we're capable of
5 doing that, just as the parties are capable of putting that
6 other evidence together in the proposed findings, Mr. Ellis.

7 BY MR. ELLIS:

8 Q Dr. Berlinger, on a general point, let me ask you
9 that it's true, isn't it, that GDC-17 does not require that the
10 capacity and capability of diesel generators be established so
11 as to envelope the worst-case single operator failure within
12 the rating of the diesel?

13 A (Witness Berlinger) GDC-17 only specifies that the
14 design of the engine must satisfy a single failure criterion.
15 Assumed amongst all of the single failures that would be in the
16 universe of single failures would be operator error, as well as
17 component malfunction. And, therefore, it does not specifically
18 require us to assume the worst-case single operator error. But
19 operator error is, in itself -- or cognitive error is, in
20 itself, included in the universe of the limiting single failure.

21 I think that Dr. Hodges might have something to add.

22 A (Witness Hodges) Yes. I think it's stated in my
23 prefiled testimony -- maybe not as clearly as it could have
24 been -- but the single failure criteria really only looks at
25 component failure. But because you do consider numerous

AGBbrb 4

1 component failures you could implicitly assume that some of
2 those were due to operator errors. But there is no explicit
3 consideration of operator error in the single failure criteria.

4 A. (Witness Berlinger) Yes. I do agree with his
5 statement. It's much clearer than mine.

6 Q. The net result, then, Dr. Berlinger, is that operator
7 errors are not required by GDC-17 to be included within the
8 readings of the engine. Is that correct?

9 A. (Witness Berlinger) Could you repeat that question?
10 I'm sorry.

11 Q. Dr. Berlinger, do you recall where, I believe, you
12 had testified that design loads in the IEEE 387 did not include,
13 were not intended to include operator error, worst-case single
14 operator error? Do you recall that?

15 A. (Witness Berlinger) Yes. That's correct.

16 Q. And the ratings must encompass the design loads; is
17 that correct?

18 A. (Witness Berlinger) Yes. That is correct.

19 Q. But the ratings, then, do not have to encompass, do
20 they, in addition to the design load, the single worst-case
21 operator error?

22 A. (Witness Berlinger) I'm sorry, Mr. Ellis. I missed
23 the beginning of your question.

24 Q. Given your testimony that the engine ratings have to
25 accommodate the design loads and the design loads do not include

AGBbrb 5

1 the single worst-case operator error, it's true, isn't it, that
2 the ratings do not have to accommodate the design loads plus
3 the single operator error?

4 A (Witness Berlinger) That is correct.

5 Q Thank you.

6 Dr. Berlinger, last week there was, I believe, some
7 uncertainty on your part as to whether the LOOP or the
8 LOOP/LOCA resulted in higher loading conditions for the diesel
9 generators. Have you been able to clarify that it is LOOP/LOCA
10 that is the limiting or the most severe case for Shoreham?

11 A (Witness Berlinger) Yes. I'd like to apologize for
12 the confusion that I had last week, or the week before last.

13 The limiting event is the LOOP/LOCA event. The
14 confusion arose because the LOOP event becomes a limiting
15 event if you consider it an additional single operator error
16 adding a load on, a single load.

17 Q And, therefore, for determining compliance with
18 GDC-17, and establishing a qualified load, it's the MESL during
19 a LOOP/LOCA which is to be accommodated; isn't that correct,
20 Dr. Berlinger?

21 A (Witness Berlinger) Yes. That is correct.

22 But, Mr. Ellis, as you may recall from my previous
23 testimony, if cyclic and intermittent loads would, for short
24 periods of time, raise the load above the qualified load level,
25 we would evaluate, as we have in this particular case, whether

AGBbrb 6 1 or not the engines can provide reliable service in response to
2 the cyclical and intermittent loads that may exceed 3300
3 kilowatts as the qualified load.

4 Q Dr. Berlinger, given your testimony that you
5 consider the MESLs to be conservative, putting to one side the
6 category of load due to the wide open fuel rack and focussing
7 only on the intermittent and cyclic loads that were identified
8 in the testimony of LILCO: am I correct that it is your view
9 that the qualified load, given the conservatisms in the MESLs,
10 would adequately envelope the loads that the diesel generators
11 will likely see on a LOOP/LOCA signal?

12 A (Witness Berlinger) My engineering judgment would
13 be that you are correct that the qualified load would envelope
14 the anticipated or expected loads in response to an accident;
15 but I can't quantify at this point the amount of margin that
16 may exist between the MESLs presented in your FSAR and the
17 actual load that the diesel would have to carry in response to
18 an actual accident. But my engineering judgment, just to repeat,
19 would be that there is margin and that the qualified load would
20 bound the expected load.

21 Q The expected load on a LOOP/LOCA?

22 A (Witness Berlinger) On a LOOP/LOCA, yes.

23 Q I asked you a moment ago about the most severe
24 limiting case, and you indicated it was the LOOP/LOCA. Just to
25 pursue that a minute, there was also some testimony about a

AGBbrb 7

1 number of LOOPS that might be involved in an assessment under
2 GDC.

3 It's true, isn't it, that it is appropriate, in
4 assessing the adequacy of the engines under GDC-17, to consider
5 whether the engines have the capacity and capability to furnish
6 emergency power throughout one complete LOOP/LOCA, after which
7 the engines are reinspected and must be found acceptable before
8 the tech specs, the operability requirements of tech specs could
9 be met?

10 MR. DYNNER: Objection. Asked and answered.

11 JUDGE BRENNER: I had a different problem. I had
12 difficulty following the question. Could you repeat it; or we
13 could have it reread.

14 MR. ELLIS: Yes, sir. Maybe it can be reread.

15 JUDGE BRENNER: We will rule on the objection after
16 it's reread.

17 (Whereupon, the Reporter read from the record,
18 as requested.)

19 JUDGE BRENNER: Are you sure you don't want to
20 rephrase it?

21 MR. ELLIS: You talked me into it. I'll rephrase
22 the question.

23 BY MR. ELLIS:

24 Q Dr. Berlinger, there was some testimony last week
25 about the number of LOOPS or LOOP/LOCAs that are involved in an

AGBbrb 8

1 assessment under GDC-17. It is true, isn't it, that in
2 determining whether the diesel engines meet the GDC-17
3 standard it is appropriate to consider whether the engines have
4 the capacity and capability to furnish power throughout one
5 complete LOOP/LOCA, after which the engines have to be
6 reinspected and found acceptable in order to meet the operability
7 requirements of the tech specs?

8 JUDGE BRENNER: The subject was certainly asked
9 about a lot by Mr. Dynner, and I thought that question was
10 asked. Are you going to ask follow-up questions after the
11 answer you expect from him?

12 MR. ELLIS: I reread the record last week, and I
13 don't believe that specific question was asked. And I believe
14 there is some confusion about the number.

15 JUDGE BRENNER: I will allow you to ask it, in the
16 event that you are correct.

17 WITNESS BERLINGER: Our evaluation of the diesel
18 engines, in accordance with GDC-17, does not consider whether
19 there will be one LOOP/LOCA or one hundred LOOP/LOCAs. To
20 clarify some of the discussion from the week before last, the
21 power plant itself, for metallurgical reasons -- or call it low
22 cycle fatigue concerns -- is designed to handle a certain number
23 of thermal transients or plant transients or accidents. So
24 the overall plant design considers, whether there be a specific
25 number of events, whatever they may be -- in fact, the diesel

AGBbrb 9

1 engine review does not consider whether or not the diesel would
2 be capable for one or an infinite number of LOOP/LOCAS. I don't
3 know of any specific procedures or tech spec requirements that
4 exist in a plant today that I'm familiar with -- and that isn't
5 an infinite number of plants -- but I'm not familiar with tech
6 specs that would instruct the plant to reinspect and requalify
7 the engines after a LOOP/LOCA.

8 I think what I said the week before last was that
9 we would assume that maintenance and surveillance programs
10 would be incorporated at the plant, which would assure that in
11 the future the engines would be maintained in order to respond
12 to a LOOP/LOCA or any other event, a LOOP event, if there were
13 repeated LOOP events. But, in fact, at this point I can't say
14 that the tech specs would require an inspection, and I would
15 not require or I would not expect any interpretation of GDC-17
16 to require any specific number of LOOP/LOCA events or LOOP
17 events.

18 BY MR. ELLIS:

19 Q Let me turn now to Mr. Clifford, Mr. Clifford,
20 Mr. Buzy and Mr. Eckenrode, if I may.

21 Now, Mr. Clifford, as I understand it, you and
22 Mr. Buzy spent three days enjoying the climate and cultural
23 activities on Long Island last week.

24 A (Witness Clifford) I would say two and a half
25 days, yes.

AGBbrb 10

1 MR. DYNNER: Objection. The question is irrelevant.

2 JUDGE BRENNER: Sustained. I just want questions
3 going to facts. And, as long as we have had this interruption,
4 I will generalize: you finished the line of questions you
5 asked Dr. Berlinger, so maybe it's too late, but in the event
6 it might help all parties now for the future, I have the same
7 problem with those types of questions as I had with a lot of
8 Mr. Dynner's cross-examination a few weeks ago. They're broad
9 questions which stimulate broad, abstract answers. And what
10 I'd like to do, certainly, at this point in this contention
11 after we've had a lot of testimony both in writing and orally
12 already. is get very specific questions aimed at getting facts
13 and particular expert judgments out of these witnesses.

14 MR. ELLIS: This was just a foundation, Judge. We
15 have very few moments of levity, and I will apologize for that.
16 So I'll get specific.

17 JUDGE BRENNER: My question wasn't to that so much as
18 the others.

19 MR. ELLIS: Yes, sir. And I have one or two more
20 foundation questions.

21 JUDGE BRENNER: Besides, maybe I have protected you
22 from the Chamber of Commerce by interrupting you when I did.

23 MR. ELLIS: Yes, sir.

24 BY MR. ELLIS:

25 Q During your two and a half days at Shoreham, did the

AGBbrb 11

1 Staff and LILCO develop a better understanding of the Staff
2 concerns and of LILCO's responses?

3 MR. DYNNER: Objection. The question is vague and
4 imprecise and its response will be meaningless; and it's
5 inefficient.

6 JUDGE BRENNER: Why don't you go to your next
7 question?

8 MR. ELLIS: All right, sir.

9 BY MR. ELLIS:

10 Q On the basis of your two and a half days at Shoreham,
11 Mr. Clifford, were a number of specific concerns on the
12 procedures addressed and resolved by a desktop review based on
13 knowledge and experience of those --

14 MR. DYNNER: Same objection. He's talking about
15 a number of procedures. I don't know what he's talking about and
16 I don't think the Board will.

17 MR. ELLIS: Judge Brenner, that is a question I
18 think is perfectly appropriate as a foundation question, and
19 we're going to go on.

20 JUDGE BRENNER: All right. I will allow it as a
21 foundation. But you are going to have to go on, as you've
22 recognized yourself.

23 You can answer that question.

24 WITNESS CLIFFORD: During our two and a half days,
25 we went through the request for additional information that was

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1 forwarded to LILCO in the February 5th, 1985 letter, and there
2 were a number of discussions regarding both the specific
3 comments and general comments, and discussions regarding the
4 basis for the Staff's concern, the basis for LILCO's original
5 intent in generating the procedures -- generating the
6 procedures is probably not precise -- in modifying the
7 procedures to address the diesel generator issue.

8 BY MR. ELLIS:

9 Q Am I correct that a number of specific concerns
10 were addressed and resolved, and some remain to be resolved?
11 Is that correct?

12 A (Witness Clifford) That's correct.
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1 Q With respect to the specific concerns that were
2 addressed and resolved, can you give us some examples of those
3 that were addressed and resolved? And then I will come later
4 to those that remain to be resolved.

5 A (Witness Clifford) As a general category, or a
6 general statement of things that were discussed and resolved,
7 we went through and identified, based on our desk top
8 review, those items identified in the RAI, Request for
9 Additional Information. Those were based on our knowledge of
10 human factors, concerns about the writing of procedures, our
11 understanding of the operations of the plant and our review
12 of the technical bases for the plant; a number of specific
13 categories of questions dealing with the clarity and accuracy
14 of operator actions, or the action steps themselves; the
15 manageability of the procedures, which we've discussed before;
16 place-keeping and load-tracking schemes; the use of cautions,
17 note and action steps, and consistency within and between
18 various procedures in addressing action steps, cautions and
19 notes.

20 Those are some of the more specific areas that were
21 covered.

22 Q What do you mean by "desk top review?"

23 A (Witness Clifford) It's a review where you sit down
24 and look at the procedures and evaluate the course of action
25 the procedures dictate by what the steps in the procedures call

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1 for.

2 Q During the two-and-a-half day period did LILCO
3 present to you, to the Staff, an acceptable basis for resolving
4 any remaining aspects of the procedures and training with
5 which the Staff may have concerns?

6 A (Witness Clifford) During the discussions LILCO
7 presented a program for conducting a task analysis, which has
8 also been discussed here many times. That task analysis program
9 is being done by an outside consultant hired by LILCO to
10 identify, or do a detailed evaluation of all the tasks neces-
11 sary to operate the plant, given the emergency diesel generator
12 concern for loss of offsite power and loss of offsite power
13 loss of coolant accident conditions.

14 That task analysis will provide a basis for evaluation
15 of the adequacy of training programs, evaluating the adequacy
16 of the procedures, including the changes that were discussed
17 during our meeting, and the basis for evaluating the operators.
18 both in simulator or control room walk-throughs or plant walk-
19 throughs.

20 It is a task analysis that provides a basis for
21 evaluation.

22 Q Well, am I correct that you have had an opportunity
23 to review that task analysis and the program; is that
24 correct?

25 A (Witness Clifford) Yes, we have.

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1 Q And am I correct that the Staff finds that task
2 analysis and program outlined by LILCO to be appropriate and
3 complete to resolve the remaining concerns of the Staff?

4 A (Witness Clifford) Yes, we believe it is. It is
5 a comprehensive program, we feel, for dealing with this
6 issue, and at the completion of the task analysis and subsequent
7 evaluation of the operators, provides the information we have
8 been looking for for getting at the questions of whether the
9 operators are directed to take actions that will cause the
10 diesels to go over 3300, or if, for some unspecified reason
11 the diesels are over 3300, an evaluation as to the operator's
12 response to get the loads back below 3300.

13 Q Are you satisfied that the contractor or consultant
14 and LILCO have demonstrated their understanding and experience
15 with this methodology to be used in connection with the program?

16 A (Witness Clifford) Yes, I am.

17 Mr. Eckenrode would like to add something.

18 A (Witness Eckenrode) I reviewed the task analysis
19 proposal in detail in the last couple of days, and it is
20 extremely similar to that being conducted for the detailed
21 control room design review on many plants. We are quite
22 familiar with it. Probably 90 percent of the plan is what is
23 being done by that particular contractor on other plants. And
24 we have reviewed the results of that in several cases, and do
25 feel that if the plan is followed as stated it will be an

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1 acceptable result.

2 Q All right. Thank you.

3 Mr. Eckenrode, Mr. Clifford and Mr. Buzy, let me
4 ask you whether, based on your review of that task analysis
5 and based on the results of your two-and-a-half day conference,
6 and the results of your desk top reviews, do you believe that
7 LILCO's program, upon completion, can provide the Staff with
8 reasonable assurance that the procedures and training will not
9 lead the operators to load the EDGs over the qualified load of
10 3300?

11 (The panel conferring.)

12 A (Witness Clifford) The task analysis provides-- In
13 subsequent evaluation we include that as part of the evaluation
14 being conducted. --will provide us with the answer as to whether
15 or not the operators can in fact take the actions they're
16 expected to take.

17 The utility-- And I'm sure the record shows that
18 the utility has been confident that the operators can take the
19 necessary actions. And we generally support that general feeling.
20 But the task analysis needs to be conducted and completed to
21 show conclusively, using the objective criteria that come out
22 of the task analysis itself, whether or not the operators can
23 take the necessary actions. It's what we have been looking
24 for for getting at the questions we've been asked.

25 Q All right. Thank you.

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1 Would you agree, Mr. Clifford, then, that at this
2 time, based on the results of your review of the task analysis
3 plan, and based on the two-and-a-half day conference, that
4 there is no reason to believe that LILCO will not be able to
5 provide the Staff with reasonable assurance that the procedures
6 and training will not lead the operators to load the diesel
7 generators over the 3300?

8 A. (Witness Clifford) I think we can always try to
9 pre-judge the outcome of an evaluation. We have not tried
10 to pre-judge the outcome of the evaluation. The actions were
11 generally within the scope of actions that operators take.
12 Basically the evaluation has to be completed to come up with the
13 final answer regarding whether or not the operators can take
14 the actions as expected.

15 You have to do the evaluation to really come up with
16 the answer.

17 A. (Witness Eckenrode) That's what I was going to add,
18 Mr. Ellis. We are satisfied that the process they're using
19 to do this analysis is good. The results of the analysis we
20 have to see before we can determine whether or not your question
21 will be answered properly.

22 Q But I am correct, am I not, that you all have seen
23 nothing, and have no reason to believe that the process will
24 not lead to furnishing of reasonable assurance that the
25 operators will not load the diesel generators over 3300, or

wb6

1 could not?

2 A. (Witness Eckenrode) I have no basis.

3 MR. DYNNER: Objection. It's the same question
4 the witness just answered, I believe. Asked and answered.

5 JUDGE BRENNER: Mr. Reis.

6 MR. REIS: Before you rule, the question of whether
7 you have any basis-- You have no basis, was the question.
8 That isn't relevant to the ultimate issue here of whether the
9 procedures will do this or not.

10 So I am going to object to the question on relevance.

11 JUDGE BRENNER: I think it could be relevant, depending
12 on what we put together with the total record in terms of case
13 law governing delegation, and so on. So I will overrule the
14 relevance objection.

15 (The Board conferring.)

16 MR. ELLIS: Judge Brenner, may I address--

17 JUDGE BRENNER: Why don't you answer the asked and
18 answered objection.

19 MR. ELLIS: The question that I asked, which I don't
20 think has been answered, is whether they can say now. And
21 they say no, they have to wait until they see the results.

22 The question I'm asking is, Well, have you seen any-
23 thing to date that would preclude your being able to reach
24 the conclusion that reasonable assurance can be reached. Because
25 the answer to that, if they say yes--

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1 JUDGE BRENNER: Well, the only question is whether
2 it has been asked and answered. You don't have to argue
3 relevance.

4 MR. ELLIS: Fine.

5 JUDGE BRENNER: I'm going to allow the question.
6 It's one of the things that might have been asked, but I
7 don't think so. So we're not sure.

8 The last question was not asked, in our opinion.

9 BY MR. ELLIS:

10 Q Would you like for me to repeat the question?

11 A (Witness Clifford) Yes, if you would; certainly.

12 Q I understand that you haven't pre-judged how the
13 program, the task analysis, will come out. What I'm asking
14 you is:

15 I'm correct, am I not, that you have no reason now
16 to believe that the program will not be completed satisfactorily
17 so as to provide reasonable assurance that the diesel
18 generators will not be loaded by operators to over 3300?

19 Let me rephrase the question.

20 Have you seen anything in your review and in the
21 time that you spent at Shoreham that leads you to the conclu-
22 sion that it is impossible for the procedures and training to
23 be structured and developed so as to preclude -- so as to
24 avoid operators' loading the EDGs over 3300?

25 A (Witness Clifford) I believe, as I stated, that

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1 LILCO has great confidence that the actions can be taken to
2 maintain plant safety functions within the capacity of the
3 design of the plant, including the emergency diesels. And
4 we generally support that finding.

5 My own professional opinion is that the operators
6 can operate the plant within the design of the plant. But
7 as with any evaluation of this sort, you have to, before
8 making a final conclusion, review the results of an objective
9 evaluation.

10 Q Mr. Eckenrode, I take it you agree with that, as
11 well?

12 A (Witness Eckenrode) Yes, I agree that you have to
13 look at the results. We have no basis on which to say anything
14 beyond that.

15 Q Mr. Buzy, do you also agree with Mr. Clifford's
16 opinion?

17 A (Witness Buzy) Yes, I do. After seeing and
18 reviewing the methodology that LILCO is using, has committed
19 to us, we can see an end point, and it's pointed toward a
20 resolution of our concerns, and, I believe, this contention.

21 Q What do you mean when you say "an end point?"

22 A (Witness Buzy) That we will have a positive
23 resolution, we will be able to make a positive conclusion.

24 Q By "positive conclusion," you mean that the process
25 can lead, in your opinion, to procedures and training that will

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1 not lead to operators loading the EDGs to over 3300?

2 A. (Witness Buzy) I would say highly unlikely that
3 they would do that.

4 Q. Did you want to add something, Mr. Clifford?

5 A. (Witness Clifford) If I can.

6 The task analysis effort identifies the objective
7 criteria. If, during the evaluation of the procedures for the
8 training, there are issues that create problems, those are
9 identified for resolution.

10 As part of the task analysis process, there are
11 mechanisms for resolving problems that are identified. Even
12 though the procedures as they go into the process may not
13 accomplish what is intended, the outcome will either identify
14 those things in procedures in training or instrumentation
15 that need to be fixed, or will identify other things such as
16 design changes in the plant that may be necessary to allow
17 satisfactory operation.

18 Q. Well, Mr. Clifford, you haven't seen anything to
19 date, or have any basis now to think that there are going to
20 be any design changes required in the plant, have you?

21 A. (Witness Clifford) No, I have not. I have not
22 been looking at the design, I have been looking at the procedures
23 and the training programs.

24 Q. Mr. Buzy, did you have an opportunity to review the
25 lesson plan that was developed by LILCO for purposes of training

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1 the operators in connection with the qualified load of 3300?

2 A. (Witness Buzy) Yes, I did.

3 Q. Are you satisfied with LILCO's approach to training
4 with respect to the qualified load of 3300?

5 A. (Witness Buzy) With the exception of adding a
6 section on the background of the EDG load contention, or
7 expanding in that area, yes, I am satisfied with that.

8 Q. And you understand, don't you, that LILCO has agreed
9 to add such a section?

10 A. (Witness Buzy) That's correct.

11 Q. Are you also aware that, in fact, in training that
12 has already been conducted, the substance of that was imparted
13 to the operators?

14 A. (Witness Buzy) From what I could review of the lesson
15 plans it was sketchy, but I got the thrust of it.

16 Q. Mr. Buzy, have you had an opportunity to look at the
17 classroom exercises LILCO has planned and initiated?

18 A. (Witness Buzy) Yes. They are part of the lesson
19 plan.

20 Q. Are they properly structured, in your view?

21 A. (Witness Buzy) I would say they are extremely well
22 structured.

23 Q. How so? Can you elaborate?

24 A. (Witness Buzy) It involves a number of objectives
25 that were contained in the lesson plan, in which the operators

wb11

1 have practice in a classroom using various scenarios in
2 determining how they could manipulate loads on the diesels.
3 That's one example.

4 Another example is, given conditions where loads on
5 the diesels -- on a diesel exceeds the qualified load, to
6 identify what loads are on the diesel and what steps to take
7 to remove the load.

8 Q On page 9 of your testimony, Mr. Buzy, a question
9 is asked concerning reasonable assurance, addressing certain
10 questions.

11 The third question is whether the training program
12 adequately addresses the qualified load.

13 Am I correct that you're satisfied that the training
14 program now adequately addresses the 3300 Kw load limit
15 associated with the EDGs?

16 A (Witness Buzy) I would say yes to that question.

17 Q For the record: Mr. Clifford, is the Staff satisfied
18 with LILCO responsiveness to the Staff's concerns in the
19 area of procedures and training pertaining to the qualified
20 load?

21 A (Witness Clifford) Yes; we were extremely well
22 satisfied with the response. I think LILCO has gone way beyond
23 what they believe is necessary to satisfy the Staff concerns.

24 MR. DYNNER: Objection; he is testifying as to what
25 is in LILCO's mind, and he doesn't have any basis for that.

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JUDGE BRENNER: Well, it's sustained as to that part.

I don't know what "responsiveness" means, incidentally,
in terms of the other part.

But, go ahead.

BY MR. ELLIS:

Q. Mr. Clifford, what did you understand me to mean by
"responsiveness?"

A. (Witness Clifford) Have they tried to understand the
Staff concerns and address the Staff concerns.

End 3

AGB/ebl

1 Q Mr. Clifford, in your previous testimony I think
2 you were uncertain as to whether as to whether the
3 establishment of the qualified load of 3300 had resulted in
4 additional emergency operating procedures.

5 Are you now satisfied that the qualified load of
6 3300 itself has not resulted in any additional emergency
7 operating procedures?

8 A (Witness Clifford) There currently exist no
9 additional emergency operating procedures.

10 Q At transcript page 27,823, if you wish to refer to
11 it, you expressed concern for operations that may have to be
12 conducted outside the control room.

13 A (Witness Clifford) I have it.

14 Q All right, sir.

15 I am correct, am I not, that it was your concern
16 that loads called upon to be operated in the subsequent
17 action steps of the procedures could not be operated from
18 the main control room.

19 MR. DYNNER: Objection. Mr. Ellis is now
20 cross-examining his own cross-examination and I think that is
21 inappropriate. The answer he is talking about is an answer
22 to his own question.

23 JUDGE BRENNER: I understand. He is not the only
24 one who asked about it, however. I know I did, among others.
25 I am going to allow him to pursue it.

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WITNESS CLIFFORD: Could you repeat your question, please?

BY MR. ELLIS:

Q Yes, sir.

At the transcript page number I referred you to you expressed the concern about operations that may have to be conducted outside the control room.

I am correct, am I not, that it was your concern that loads called upon to be operated in subsequent action steps of the procedures could not be operated from the main control room? Wasn't that your concern?

A (Witness Clifford) No, I believe the concern was the manner in which the loads were controlled, the loads that had to be operated outside the control room were controlled.

Q Is it your view that the task action plan and the program that LILCO presented to you will address that concern and resolve it?

A (Witness Clifford) With the evaluation program of observing plant walk-throughs, this concern should be adequately addressed, yes.

Q Are you now--

(Counsel conferring.)

As a result of your review, are you now, however, aware and satisfied that the loads called upon to be

AGB/eb3

1 operated in the subsequent actions of the procedures can in
2 fact be operated from the main control room?

3 A (Witness Clifford) The loads specified -- and
4 we're talking about the loss of offsite power procedure and
5 the list of loads primarily related to the main turbine and
6 associated lube oil and bearing pumps -- can in fact be
7 operated from the control room is my understanding, yes.

8 Q Prior to your obtaining that understanding, I take
9 it you were concerned that these had to be operated outside
10 the control room.

11 A (Witness Clifford) That is correct. That was my
12 understanding previously.

13 Q At transcript page 27,825, which is just two pages
14 beyond, Mr. Clifford, I believe you indicated a concern
15 about the watch engineer's attention.

16 Am I correct that you were concerned because you
17 thought he was the only individual who could instruct the
18 field operator to perform tasks outside the control room for
19 additional removal of loads?

20 MR. DYNNER: Objection. Same objection; still
21 cross-examining on his own cross-examination.

22 JUDGE BRENNER: I am not sure I understand the
23 objection, Mr. Dunner. It seems to me that when you're
24 cross-examining you like to be able to follow up on your own
25 questions also. I am going to overrule that. If he had been

AGB/eb4

1 asking at the same point in time we would have allowed him to
2 follow up then.

3 Now I don't recall what round of questions that was
4 by Mr. Ellis, whether it was part of his follow-up round or
5 the first round, but even assuming that it was his first
6 round, flipping through my notes and I guess the transcript
7 pages from Tuesday, February 19th, although I'm not sure even
8 if that was his first round, there have been questions about
9 the subject and in any event he would be allowed to follow
10 up on developing information if it's changed.

11 The witnesses are still on the stand and he is
12 still questioning; although it is better to follow up on
13 questions right after you have asked them, it is not essential
14 and we have never held you, for example, to that type of
15 standard. _____

16 I am going to overrule--

17 MR. DYNNER: I have never violated that standard.

18 JUDGE BRENNER: No-- Well, I'm not saying there is
19 a standard to violate.

20 I have already ruled and we don't have to discuss
21 it further but you certainly have come back more than once
22 to lines of questions that you've terminated and come back
23 to. If that's the standard we're discussing, your statement
24 that you have never violated it is incorrect. In any event,
25 it is not a standard, one way or the other.

AGB/eb5

1 Why don't you ask the question again, now that we've
2 had this long discussion?

3 MR. ELLIS: Yes, sir.

4 BY MR. ELLIS:

5 Q At transcript page 27,825, Mr. Clifford, you
6 indicated a concern that the watch engineer's attention would
7 be diverted because he was -- would be diverted, and I'm
8 asking you whether that was because you thought he was the
9 only individual who could instruct the field operators to
10 perform tasks outside the control room for additional removal
11 of loads.

12 A (Witness Clifford) That was my understanding at the
13 time. It has been explained to me that the control of
14 equipment outside the control room, if any needs to be
15 operated, is operated at the direction of the control room
16 operator responsible for the major piece of equipment that
17 the ancillary equipment outside the control room affects;
18 that control of that process will in fact be validated during
19 the control room portion of the task analysis program that was
20 outlined.

21 JUDGE BRENNER: Mr. Clifford, I am not sure if I
22 understand your answer. Does it matter whether the action
23 being taken outside of the control room is to add load as
24 opposed to taking load off, or do you know, one way or the
25 other?

AGB/eb6

1 WITNESS CLIFFORD: The control of any load should be
2 done consistently, whether or not--

3 JUDGE BRENNER: I'm asking if you know what LILCO's
4 plan is.

5 WITNESS CLIFFORD: Plan is for what?

6 JUDGE BRENNER: You testified just in the last
7 answer as to what your understanding was that the control room
8 operator responsible for that equipment would be the one to
9 approve it. And I am not sure if you are addressing a
10 situation only of adding load or a situation only of taking
11 off load, and whether you are addressing both or whether you
12 never thought of that distinction before.

13 WITNESS CLIFFORD: My understanding is it is both
14 putting on or taking off.

15 BY MR. ELLIS:

16 Q Mr. Clifford, on page 28,217, in response I believe
17 to a question from Judge Brenner, you indicated at line 12
18 that you believe the operators will operate within the general
19 context of the procedures they have.

20 Am I correct that you do not mean to imply in any
21 of your testimony that the Staff has a concern that operators
22 at Shoreham will violate procedures?

23 A (Witness Clifford) As this states and I still
24 believe the operators will operate within the general context
25 of their procedures. As we have also discussed with

AGB/eb7

1 Judge Brenner, the operators have the option of operating
2 outside the scope of their procedures if, in their view, it
3 is necessary to protect the public health and safety.

4 Q Thank you.

5 Mr. Clifford, at transcript page 27,916 and 17, you
6 expressed the concern that cautions may be too absolute.

7 Was the formulation of caution notes an item
8 resolved during the desktop reviews that you discussed earlier
9 in your testimony today?

10 If I said "caution notes" my apologies to you, and
11 I will rephrase the question. I did that last week and you
12 properly corrected me.

13 JUDGE BRENNER: Same question except just caution.

14 MR. ELLIS: Yes, sir.

15 WITNESS CLIFFORD: I have just found the page.
16 Could you restate your question, please?

17 MR. ELLIS: Yes.

18 BY MR. ELLIS:

19 Q On that page at 27,916 and 17, you expressed a
20 concern that the cautions might be too absolute.

21 Was the formulation of cautions one of the specific
22 items discussed and resolved, the wording to be used in
23 developing cautions in your reviews and conferences at
24 Shoreham last week?

25 A (Witness Clifford) A number of the specific

AGB/eb8

1 cautions were resolved. There were a small number of cautions
2 that remain to be addressed and they are going to be addressed
3 as part of the task analysis effort.

4 Q Mr. Clifford, on page 27,920 and 21, you responded
5 to a question from Judge Brenner concerning the amount of
6 flexibility an operator might have for exceeding the
7 qualified load of 3300.

8 So that we are clear, let me ask you initially:

9 It is not your opinion, is it, that the diesel
10 generators at Shoreham should be sized to handle the total
11 connectable load?

12 A (Witness Clifford) The direct answer to your
13 question is No, they should not be sized to handle the total
14 connectable load.

15 Q You mentioned in your response at 27,921 that you
16 would consider the automatically sequenced loads, the
17 procedural loads, the equipment failures and operator errors
18 of commission and omission.

19 You didn't mean in that answer, did you, to imply
20 that you would add all of those together in order to
21 arrive at the proper rating or sizing for the diesels?

22 MR. REIS: Mr. Chairman, I object to this question
23 being asked of Mr. Clifford. He is not the one who determines
24 the rating or sizing of the diesels. Other people on the
25 panel have that responsibility.

AGB/eb9

1 JUDGE BRENNER: I am going to overrule the objection.
2 It is certainly relevant to probing Mr. Clifford's reviews
3 on what needs to be taken into account in the context of
4 possible operator error, and that is why I asked some of
5 the questions that adduced some of the answers, and presumably
6 that is partly at least why Mr. Ellis is asking them now.

7 I will overrule the objection.

8 WITNESS CLIFFORD: Could you restate your question,
9 please?

10 MR. ELLIS: Yes, sir.

11 BY MR. ELLIS:

12 Q On 27,921, as I indicated, you referred to a number
13 of loads in response to Judge Brenner. You referred to
14 automatically sequenced loads, procedural loads, equipment
15 failures, and operator errors of omission and commission.

16 I am correct, am I not, that you did not mean to
17 imply in that answer that you would add all of those up
18 together in order to arrive at the proper sizing or rating
19 for the diesel generators?

20 A (Witness Clifford) One has to consider those loads
21 in response to the various scenarios and that is why these
22 simulator exercises are so important in these types of
23 evaluations. And this isn't necessarily talking to the
24 design but to the plant and operator response, that you have
25 to consider the loads, not necessarily add them up.

1 Q I see.

2 So what you were saying there was that these were
3 aspects that should be considered in the training and
4 procedural aspects, not in the sizing of the engines?

5 A (Witness Clifford) That's correct.

6 Q Mr. Clifford, Mr. Dynner asked you a number of
7 questions concerning the normal process of review.

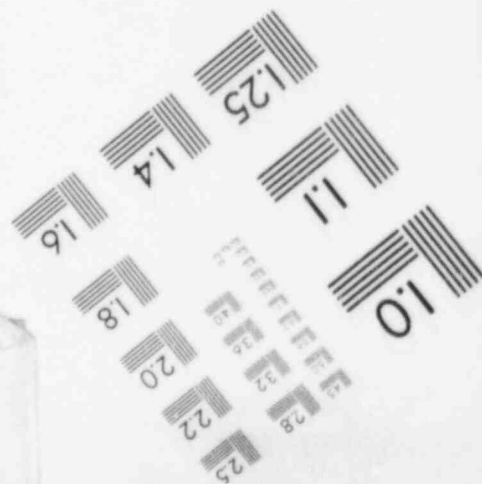
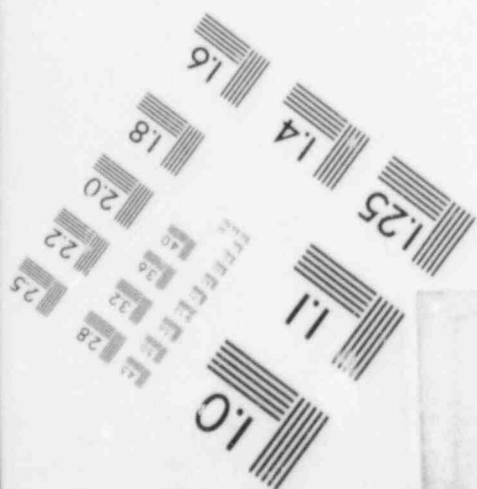
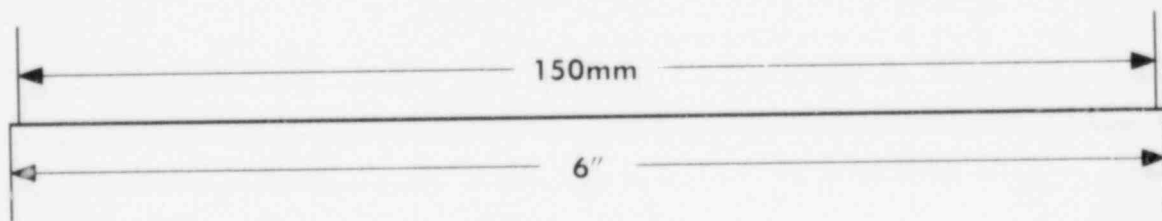
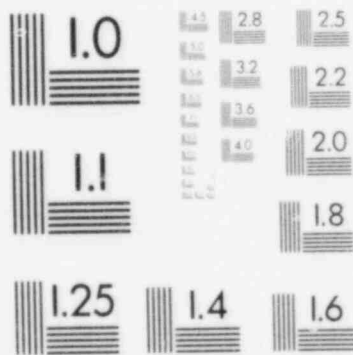
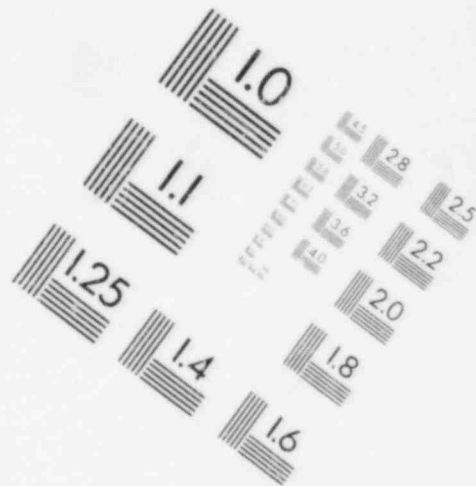
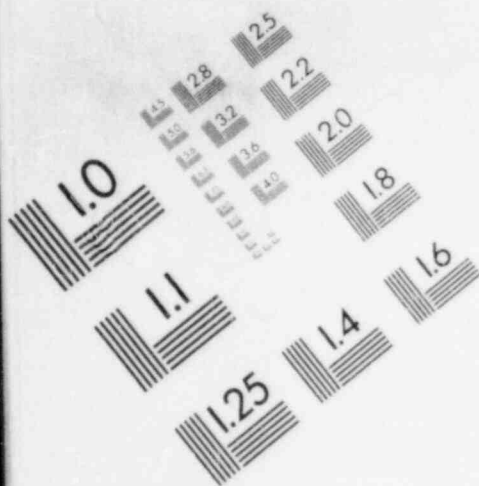
8 Am I correct that the process normally used by the
9 Staff is to review the process by which the procedures are
10 developed rather than the individual line-by-line procedures
11 themselves?

12 A (Witness Clifford) You have to talk about two
13 areas when you talk about normal Staff review.

14 When we did the initial procedure reviews after
15 Three Mile Island, we looked at individual procedures line-
16 by-line. We used that to develop a Staff program that we
17 currently use. The current Staff program is to review the
18 utility programs for developing procedures which include
19 technical bases, plans or programs for how to write
20 procedures, programs for validation, verification and
21 incorporation of training programs into the modification of
22 procedures.

23 Our current process is the latter where we review
24 programs, including task analyses, validation, and
25 verification.

IMAGE EVALUATION
TEST TARGET (MT-3)



1 Q And the latter that you just mentioned, that is the
2 normal process which will be completed as a result of your
3 conference with LILCO last week?

4 A (Witness Clifford) That's correct.

5 Q Mr. Clifford, on transcript page 28,091, in response
6 to Mr. Dynner's question, you indicated that there is a
7 distinct possibility that the operator's flexibility to
8 select equipment in the event of a LOOP/LOCA would be
9 limited by the qualified load.

10 Based on your two and a half days at Shoreham, do
11 you now think it is likely that the operator's flexibility
12 to utilize loads in accordance with these procedures is
13 restricted by the establishment of the 3300 kw load?

14 A (Witness Clifford) My current opinion is that the
15 operator's flexibility is not as restricted as I originally
16 thought, and that includes consideration of some of the
17 conservatism included in the MESL that Dr. Berlinger has
18 spoken about.

19 And once again I come to the point of the amount of
20 flexibility that exists will be proven out in the task analysis
21 and subsequent evaluation.

22 Q I take it you understand now that in defining the
23 MESL LILCO didn't remove from the operator his procedures
24 equipment intended to be used in response to a LOOP/LOCA.

25 A He did not-- The utility did not remove any

1 equipment the operator needed, no.

2 Q Mr. Buzy, on transcript page 28,097, you expressed
3 concern that improper operation of the turbine support
4 equipment might result in a hydrogen explosion at the main
5 generator.

6 Mr. Buzy, would you agree with me that you were
7 there expressing a speculative concern as opposed to one which
8 you had identified to be the result of any actions called for
9 by LILCO's procedures?

10 A (Witness Buzy) That's correct. I think the
11 answer will come out that in the task analysis you will find
12 out if there is concern or not.

13 Q In connection with that hypothetical situation,
14 it is true, isn't it, that both multiple equipment failures
15 of the hydrogen seals and the DC oil pumps along with an
16 operator error of failing to secure the hydrogen supply when
17 the turbine generator is secured would be necessary even to
18 create the potential for an explosion?

19 A (Witness Buzy) I haven't reviewed the station
20 design to go into that detail. Again I will say the task
21 analysis would.

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AGBbrb

1 (Pause.)

2 MR. ELLIS: Judge Brenner, if the Board will indulge
3 me for just a minute or two, I may be able to end sooner.

4 WITNESS CLIFFORD: Judge Brenner, Mr. Buzy needs to
5 take a very short break for a moment.

6 MR. ELLIS: That would be helpful for me, too,
7 Judge.

8 JUDGE BRENNER: I was hoping to get you to finish
9 before the break. Do you know if you have more questions, Mr.
10 Ellis?

11 MR. ELLIS: Yes, sir. But I know that they are very
12 few.

13 JUDGE BRENNER: All right. Let's take a break until
14 3:20, then.

15 (Recess.)

16 JUDGE BRENNER: Mr. Ellis?

17 MR. ELLIS: Yes, sir. Judge Brenner, may we have
18 just a few more -- not now, but we haven't responded to the
19 SNRC concern that you have. But we'll do it before the end of
20 the day today.

21 JUDGE BRENNER: Fine.

22 My concern had been that -- at first thought, I
23 thought it might affect the testimony of these witnesses. On
24 second thought, given the preliminary indication of what your
25 answer might be, it's not likely to. So we can take it later in

AGBbrb2

1 the day.

2 MR. ELLIS: Thank you.

3 JUDGE BRENNER: Do you know how much more you have,
4 Mr. Ellis?

5 MR. ELLIS: Yes, sir. Probably about five to ten
6 minutes.

7 BY MR. ELLIS:

8 Q Mr. Buzy, in an earlier question that I asked you
9 this afternoon, I believe you indicated that you thought it was
10 unlikely that the operator would make errors to overload the
11 diesels beyond 3300. My question to you, however, is: do you
12 agree that the task action plan in LILCO's program is the
13 appropriate way to demonstrate that the procedures and training
14 will not call for an operator action that would result in
15 loading the EDGs over 3300 kw?

16 A (Witness Buzy) Did you refer to a task action --

17 Q I'm sorry: task analysis. Shall I repeat my
18 question for you?

19 A (Witness Buzy) Yes, please.

20 Q I simply want to get your opinion, your answer again
21 to the question: Do you agree that the task analysis in LILCO's
22 program is the appropriate means of demonstrating that the
23 procedures and training will not call for an operator action
24 that would result in the EDG loading exceeding 3300 kw?

25 A (Witness Buzy) Yes. It is an appropriate plan.

AGBbrb3

1 Q And, Mr. Clifford, is it fair to say that in your
2 personal opinion you would regard the task analysis and programs
3 that LILCO has committed to undertake to be confirmatory with
4 respect to the three questions that are posed on page nine and
5 ten of your prefiled testimony?

6 A (Witness Clifford) Yes. My personal opinion is that
7 it would be appropriate to be a confirmatory item.

8 Q Mr. Knox, Reg. Guide 1.18 calls for testing of the
9 diesel generator units during the pre-operational test program,
10 and at least once every eighteen months, to include a demonstration
11 of proper operation for design accident loading sequence to
12 design load requirements and verify that voltage and frequency
13 are maintained within the required limits. That is a
14 description of the IET, isn't it?

15 A (Witness Knox) I didn't specifically review the
16 IETs, so I would not be able to say one way or the other.

17 Q Thank you.

18 MR. ELLIS: That's all the questions we have,
19 Judge Brenner.

20 JUDGE BRENNER: Well, I suppose -- let's just
21 remember where we are in the process, after this long break.
22 Everybody has had one round. The Board did not ask all its
23 questions the first time because of the timing. And we'd
24 now be at the point of re-redirect. The Staff already completed
25 its initial redirect. We have some more Board questions that

AGBbrb4

1 we'll ask at this time, and then we will go to the concluding
2 rounds of redirect, and then any followup based on the Board
3 questions and redirect.

4 MR. DYNNER: Judge? Excuse me. I just was wondering
5 whether that was the correct sequence or not, because as I
6 recall Mr. --

7 JUDGE BRENNER: I didn't finish the sequence. But
8 go ahead.

9 MR. DYNNER: Yes. As I recall, LILCO led off with
10 cross-examination, followed by me on cross-examination,
11 followed by the redirect. LILCO has now done its recross, and
12 I believe that the County's recross now comes up.

13 JUDGE BRENNER: I see. All right. You're correct.
14 We'll hold our questions off until you complete yours, then.
15 Do you have any idea how long you will take?

16 MR. DYNNER: I think half an hour at the most,
17 is my guess.

18 JUDGE BRENNER: All right.

19 CROSS-EXAMINATION

20 BY MR. DYNNER:

21 Q Mr. Clifford, these questions go to you as well as
22 to your colleagues, Mr. Eckenrode and Mr. Buzy.

23 Have you reviewed the LILCO core spray procedure,
24 23.203.01, Revision 4?

25 A (Witness Clifford) Not in detail, no.

AGBbrb5

1 Q Have you reviewed it at all?

2 A (Witness Clifford) I have looked through it in a
3 small amount. I have looked through it briefly, yes.

4 Q When did you do that?

5 A (Witness Clifford) The beginning of last week.

6 Q Have you reviewed the LILCO service water procedure
7 23.122.01, Revision 11?

8 A (Witness Clifford) No, I have not.

9 Q Have you reviewed the LILCO low pressure coolant
10 procedure 23.204.01, Revision 3?

11 A (Witness Clifford) Low pressure coolant or low
12 pressure coolant injection?

13 Q Low pressure coolant is what I have here, but it
14 could be injection. It's 23.204.01, Revision 3.

15 A (Witness Clifford) I have looked through the low
16 pressure coolant injection. I am not sure of the number.

17 Q That particular revision revision of that particular
18 provision? You say you have reviewed it, or you haven't?

19 A (Witness Clifford) I have.

20 Q When did you do that?

21 A (Witness Clifford) The beginning of last week.

22 Q Did you review it carefully or just glance through
23 it?

24 A (Witness Clifford) Looked through it briefly.

25 Q Have you reviewed the LILCO suppression pool
procedure 23.702.04, Revision 4?

AGBbrb6

1 A. (Witness Clifford) No, I have not.

2 Q. Have you done a final review of the containment
3 control procedure 29.023.03, Revision 9?

4 A. (Witness Clifford) Yes, I have.

5 Q. And that has been a complete review of that
6 procedure?

7 A. (Witness Clifford) Yes, it has.

8 Q. And when did you do that?

9 A. (Witness Clifford) The beginning of last week and
10 in our discussions with LILCO last week.

11 Q. You reviewed it in your discussions with LILCO? Do
12 you mean you asked questions about it?

13 A. (Witness Clifford) Yes.

14 Q. How about the EDG procedure 23.307.01, Revision 12?
15 Have you reviewed that in detail?

16 A. (Witness Buzy) I did about, say, about six
17 weeks ago, and made comments -- provided my comments in our
18 RAI.

19 Q. Have you done a final review of Revision 5 of the
20 level control procedure?

21 A. (Witness Clifford) We have completed our review of
22 Revision 5 to the level control procedure, yes

23 Q. And when did you do that?

24 A. (Witness Clifford) Last week.

25 Q. Have you done a final review of Revision 9 of the

AGBbrb7

1 loss of offsite power procedure?

2 A. (Witness Clifford) Yes.

3 Q. And was that done last week?

4 A. (Witness Clifford) Yes, it was.

5 Q. Did you review those procedures before your visit
6 to LILCO on February 27th?

7 A. (Witness Clifford) We did a brief review of the
8 procedures when they were submitted; a more detailed review
9 before we went up to Long Island and identified our concerns
10 in the differences between the revision submitted by LILCO
11 based on their January 29th, 1985 revision, and discussed
12 those with LILCO while we were there.

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Q Given the fact that, as you have just testified, you have not reviewed all of the procedures on LILCO's list of procedures that they are relying upon for limiting the EDG load to 3300, it's fair to say, isn't it, that you can't be sure as to whether you will have any concerns about those procedures regarding such issues as clarity and accuracy, isn't that right?

A. (Witness Clifford) The procedures I am concerned about are those procedures that provide guidance to the operators during LOOP/LOCA conditions and provide the guidance for making the decision for operation of equipment. The specific equipment operating procedures are not, in our view, directly related to the decisionmaking of operating equipment that the operators would have to make; once the decision is made they may go into the specific system operating procedures, but if the primary concern is whether the diesels will be overloaded, that decision is made in the event or function management procedure.

Q Okay.

My question was there are procedures that we have just identified that you haven't reviewed yet and it's true, isn't it, that those procedures which I just read to you were identified by LILCO as procedures they are relying upon to control the EDG load limits, isn't that right?

A. (Witness Clifford) As to whether they are relying

1 on, those are procedures that LILCO, in my understanding,
2 is reviewing to determine if there is anything in them that
3 they would need to be concerned about for load management.

4 My concern is for operation under emergency
5 conditions: loss of off-site power, loss of off-site power in
6 conjunction with the loss of coolant accident, and my
7 concerns are for the event and function management procedures
8 for those conditions.

9 Q Let me put it this way:

10 Of the procedure that I read to you that you said
11 you had not yet reviewed, do you have any intention to review
12 those procedures?

13 A (Witness Clifford) No, I do not.

14 Q Is it your testimony that each one of the procedures
15 that deal with the handling of an emergency situation for the
16 EDG's is in all respects clear and accurate?

17 A (Witness Clifford) The current revisions have
18 some changes that were identified to LILCO in a Request
19 for Additional Information and in our discussions and some
20 changes are to be made. The evaluation of those changes
21 and the procedures in general will be conducted as part of
22 the task analysis program and the subsequent evaluation of
23 the resulting procedures and evaluation of the operators.

24 Q So as I understand it, you are not testifying
25 now that all of the procedures are clear and accurate in all

1 respects, you're saying that once the task analysis has
2 been completed that will give you a basis for an evaluation
3 as to whether those procedures are in the context clear
4 and accurate?

5 A. (Witness Clifford) Once the task analysis has
6 been completed to provide an objective basis and to provide
7 an evaluation based on that basis as to whether the procedures
8 are clear and accurate.

9 Q. And therefore it's also correct, as I understand
10 your testimony, that the task analysis will enable you
11 to determine whether the pertinent procedures are manageable,
12 whether the loads are tracked properly, whether the cautions
13 are given in the right places and whether or not there is
14 adequate consistency, is that right?

15 A. (Witness Clifford) They will provide an
16 objective validation for the procedures.

17 Q. And I'm correct, aren't I, that when you and your
18 colleagues were testifying about the task analysis
19 previously that that task analysis has in fact not been
20 completed but that there is a plan to perform a task
21 analysis, is that right?

22 A. (Witness Clifford) That's correct.

23 Q. Could you identify that plan? Is it on a
24 particular document or something with a particular date,
25 do you know?

1 A (Witness Clifford) It's a Shoreham Nuclear
2 Power Station, Emergency Diesel Generator Loading Analysis
3 Plan prepared for Long Island Lighting Company dated
4 February 28th, 1985, prepared by General Physics Corporation
5 of Columbia, Maryland.

6 Q When did you receive a copy of that? Did you
7 receive it on February 28th?

8 A (Witness Clifford) It was Thursday of last
9 week. I believe that was the 28th.

10 Q And that was while you were at the plant?

11 A (Witness Clifford) That's correct.

12 Q When did you perform your analysis of that plan?

13 A (Witness Clifford) While we were at the site.

14 Q You read it while you were there?

15 A (Witness Clifford) That's correct.

16 Q How many hours do you think it took you to
17 perform your analysis at the plant?

18 A (Witness Eckenrode) Mr. Dynner, I received the
19 plan Monday morning of this week and spent a good bit of the
20 day doing it.

21 Q Excuse me, did you mean yesterday?

22 A (Witness Eckenrode) Yes. The plan is, as I
23 stated before, approximately 90 percent similar to the
24 standard plan that is used by General Physics in all
25 detailed control room design reviews and my concern, the

1 only concern I had really beyond that was to see the details
2 that were different, that were specific to this EDG problem.
3 And I was satisfied that those details were well spelled out.

4 Q And what were the details that were different?

5 A (Witness Eckenrode) Primarily the scenarios
6 that were being used. The scenarios that we deal with in
7 the emergency -- in the detailed control room design review
8 are all emergency operations; this only included those
9 that were dealing with the LOOP and LOOP/LOCA.

10 Q Well you say that it was similar to other plans
11 developed by General Physics Corporation, were any of
12 those plans that you are familiar with developed specifically
13 to address the issue of limiting EDG loads?

14 A (Witness Eckenrode) No.

15 Q Mr. Clifford, did you want to tell me how many
16 hours you put in on reviewing this plan?

17 A (Witness Clifford) Including discussions about
18 comments we had and listening to a briefing by General
19 Physics Corporation, I would say I spent eight to ten hours
20 reviewing the plan.

21 A (Witness Buzy) I would just like to add to
22 that we were given a draft of the analysis plan the day
23 we arrived which was, I believe, the 27th -- this was on
24 Wednesday -- that had a date on it of February 25th.

25 What you see in the February 28th document is

1 revisions that had been made by both General Physics and
2 LILCO.

3 Q Did you, when you received the draft plan on the
4 27th, did you three gentlemen read it on the 27th?

5 A (Witness Buzy) Let's see, the 27th, the night
6 of the 27th, I guess we spent about two or three hours
7 looking at it and also in the morning. In addition to
8 that we had about a two-hour presentation from General
9 Physics and subsequent discussions.

10 Q Mr. Eckenrode, you indicated previously that you
11 had in the past reviewed results of similar analyses for
12 other plants, is that correct?

13 A (Witness Eckenrode) Task analyses of other plants,
14 yes.

15 Q And it's true, isn't it, that none of those
16 analyses for other plants dealt specifically with the issue
17 of limiting EDG loads?

18 A (Witness Eckenrode) No, they went far beyond
19 that, they included the entire scenario, LOOP/LOCA scenario,
20 and others, all emergency operations.

21 Q Did those other analyses specifically deal with
22 the issue of limiting EDG loads to particular levels and
23 monitoring those levels?

24 MR. ELLIS: Objection, asked and answered.

25 JUDGE BRENNER: I think so.

1 MR. DYNNER: I'll withdraw the question.

2 BY MR. DYNNER:

3 Q Mr. Buzy, you testified I believe in answer to
4 some questions by Mr. Ellis that you had reviewed a lesson
5 plan or a lesson plan approach.

6 Which lesson plan are you talking about?

7 A (Witness Buzy) It is a lesson plan....

8 (Pause.)

9 This lesson plan is titled TDI Emergency Diesel
10 Generators, 3300 Kw Qualified Load Lesson Plan -- its title
11 also has some numbers -- LR-85-01, Rev. 3, and it was prepared
12 and approved by LILCO staff on February 27, 1985.

13 Q When did you receive this lesson plan, revision
14 three, dated February 27th?

15 A (Witness Buzy) I believe the same day. We had
16 received drafts prior to our testifying two weeks ago. At
17 that time the draft had a date on it, 1/27/85, there were
18 no revisions at that time. We had looked at both drafts,
19 the original draft and this revision three.

20 Q When did you review revision three dated
21 February 27th?

22 A (Witness Buzy) From the 9th to 27th and 28th and
23 also at the site on the 28th, and additional information
24 was provided to us on March 1st.

25 Q What is the nature of that additional information?

1 A (Witness Buzy) That was the, what's called
2 TDI EDG Qualified Load Student Handout Problem Set. That
3 was Rev. 0.

4 Q Mr. Buzy, you, I believe, testified in answer
5 to a question from Mr. Ellis today that you now believe
6 the training program adequately addresses the issue of the
7 3300 kilowatt load limitation.

8 What's the basis for your change in testimony?

9 A (Witness Buzy) I have had a chance to review
10 what is part of the program for LILCO's licensed operators,
11 this includes the requalification program. Their
12 requalification program requires licensed personnel to be
13 cognizant of design procedures and license changes.
14 Through this mechanism or through this requirement there
15 are a number of methods that licensees use; this licensee
16 uses a required reading list that issues changes to
17 procedures and sends them out to shifts where their folks
18 will read the changes in procedures.

19 The logical follow-through on an issue such
20 as EDG load, I would expect to see classroom training.
21 LILCO has developed a module for classroom training.

22 In addition to that, classroom training should
23 not only review procedure changes but try to tie the entire
24 procedure, the entire package together. It's not just
25 one procedure, we are looking at four controlling procedures.

1 The training department at LILCO has developed
2 a technique that I haven't seen before until I started
3 working with LILCO and the shift advisor program. LILCO
4 has developed this problem set presentation where people
5 become immediately involved -- it is not a lecture series,
6 they sit down and solve problems almost immediately after
7 they start classes. And this is a challenge to the
8 operators individually, I would say.

9 The next stage of training would be -- this is
10 the first stage of practice, I would say. The next stage
11 of practice, LILCO has -- the LILCO requal program requires
12 that licensed personnel attend simulator training twice a
13 year --

14 Q I'm sorry, attend what? I didn't hear you.

15 A (Witness Buzy) -- simulator training and that's
16 at the Limerick simulator for a period of approximately,
17 I believe it's five days.

18 It looks like the training program, classroom
19 training, will be followed by simulator training which I
20 believe should start at the end of this month.

21 We believe the job task analysis will be finished
22 about that time frame, according to what we understand, and
23 I think we will be able to see the results of the job task
24 analysis incorporated in at least -- if not the initial
25 group that moves through the Limerick training, perhaps the

1 second group, it depends on the time.

2 Using the evaluation technique, the job task
3 analysis will develop -- and this is plus what exists today
4 and the lesson plan objectives -- I read two of them to
5 you which addressed our concerns -- I think LILCO has
6 taken -- we should be able to see some answer to our concerns.

7 Q So if I understand what you're saying it is
8 that you believe that the LILCO training program may
9 adequately address the issue of the 3300 kilowatt load
10 limitation but that depends on the evaluation that comes
11 out of the information from the task analysis, in part.

12 A (Witness Buzy) I would say yes. What we see
13 today is more than we did the last time we spoke. We see
14 more details in their lesson plans, at least we have had
15 time to review it and we can speak about it.

16 Q When you mentioned the LILCO requalification
17 program that you were not familiar with the last time that
18 you testified at these hearings, was that a program that
19 LILCO told you about during the visit on February 27th?

20 A (Witness Buzy) I don't know if I said I wasn't
21 familiar with it --

22 Q I'm sorry.

23 A (Witness Buzy) -- I was the reviewer, I am
24 familiar with the requal program.

25 Q The requalification program was one of the bases

1 for why you believe that the training program at LILCO may
2 prove to be adequate, is that right?

3 MR. ELLIS: I object to that, it is mis-
4 characterizing his previous testimony.

5 MR. DYNNER: Which question?

6 MR. ELLIS: My question previously was whether he
7 thought that the training program was adequate, not may
8 be adequate.

9 MR. DYNNER: Judge, I don't think it's appropriate --

10 JUDGE BRENNER: The question that Mr. Dynner
11 wants to ask is a permissible question. If you need to
12 ask it again to reclarify it, we will allow you to.

13 MR. DYNNER: Let me repeat the question, Mr. Buzy.

14 BY MR. DYNNER:

15 Q As I understand it, your testimony was that you
16 believe that subject to the positive evaluation of the
17 task analysis information that the LILCO training program
18 may be adequate, is that correct?

19 A (Witness Buzy) Yes.

20 Q And one of the bases for your belief that it
21 may be adequate is LILCO's requalification program, is that
22 correct?

23 A (Witness Buzy) That's correct.

24 Q And you said that you had reviewed the requalifica-
25 tion program of LILCO, is that right?

1 A. (Witness Buzy) That's right.

2 Q. And when did you do that?

3 A. (Witness Buzy) I reviewed it last year as part
4 of my Staff functions and commented on it and I have
5 reviewed it, I would say pieces of it, during the
6 February 27th through March 1st visit to the site.

7 Q. You say you reviewed pieces of it. Does that
8 mean you looked at documents?

9 A. (Witness Buzy) Yes, I looked at the program
10 itself and requirements of the program, the required
11 reading list and also a schedule.

12 Q. Is the classroom training module that you
13 referred to part of the requalification program?

14 A. (Witness Buzy) It's something that most licensees
15 will put together because it looks like a logical package
16 to develop one. This is, I believe, the only lesson plan
17 that addresses qualified loads; I am not aware of any other.

18 Q. Do you know whether the classroom training module
19 that you referred to is part of the requalification program?

20 A. (Witness Buzy) It is conducted during the lecture
21 series so I imagine it is, yes.

22 Q. And is the classroom training module reflected
23 by any documents?

24 A. (Witness Buzy) Other than the title of the lesson
25 plan I read to you, that's it.

1 Q All right.

2 You also mentioned a shift advisor program. Is
3 that a documented program?

4 A (Witness Buzy) That is a program that is
5 required by licensees as part of, I believe, one of the
6 generic letters last year that required each licensee to
7 have personnel on-shift, either an experienced level --
8 you could say with a specified experience level of senior
9 reactor operators.

10 Q And are there documents that set forth what that
11 program includes?

12 A (Witness Buzy) Yes, there are.

13 MR. ELLIS: I object to that question. I think
14 it is irrelevant, in addition to which we have already had plenty
15 of testimony in this proceeding before about shift advisors
16 and the whole program; we had people that the Board
17 called and the county cross-examined on the shift advisor
18 program as well as a number of others.

19 JUDGE BRENNER: I guess my memory is not as good
20 as yours, you are talking about the earlier phase of the
21 proceeding that led to the September 1983 partial initial
22 decision?

23 MR. ELLIS: Yes, Mr. Kubinak and Mr. McCaffrey.

24 JUDGE BRENNER: Yes, I know we talked about other
25 programs but we didn't focus on the shift technical advisor

1 in the context of the qualified load and, in fact, we didn't
2 focus very heavily on staffing at all as I recall, we were
3 talking about programs that were in place though. It was
4 a different context.

5 MR. ELLIS: It was not shift technical advisor
6 though, if I may add, it was a shift advisor.

7 JUDGE KELLEY: In terms of it being relevant,
8 which was the starting point of your objection, it was
9 relevant given this witness' prior answer. How important
10 it is is something we will evaluate.

11 But I think we had the answer before the
12 objection.

13 MR. DYNNER: I didn't hear the answer, I'm sorry.

14 BY MR. DYNNER:

15 Q I asked you whether there were documents for
16 the shift advisor program.

17 A. (Witness Buzy) Yes, there are.

18 Q Have you reviewed those documents?

19 A. (Witness Buzy) In, I would say, mid-1984, in
20 that time period, yes.

21 Q So you knew about the shift advisor program before
22 you filed your prefiled prepared testimony, is that right?

23 A. (Witness Buzy) Yes, I did.

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AGBbrb 1

1 Q And you knew about the requalification program
2 before you filed your prefiled testimony, didn't you?

3 A (Witness Clifford) Yes, I did.

4 Q What is the problem set presentation that you
5 referred to? Could you explain that? You said in answer to
6 one of your questions, if I'm not mistaken, that part of
7 LILCO's presentation was a problem set presentation.

8 A (Witness Buzy) LILCO's lesson plan, in addition to
9 containing reference material, scope and student objectives,
10 in lieu of printing a lecture-type background or a lecture-type
11 presentation, the program or this particular lesson plan presents
12 conditions or mini-scenarios to the students, the licensed
13 operators. These problem sets are required to be filled in.
14 They're given initial conditions. They're told what's
15 happened. And the very first problem set refers to a loss of
16 offsite power, and they're asked to write next to each
17 particular subsystem what should the status of that particular
18 system and, I believe, in this particular case with no operator
19 action. Transparencies are used to tell the operator what
20 additional equipment -- pardon me -- what loads are on the
21 diesel, and then the operator is required to review the
22 initial actions of the emergency procedures and, I believe,
23 state and list the actions that are required by the operator.
24 That includes verification of the equipment in service. That's
25 what I mean by a problem set. They are almost mini-exams at

AGBbrb2

1 that point.

2 Q And you are looking at the Revision 3 of the lesson
3 plan, is that right, that you identified earlier?

4 A (Witness Buzy) That's correct. And the student
5 handout problem set.

6 Q Do those problem sets require the operator to
7 address the situation in which it is assumed that the EDGs
8 have exceeded the 3300 kw load?

9 A (Witness Buzy) Yes. It appears -- yes, it does.
10 I'm not sure exactly -- should I find -- do you want an
11 example? I'm pretty sure it does.

12 Q Do you know?

13 A (Witness Buzy) Yes, I do.

14 (Pause.)

15 On page 11 of the lesson plan, the title is "LOOP/LOCA
16 Condition with EDG-102 Load Greater Than 3300-kw." Where the
17 problem set -- the problem sheet, really -- you see, what
18 the students are required to do is have the students prioritize
19 running loads, as shown in Transparency A, using instructor-
20 supplied information. And from this, the exercise should take
21 the student to reducing load to less than 3300. In this
22 particular case it looks like a CRD pump was in service when it
23 should have been tripped during a LOCA condition.

24 Q Is the simulator training that you referred to
25 previously, is that part of the lesson plan as well?

AGBbrb3

1 A. (Witness Buzy) No. I think what we'll see in
2 simulator training -- I'm afraid that EDGs will be a portion of
3 that program. Licensed personnel are required to spend
4 considerable time in manipulations of controls, and loss of
5 offsite power is probably going to be -- I won't say the top
6 priority, but it will probably be an intermediate priority.
7 There are a lot of other exercises that a person will have to
8 go through. I'm pretty sure it will be included in the program,
9 but there -- that period of time is quite precious to the
10 operators because they have time to function as a team, time
11 to practice as a team.

12 Q. Is your information about the simulator training,
13 or what it may be, based upon what LILCO has told you orally, or
14 is it based upon simulator training program plans that you've
15 reviewed?

16 A. (Witness Buzy) I haven't reviewed any program
17 plans, no.

18 Q. So you're just reflecting what some people from
19 LILCO have told you that they plan to do in the future; is that
20 right?

21 A. (Witness Buzy) That's right. But, also, I think
22 we'll start seeing from the task analysis some recommended
23 scenarios.

24 Q. So you're going to have to await receipt of the
25 documentation for those simulator training programs before you

AGBbrb4

1 come to any conclusions about the adequacy of the training,
2 aren't you?

3 A. (Witness Buzy) That's correct. But it wouldn't --
4 as I stated, I don't think it would change the overall direction
5 as we see in the student objectives: to achieve those goals,
6 to maintain loads less than 3300 kw, or if loads are above
7 3300, to be able to reduce those loads.

8 Q. Are you planning on any requirements to assure
9 yourselves that the simulator that's used in fact adequately
10 reflects the actual situation at the Shoreham plant?

11 A. (Witness Buzy) Again, the JTA should point that out.

12 Q. I'm sorry. What is JTA?

13 A. (Witness Buzy) Job task analysis should point that
14 out and provide LILCO and ourselves with an evaluation of the
15 most suitable location for training and evaluation. It may
16 all be at the simulator. Maybe 80 percent of it will be at the
17 simulator. We don't know.

18 JUDGE FERGUSON: Excuse me.

19 Mr. Dynner, the task analysis program plan does
20 indicate. It says, "In addition, a review of applicable
21 system differences between the Shoreham control room and the
22 Limerick simulator will be conducted." So it's in the plan
23 currently.

24 MR. DYNNER: Thank you.

25 BY MR. DYNNER:

AGBbrb5 1 Q Mr. Clifford, I think that in response to one of Mr.
2 Ellis' questions you said that you didn't think that the EDGs
3 should be sized to handle total connectable loads. Why not?

4 A (Witness Clifford) The design criteria for sizing
5 of the diesel generators, as I explained, the design criteria
6 is something that I did not evaluate. The diesel needs to be
7 able to handle the loads required to mitigate the events. In
8 mitigating design basis events, it needs to be able to handle
9 the system that maintains safety functions, and the primary
10 concern is maintenance of safety functions. There were a
11 number of additional loads that can be connected that don't
12 relate directly to safety functions, which are used at the
13 operator's discretion to maintain other equipment besides the
14 safety equipment.

15 Q Well, you would agree with me, wouldn't you, that it
16 would be beneficial if the EDGs were large enough so that they
17 could, in fact, handle all the connectable loads without
18 worrying about overloading them and having them break down,
19 wouldn't you?

20 MR. ELLIS: Objection. Irrelevant.

21 MR. REIS: Objection. It's irrelevant what may be
22 beneficial in the long run. It is what is necessary to meet
23 the regulations. Further, again, I would like to go -- this is
24 not the proper witness for design of the plant. We have other
25 people on the panel to talk about the design philosophy,

AGBbrb6 1 particularly Mr. Berlinger and Mr. Hodges there, and this is the
2 wrong person to direct the question to.

3 JUDGE BRENNER: Mr. Ellis, you had an objection also?

4 MR. ELLIS: Yes, sir. I do have an objection. My
5 objection is on the same two bases. I think that it is
6 irrelevant what might be beneficial, in the sense that it might
7 be beneficial in many respects for many things to happen. But
8 what is relevant today is what do the regulations require? And
9 that is a question that has already been asked and answered
10 many times by other witnesses on the panel.

11 MR. DYNNER: Judge, may I speak to it?

12 JUDGE BRENNER: You may not have to.

13 . * (The Board conferring.)
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end 8

9 AGBwbl

1 JUDGE BRENNER: We think it's relevant to probe
2 what the expert witnesses in their expertise think might be
3 appropriate in terms of assuring reasonably that operator
4 error would not adversely affect operation.

5 The problem is, Mr. Dynner, the question as phrased
6 is not going to be productive. In order to be of any use,
7 you are going to have to ask another question anyway.

8 So maybe you can rephrase it, instead of just the
9 abstract term of "beneficial."

10 MR. DYNNER: All right.

11 BY MR. DYNNER:

12 Q Mr. Clifford, you would agree with me, wouldn't
13 you, that if the diesels, the EDGs, were sized to handle the
14 total connectible loads you wouldn't have to worry about the
15 issue of potential operator error in the operators adding
16 loads onto the diesels; isn't that right?

17 MR. ELLIS: I would object to that question as well.
18 Whether or not an operator has to worry about something is
19 totally irrelevant to the proceeding.

20 JUDGE BRENNER: It seems to me that's precisely
21 what we're looking at in this subpart of the contention. So
22 it is overruled.

23 MR. ELLIS: May I continue?

24 JUDGE BRENNER: No. Let's get the question answered.

25 WITNESS CLIFFORD: Would you repeat your question,

wb2

1 please?

2 MR. DYNNER: Sure. I'll try to repeat it again.

3 BY MR. DYNNER:

4 Q You would agree with me, wouldn't you, that if the
5 EDGs were of adequate size to handle the total connectible
6 load that you wouldn't have to worry about whether or not
7 there could be an operator error by adding additional loads
8 which might imperil the diesels; isn't that right?

9 MR. ELLIS: Objection. Judge Brenner, I also don't
10 think that there's any basis. 'There's also no basis for
11 showing whether connecting all of the loads has any other
12 effect on the plant. I can't possibly see how it could be
13 relevant to this Board's decision whether or not if a diesel
14 were sized to handle all connectible loads the operator
15 wouldn't have to worry about making errors.

16 JUDGE BRENNER: I'll tell you what: Once in a while,
17 maybe not as often as I should, I let you proceed on faith,
18 such as your belief that something was not asked when I think
19 that maybe it was. In this case I have given you the narrow
20 technical reason why we think it's relevant and told him to
21 go ahead.

22 After the witnesses are done, rather than interrupting
23 for a bench conference now, I will explain to you a further
24 reason why I think it's appropriate to probe. And I will do it
25 on the record.

wb3

1 WITNESS CLIFFORD: At this point let me try to
2 restate your question--

3 Why don't you restate your question for me?

4 MR. DYNNER: I'm going to try again. If I don't
5 get an objection this time maybe you'll get to answer.

6 JUDGE BRENNER: I'll tell you what. Why don't we
7 give Mr. Clifford a chance?

8 MR. DYNNER: Well, I'd like to ask the question.

9 JUDGE BRENNER: All right.

10 MR. DYNNER: It has been interrupted by nonsense,
11 as far as I'm concerned.

12 JUDGE BRENNER: That is incorrect, Mr. Dynner.

13 MR. DYNNER: All right.

14 JUDGE BRENNER: There was a reasonable basis for
15 the objection. Just because we overruled it doesn't mean it
16 was nonsense.

17 MR. DYNNER: All right.

18 Let me try again, Mr. Clifford.

19 BY MR. DYNNER:

20 Q You'd agree with me, wouldn't you, that if the EDGs
21 were sized adequately to handle total connectible loads that
22 you wouldn't need to address any concerns about whether or not
23 operator errors in adding loads might imperil the diesels;
24 isn't that right?

25 A (Witness Clifford) The evaluations that we perform

wb4

1 assume a given plant design, and we try to evaluate -- or we
2 do evaluate the capability of the operators to operate within
3 that plant design. And that's the way we go about doing our
4 reviews.

5 We don't look to see, and it's not my job to make
6 sure that each piece of equipment in the plant is designed to
7 compensate for anything beyond the design basis of the plant.

8 In other words, I do not establish the acceptance
9 criteria for the design.

10 Q So I'm correct, aren't I, that you don't have a
11 basis for answering Mr. Ellis' question by saying that the
12 EDGs should not be sized to handle total connectible loads;
13 isn't that right?

14 A (Witness Clifford) In my opinion the operator should
15 be able to operate the plant and maintain the safety functions
16 within the plant design.

17 Q That is not responsive to my question, though.

18 My question is: You don't have any basis for your
19 response to Mr. Ellis that you don't think EDGs should be sized
20 to handle total connectible loads, do you?

21 A (Witness Clifford) I guess I don't remember that
22 specific question and answer. I'm trying to give you the
23 context that we evaluate the procedures in. And I would have
24 to go back to the specific question and response to be able
25 to answer your question directly.

wb5

1 Q Do you have any opinion at all as to whether or not
2 EDGs should be sized to handle total connectible loads?

3 A (Witness Clifford) I have an opinion, certainly.

4 Q And what's your opinion?

5 A (Witness Clifford) My opinion is that it doesn't
6 have to contain the total connectible load. That's my opinion.

7 Q It doesn't have to by what standard?

8 A (Witness Clifford) By the standard of allowing the
9 operators to maintain plant safety functions.

10 Q And I'm correct, aren't I, that if the EDGs were
11 large enough to handle all the connectible loads that you
12 wouldn't have to worry about the features that limit the
13 operators to connecting loads onto the diesels; isn't that
14 right?

15 MR. ELLIS: May I have that question read back,
16 please?

17 JUDGE BRENNER: The question is, It is correct, is
18 it not, that if the diesels were sized so as to be able to
19 handle total connectible loads, then you wouldn't have to
20 worry about procedures for the operators to limit the loads,
21 would you?

22 MR. ELLIS: No; I believe he said procedures that
23 limit the operators. And that isn't the testimony.

24 JUDGE BRENNER: We'll have it the way I phrased it,
25 then. I think it's going to the same point.

wb6

1 WITNESS CLIFFORD: I hate to do this, Judge, but
2 could you rephrase your question?

3 JUDGE BRENNER: I'm not going to do it. I want to
4 get you all out of here today, and I'm beginning to lose hope.

5 MR. DYNNER: Can you read Judge Brenner's question,
6 please?

7 JUDGE BRENNER: Thank you, Mr. Dynner.

8 (Whereupon, the Reporter read from the record as
9 requested.)

10 MR. ELLIS: Judge Brenner, I have a further clarifica-
11 tion on that. I'm sure you mean with respect to overloading the
12 diesels. There may be other conditions in the plant that may
13 be affected, and I think--

14 JUDGE BRENNER: I don't know what I meant. I'm not
15 trying to apply any independent thinking because it wasn't my
16 question. I was only trying to repeat Mr. Dynner's, and I
17 obviously did it badly.

18 MR. DYNNER: I thought the question was a good
19 reiteration of my question. It wasn't Mr. Ellis' question,
20 obviously, because I haven't been asking Mr. Ellis' questions.

21 BY MR. DYNNER:

22 Q Can you answer the question now, Mr. Clifford?

23 A (Witness Clifford) We're talking about an ideal
24 situation where the diesels are sized to handle the total
25 connectible load: that's basically your question: should we

wb7

1 design them that way?

2 Q That's not my question.

3 My question is simple. I'll repeat it for the
4 umpteenth time.

5 The question is:

6 If the diesels were sized so that they could
7 adequately cover and handle total connectible loads, you
8 wouldn't have to worry about procedures to limit the loads that
9 operators could put on the diesels, would you?

10 MR. ELLIS: I object for that same reason I just
11 mentioned about other aspects of the plant.

12 MR. DYNNER: I'm going to object, Judge, to all of
13 these nonsensical objections over and over again. He is
14 overruled, and he objects again because he doesn't want the
15 witness to answer the question.

16 JUDGE BRENNER: Calm down, both of you.

17 I'm going to allow the question and get the answer,
18 and then we'll find out what to do with it in terms of
19 follow-up, if any.

20 WITNESS CLIFFORD: For the hypothetical situation
21 where the diesels were sized to handle the total connectible
22 load, in the purest sense you wouldn't have to worry about
23 operators taking actions. I would say you would not have to
24 worry about preventing the operator from overloading the diesels
25 in the strictest sense.

wb8

1 I don't necessarily agree that that is an appropriate
2 way to design a plant. The plant is designed to maintain
3 certain safety functions, and procedures are designed to
4 maintain those safety functions. And in my understanding,
5 the diesels are designed to accommodate that equipment necessary
6 to maintain the safety functions.

7 BY MR. DYNNER:

8 Q You don't think it is inappropriate to have diesels
9 that are large enough to cover all of the total connectible
10 loads, do you?

11 A (Witness Clifford) I wouldn't know how to answer
12 that question. Inappropriate in what sense?

13 Q You're the one who used the word "appropriate."
14 Is there anything wrong with designing a plant so
15 that the diesels have to be big enough to handle the total
16 connectible loads, in your opinion?

17 A (Witness Clifford) Is there anything wrong....?
18 Other than physical design capabilities of making a
19 diesel that large. And from here I would have to go into
20 suppositions. I'm not exactly sure if there's anything wrong
21 with...

22 Q Do you know what the total connectible loads are
23 at Shoreham?

24 A (Witness Clifford) Something in excess of 4000 Kw.

25 Q Do you know whether there's any physical limitation

C-10

wb9

1 in having a diesel that's large enough to cover 4500 Kw?

2 A. (Witness Clifford) I imagine there are diesels that
3 can. The question is whether the current design is adequate.

4 Q. That's not my question, that's your question.

5 A. (Witness Clifford) I know. I answered your
6 question, and I tried to amplify it. I think I answered your
7 question at the beginning, that I believed there may be
8 diesels, but that I can't say from personal experience that
9 there are any out there that size, but that there may be.

10 Q. Let me ask you this:

11 Shouldn't the EDGs be sized to handle loads that
12 include not only the maximum emergency service load but also
13 the single largest load that might be added by an operator to
14 the maximum emergency service load?

15 MR. ELLIS: Objection. That specific question has
16 been asked and answered by a number of the other witnesses on
17 the panel, and this witness has specifically stated that the
18 design of diesel generator sizing criteria is not his
19 expertise. It has already been handled by the other
20 witnesses, so it has been asked and answered.

21 JUDGE BRENNER: Let me get a clarification before
22 I confer with my Board members.

23 You're asking from the point of view of operator
24 error, and not from any other point; is that correct, Mr. Dynner?

25 MR. DYNNER: That's correct; I'm following up on this

wb10

1 witness' answer to Mr. Ellis' question.

2 JUDGE BRENNER: Wait a minute.

3 (The Board conferring.)

4 JUDGE BRENNER: First of all, we have put off the
5 temptation to rule that we are going to adjourn for the rest
6 of the year and let you all work it out.

7 Having passed that milestone-- And when I say
8 "work it out," I mean everything. But having passed that
9 milestone, we are going to allow Mr. Dynner to ask the question
10 he asked as clarified by me from the standpoint of any concern
11 for operator error of Mr. Clifford, as a follow-up to some of
12 his testimony both today and on his previous appearances here.

13 After all that, you probably don't remember the
14 question.

15 WITNESS CLIFFORD: No, I don't.

16 JUDGE BRENNER: I would have been amazed if you
17 had.

18 Mr. Dynner, can you--

19 MR. DYNNER: I'd like the question to be reread.

20 JUDGE BRENNER: I'd like you to rephrase it because
21 you left out the limitation of operator error. I think it
22 was implicit in there, but I don't want to go around the whole
23 round again.

24 MR. DYNNER: Well, let me try. I don't know that
25 I'm going to get it exactly the way you want it, Judge.

wb11

1 JUDGE BRENNER: Get it the way you want it, within
2 the subject area of his expertise.

3 MR. DYNNER: All right.

4 BY MR. DYNNER:

5 Q Mr. Clifford, shouldn't the EDGs be sized to handle
6 not only the maximum emergency service load but also to handle
7 an additional load that might be added by an operator error,
8 in order to eliminate the problem of the procedural limitation
9 of operator action limiting the loads on the diesels?

10 A (Witness Clifford) Are you talking about each
11 individual diesel?

12 Q The EDGs at Shoreham.

13 A (Witness Clifford) Each individual diesel, --

14 Q Yes.

15 A (Witness Clifford) --or the set of diesels?

16 Q Each one.

17 A (Witness Clifford) I don't believe that it's
18 appropriate within the design basis to withstand a single
19 failure on each machine. The design basis calls for a single
20 failure regardless of cause. And that is accommodated for
21 within the redundancy of the diesel train.

22 Q Are you suggesting that one diesel might be sized
23 so that it's 2800 Kw because if it fails at that you still
24 have two more?

25 A (Witness Clifford) I'm not sure why it would be

wbl2

1 sized at 2800.

2 Q Well, that's less than the amount it's supposed to
3 run in an emergency, isn't it?

4 A (Witness Clifford) It doesn't necessarily-- I
5 didn't mean to imply that a machine be designed to fail. But
6 the overall design can accommodate a single failure.

7 Q Well, is it your testimony that each diesel does not
8 have to be adequately sized to cover the maximum emergency
9 service load that each one will see?

10 A (Witness Clifford) The machine should be sized to
11 accommodate the necessary equipment to maintain the plant
12 safety functions.

13 Q Yes.

14 A (Witness Clifford) And I did not review the maximum
15 emergency service load. My understanding of that load is
16 that it does accommodate the necessary equipment to maintain
17 plant safety functions.

18 Q But I'm asking your opinion. Is it your opinion
19 that the diesels as a set have to be sized, or they ought to be
20 sized so that they can accommodate the service load and also
21 ensure that they would be able to operate, notwithstanding the
22 fact that an operator added a load that he shouldn't have
23 added that brings the total kilowatts above the qualified
24 load?

25

MR. ELLIS: Objection; asked and answered.

wbl3

1 MR. REIS: Objection; asked and answered two
2 questions ago.

3 JUDGE BRENNER: Mr. Ellis, what's your objection?

4 MR. ELLIS: The same thing, Judge: asked and
5 answered; it has been asked and answered.

6 (The Board conferring.)

7 JUDGE BRENNER: We don't know positively if it has
8 been asked and answered. The larger, and the more important
9 point to us at this point is, we're going in circles. It's
10 just not productive. I don't know whether it's the questions
11 or the answers, or a combination of the two.

12 In any event, Judge Morris has a question or two or
13 three on this area that might straighten out our potential
14 confusion.

15 JUDGE MORRIS: With some trepidation I hope that I
16 might be able to straighten it out.

17 Consider the three diesels, the TDI diesels, and
18 consider that they're all the same maximum emergency service
19 load. Now, should that load be such that they can accommodate
20 the design loads in the plant as well as an operational error
21 which causes exceeding the MESL on any one of the diesels; in
22 other words, should the design basis take into account the
23 inadvertent overloading?

24 WITNESS CLIFFORD: The design basis should consider
25 a single failure. I believe that's what the requirement is.

wbl4

1 And the diesel generators, as I said, should be designed to
2 maintain plant safety functions given the single failure.

3 JUDGE MORRIS: This is why we get confused. If we
4 consider a single failure as a design basis, as the way I
5 understand the Staff is dealing with it, that wipes out one
6 diesel; correct?

7 WITNESS CLIFFORD: Correct.

8 JUDGE MORRIS: So it doesn't matter what the design
9 basis is with respect to the MESL, he can wipe it out with a
10 single human error.

11 But aside from that, which is taken care of because
12 you have three diesels and two of them will handle the functions
13 necessary for safety, aside from that does the design of the
14 diesel, the rating of the diesel have to take into account the
15 necessary safety equipment and, in addition, an inadvertent
16 additional load?

17 Did you understand that question?

18 WITNESS CLIFFORD: I think you are talking about
19 each individual diesel having to account for--

20 JUDGE MORRIS: Correct; as a design basis.

21 WITNESS CLIFFORD: Not as part of the design basis,
22 no.

23 JUDGE MORRIS: I think that was Mr. Dynner's question.

24 MR. DYNNER: I'm going to get off this. I was
25 trying to get Mr. Clifford's opinion stemming from --

wbl5

1 JUDGE BRENNER: I think the long and the short of it
2 is, we've got testimony on the record last time and now, and
3 we're going to have to apply our judgment in terms of what we
4 think the applicable standards are by which to judge the
5 adequacy of the diesels to provide reasonable assurance that
6 the public health and safety are protected.

7 JUDGE MORRIS: I have to say, Mr. Dynner, if that
8 wasn't your question I sure didn't understand what you were
9 getting at.

10 MR. DYNNER: I think that was one of the problems.

11 I'm going to move on, unless you have some follow-up,
12 Judge Brenner, on this issue.

13 JUDGE BRENNER: It probably won't help you at all,
14 Mr. Dynner, but let me try.

15 Mr. Clifford, if we take your testimony literally
16 as to the only single failure that needs to be considered,
17 and add the fact that that is taken care of by adding an
18 extra diesel, why shouldn't we say we don't want to hear any
19 of your testimony about these procedures and training, and we
20 couldn't care less whether you're satisfied, because I don't
21 care of the diesel fails, based on your own standard?

22 WITNESS CLIFFORD: Judge, in my view the procedures
23 and training are an issue separate from the design of the
24 diesel. Our job in the review of the procedures and training
25 is to evaluate the operation of the plant, given the design.

wbl6

1 And that assumes an adequate design.

2 Based on that, it's not clear to me what role the
3 procedures and training have in the review of the adequacy
4 of the design of the diesels themselves. And that has been
5 a question of mine throughout my involvement.

6 JUDGE BRENNER: Let me put it to you this way: If
7 there was a reasonable concern that the procedures and training
8 do not provide reasonable assurance that the operators would
9 be able to keep the load on the diesels below 3300 Kw, then
10 in that event, and only in that event, would it not be a
11 potential remedy to have larger sized diesels which would
12 envelop the single largest load that could inadvertently be
13 added by an operator on each diesel?

14 WITNESS CLIFFORD: I think it depends on what it is
15 about the operator action, or why the action is taken. If
16 it's an action that was not intended and was caused by what I
17 would -- by something in the procedure that causes him to take
18 an action that was unintended, and those are human factor type
19 concerns, then those should not be accommodated necessarily by
20 changing the design; you should fix the way the information is
21 presented to the operator. And that is what our involvement
22 has been.

23 If, in fact, equipment is required -- and I mean
24 required for maintaining plant safety functions -- that goes
25 beyond that which can be accommodated in the plant design, then

wb17

1 yes, the size of the diesels would be a concern.

C-11

2 In my opinion, I don't believe that's true in this
3 case. I believe the equipment that is required to plant
4 safety functions is accommodated within the 3300 Kw.

5 JUDGE BRENNER: Could I ask one question? I was
6 going to ask this after Mr. Dynner had completed. But I think
7 your last answer is close to something I wanted to ask.

8 Is it correct that you -- you or the rest of the
9 Staff -- have no concern that the operators will be limited
10 by the procedures to maintain the load within 3300 Kw, such
11 that any equipment necessary to maintain the reactor in a
12 safe condition would not be able to be added?

13 WITNESS CLIFFORD: The design equipment necessary
14 for maintaining the plant safety functions, in my knowledge
15 is accommodated within the 3300 Kw; that is, to maintain the
16 plant safety functions and the reactor in a safe condition.

17 JUDGE BRENNER: All right. Given that answer by
18 you-- Let me stay with Mr. Clifford for now. --could you
19 explain to me what your concern was the other week when we
20 were in Bethesda when you talked about the possibility, and
21 you had said -- and it was preliminary on your part, I
22 believe, but, nevertheless, at that time you were preliminarily
23 concerned about the possibility that the operators' flexibility
24 might be limited or impaired in some fashion.

25 WITNESS CLIFFORD: There were a couple of concerns.

wb18

1 One was the way the cautions that were written were presented
2 to the operator that prevented him from taking action which
3 may have been necessary. That wasn't the intent of the
4 cautions and it should not be the intent of the caution; the
5 caution is to warn the operator of a potentially unsafe
6 condition. And based on our discussions with LILCO they
7 understand how those cautions, as worded, could have limited
8 the operators' flexibility.

9 The other concern was whether the addition of non-
10 safety equipment some time later in the event could limit the
11 ability of the operator to get safety equipment on later if
12 he needed it.

13 I believe that there is sufficient flexibility,
14 given three diesels and only needing two, to maintain plant
15 safety conditions; that between the three diesels sufficient
16 equipment could be added later in an event to maintain plant
17 safety functions. And right now that's an opinion of mine,
18 and it will be validated through the task analysis effort,
19 task analysis program, and the subsequent evaluation of the
20 operators and the operator's performance on a simulator.

21 JUDGE BRENNER: I'm still confused, and I'm sorry.

22 How will the task action plan validate that? I thought
23 that would basically show whether the operators could follow
24 the procedures.

25 How would the task action plan validate whether or

wbl9

1 not any equipment necessary to maintain the plant in a safe
2 condition would cause the total load to go over 3300 or not?

3 WITNESS CLIFFORD: Well, if the task analysis and
4 subsequent evaluation-- The task evaluation gets at all the
5 actions that are necessary to maintain plant safety conditions
6 for a LOOP/LOCA or for a LOOP condition, and identify the
7 actions, the control of the instruments necessary to allow
8 comparison with what exists, and provides a basis for
9 evaluation of the operators themselves as they go through
10 their procedures, to determine the adequacy of the operators
11 to take the actions that they're expected to take.

12 JUDGE BRENNER: But doesn't the Staff, and anybody
13 else looking at, know now, one way or the other, whether
14 equipment necessary to maintain the plant safely will or will
15 not cause the diesels to be loaded over 3300 Kw?

16 WITNESS CLIFFORD: I believe it is our -- and I will
17 defer to the rest of the panel as well. It is our opinion and
18 judgment -- it goes beyond an opinion -- that the equipment
19 needed to operate the plant safely is accommodated within the
20 3300 Kw.

21 JUDGE BRENNER: You see, what I don't understand is
22 what the job task analysis would add to that question, one
23 way or the other.

24 I understand that the task analysis would show
25 whether the operator can follow the procedures, and so on. But

1 I thought that was the procedures in adding equipment that
2 would not be absolutely necessary to maintain the plant in
3 a safe shutdown condition because you could already analyze
4 whether that necessary equipment exceeds the loads or does
5 not. And some of your answers --

6 WITNESS CLIFFORD: We are trying to get at a lot
7 of different scenarios. I mean there are two basic scenarios
8 to start with and there are a lot of combinations of those
9 that you can run. We are trying to get a feeling for a
10 number of different possible scenarios to determine if
11 the operator can in fact even be put in a position of
12 exceeding 3300 Kw to maintain the plant in a safe condition.

13 Some of the safety equipment is turned off because
14 it is in excess or it's throttled because it is in excess.
15 There are certain amounts of equipment that have to be
16 operated, and if you take off some equipment and add other
17 non-safety equipment the task analysis will get it -- whether
18 some time later in an event you need to take that equipment
19 off in order to put safety equipment on.

20 JUDGE BRENNER: I thought the task analysis was
21 kind of a time and motion study of a walk-through at the
22 Shoreham plant, am I wrong?

23 WITNESS CLIFFORD: That's not correct.

24 JUDGE BRENNER: Okay. Could you tell me again
25 what that is? Because I don't understand how you will be

1 simulating loads that the operator actually might see
2 during this task analysis in order to assist in answering
3 the question of whether or not the operator will be called
4 upon during certain scenarios to add necessary safety equip-
5 ment over the 3300.

6 WITNESS CLIFFORD: Well a task analysis basically
7 is a specification of all the tasks necessary to accomplish
8 actions for a scenario that you are trying to go through,
9 and as I explained there are a number of different possibilities
10 or combinations for scenarios you can go through.

11 And the task analysis identifies the equipment to
12 be run, the function to be maintained, the systems to be
13 run to maintain those functions, the tasks necessary to
14 operate the equipment and subtasks necessary for the operator
15 to operate switches, monitor instrumentation or parameters
16 that are necessary and it gets to evaluating whether the
17 plant can be operated within the 3300 or the operators are
18 capable of operating within that by going through the various
19 combinations of scenarios.

20 JUDGE BRENNER: All right.

21 Does the operator walk through this in the Shoreham
22 control room?

23 WITNESS CLIFFORD: That is after the analysis is
24 complete, the analysis is not the walk-through or the
25 simulator exercise, the analysis is a formal comprehensive

1 detailing of the tasks that need to be completed. And you
2 then compare the simulator exercises and the control room
3 walk-throughs against those analyses and against those
4 tasks.

5 JUDGE BRENNER: In doing that analysis, how do
6 you know what loads to assume as existing at each point in
7 the analysis?

8 WITNESS CLIFFORD: That depends on the scenario
9 you have with what failures you assume and the operator
10 actions that are taken at the various points throughout the
11 scenario.

12 JUDGE BRENNER: Yes, but couldn't there be
13 variations in assumptions in applying them to particular
14 scenarios?

15 For example, we have heard testimony from LILCO
16 that using the MESL's that the MESL's resulted from
17 conservative assumptions for the reasons LILCO witnesses
18 presented and that if we look at the IET according to LILCO's
19 witnesses that would have been more realistic.

20 So my question is when you go through this job
21 task analysis, what types of load assumptions did you apply?
22 Because it seems to me that could make all the difference.
23 You are at two minutes into a LOOP/LOCA, what do you assume
24 is occurring?

25 I guess more particularly, do you know what LILCO

1 is going to do?

2 WITNESS CLIFFORD: The analysis that is being
3 performed is being performed using the FSAR data, so we
4 would use the MESL data from the FSAR tables. That is
5 outlined in the task analysis plan.

6 JUDGE BRENNER: All right.

7 All right, Mr. Dynner, I'm sorry I diverted you
8 that much. I was going to ask some of these questions at
9 the end anyway, it seemed appropriate there, but I am done
10 at this point.

11 But before we had interrupted you you had run a
12 little over an hour which was about double your assumption
13 -- your estimate.

14 MR. DYNNER: Yes. I did not, of course, anticipate
15 the numbers of objections and the rereading and rephrasing
16 the questions 15 times so I can't apologize for that.

17 JUDGE BRENNER: Even taking that into account
18 you ran over.

19 But how much do you have?

20 MR. DYNNER: I've got another question --

21 JUDGE BRENNER: That's it?

22 MR. DYNNER: -- with some follow-up perhaps on
23 that one question of one witness and it's....

24 JUDGE BRENNER: I'm asking it in terms of knowing
25 what to do with the rest of the day.

1 MR. DYNNER: I hope I can finish up in five minutes.

2 JUDGE BRENNER: We have probably very few Board
3 questions left, about five minutes I would estimate.

4 What does the Staff have for redirect?

5 MR. REIS: About five minutes.

6 JUDGE BRENNER: Mr. Ellis?

7 MR. ELLIS: Less than that, very much less.

8 JUDGE BRENNER: Let's see if we can accomodate
9 these witnesses and finish.

10 BY MR. DYNNER:

11 Q Dr. Berlinger, take a look, would you, at transcript
12 page 28,173.

13 A (Witness Berlinger) Yes, Mr. Dynner.

14 Q You say on line 13 -- Mr. Ellis asked you:

15 "You didn't mean to imply that GDC-17

16 or the regulations require specifically any

17 margin between design load and rating?"

18 And you answered: "Yes, that is correct."

19 Was your answer based on your own personal interpreta-
20 tion of GDC-17 or something else?

21 A (Witness Berlinger) It would be my interpretation
22 of GDC-17. Just by reading GDC-17 you would know that this is
23 not addressed specifically there.

24 Q Did you, in reaching your interpretation of GDC-17,
25 look at how the Staff had analyzed GDC-17 in the past in this
context?

AGB/ebl

1 A (Witness Berlinger) Yes.

2 Q All right.

3 Tell me what you did or what you found out when
4 you determined how the Staff had interpreted GDC-17 in this
5 context in the past, that is to say in the margin between
6 design load and rate?

7 A (Witness Berlinger) That there was no specific
8 margin that had to be maintained in excess of what the engine
9 had been shown to be capable of supporting.

10 Q Which cases did you look at?

11 A (Witness Berlinger) Mr. Dynner, I think you asked
12 me if in general I had asked how the Staff had previously
13 interpreted GDC-17. Is that correct?

14 Q No, I didn't ask anything about general. I asked
15 you what you did to ascertain how the Staff in the past had
16 interpreted GDC-17 in this respect.

17 A (Witness Berlinger) And the question that remains
18 right now is what?

19 Q I asked you what cases you looked at.

20 A (Witness Berlinger) I looked at no specific cases.
21 I talked to the reviewers who generally reviewed the
22 adequacy of onsite emergency power systems. I asked what they
23 did in the past, and they told me in general terms what they
24 did in the past.

25 Q Are any of those reviewers on this panel? Like

AGB/eb2

1 Mr. Knox, for example?

2 A (Witness Berlinger) I don't know if I can answer
3 that. I can't recall specifically whether Mr. Knox-- He
4 is not the only reviewer in Bethesda who is responsible for
5 this.

6 Q When you talked to these reviewers did they tell
7 you what the margin was between the design load and the
8 ratings at any particular plant?

9 A (Witness Berlinger) We did not discuss that
10 specific information because it was not relevant.

11 Q It wasn't relevant?

12 A (Witness Berlinger) That is correct.

13 Q Is that what you said?

14 A (Witness Berlinger) To those discussions.

15 Q I see.

16 Can you tell me, did these reviewers just tell you
17 that they never bothered to look at what the margin was, if
18 any?

19 A (Witness Berlinger) Would you like me to tell you
20 what we discussed, rather than--

21 Q I just want you to answer my question.

22 JUDGE BRENNER: I just want you to answer his
23 question, too.

24 WITNESS BERLINGER: Could you repeat the question?
25 I'm sorry.

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JUDGE BRENNER: Do you want it read back,
Mr. Dynner?

MR. DYNNER: Please.

(Whereupon, the Reporter read from the record
as requested.)

WITNESS BERLINGER: Yes, that's true, we did not
discuss the margin and they generally, in the past, have
evaluated the diesels as to what their MESL requirements are
relevant to the nameplate rating. And if there was any
margin, they were found acceptable.

BY MR. DYNNER:

Q It is true, isn't it, Dr. Berlinger, that in every
one of those cases there in fact was a margin of at least
10 percent or more. Isn't that right?

MR. ELLIS: I object to the question. This is on
the area that has already been ruled on by the Board, and
it gets into specific instances and specific plants and gets
to the table that the Board has already excluded as a result
of motions to strike.

JUDGE BRENNER: I am going to sustain the
objection. I know you have a different opinion, Mr. Dynner.

MR. DYNNER: I just wanted to have a chance to
speak to the objection.

JUDGE BRENNER: I will give you the same callous
treatment I gave Mr. Ellis on occasion and sustain the

AGB/eb4

1 objection. It is, as I started to say, going into the area
2 that is too collateral. Beyond that, we have plenty on this
3 record already as to how the Staff is evaluating these
4 diesels in the light of their approach to the general design
5 criteria, and we are going to have to apply our judgment as
6 to whether or not the diesels at Shoreham provide reasonable
7 assurance to protect the health and safety, given the
8 situation that has applied to Shoreham.

9 We know what the load is and we will apply what we
10 think the diesels will have to meet in the context of the
11 difference of parts of the contention including intermittent
12 loads, including operator action, including everything else
13 in the contention.

14 MR. DYNNER: NA further questions.

15 EXAMINATION BY THE BOARD

16 BY JUDGE MORRIS:

17 Q Mr. Knox, I I think maybe you are the person to
18 whom I should direct this question.

19 In the course of reviewing the Shoreham TDIs, did
20 the Staff use Regulatory Guide 1.9?

21 A (Witness Knox) Yes, we did.

22 Q And that Regulatory Guide references the IEEE
23 Guide 387?

24 A (Witness Knox) Yes, 1977.

25 Q Are you aware that there is a 1984 version of that

AGB/eb5

1 standard?

2 A (Witness Knox) I am aware of it, yes.

3 Q Does the fact that there is a new standard make any
4 difference in your review?

5 A (Witness Knox) I have not looked at the '84
6 standard to know, as far as its content. It was strictly
7 based on the '77 version.

8 Q Do you know if anyone on the Staff has reviewed
9 that new version of the standard?

10 A (Witness Knox) No.

11 Q You don't know?

12 A I don't think anybody on the Staff has reviewed
13 that latest standard.

14 Q So nobody knows on the Staff whether that standard
15 might change any basis for deciding the adequacy of the
16 diesels? Is that what you are telling me?

17 (Witness panel conferring.)

18 A (Witness Knox) The answer is we have no basis to
19 know.

20 Q Let me understand:

21 You haven't read the 1984 version?

22 A (Witness Knox) That's correct.

23 Q Just for completeness, I assume no one else on
24 the panel has read it either. Is that correct?

25 A (Chorus of "That's correct.")

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BY JUDGE FERGUSON:

Q Just very briefly, this has to do with the job task analysis.

Mr. Clifford, I believe you were the one who testified that General Physics Corporation is the one developing that.

A (Witness Clifford) That's correct, Judge Ferguson.

Q Could you tell me when you anticipate that will be completed?

A (Witness Clifford) The task analysis portion itself will be completed at the end of March, the beginning of April.

The evaluation will take place within two to four weeks after the completion of the task analysis itself.

Q Is there anything to be done beyond that, beyond the evaluation?

A (Witness Clifford) We need to complete our review of the task analysis and the subsequent evaluation.

Q Who does the evaluation?

A (Witness Clifford) The evaluation itself?

Q Yes.

A (Witness Clifford) General Physics and utility personnel.

Q General Physics will develop the GTA,--

A (Witness Clifford) JTA.

Q -- it will evaluate it together with the utility

AGB/eb7

1 personnel?

2 A (Witness Clifford) Use the information from the
3 job task analysis to evaluate the procedures, the training
4 program, the instrumentation and controls to be used, and
5 the operator performance on the simulator controlling
6 walk-throughs.

7 Q And that evaluation process you said would be
8 the combined effort of General Physics and the utility. Is
9 that correct?

10 A (Witness Clifford) That's correct.

11 Q Does the Staff have any part in that?

12 A (Witness Clifford) No formal part in it. We
13 intend to observe the operators on the simulator and any
14 subsequent control room walk-throughs or plant walk-throughs
15 to be conducted.

16 A (Witness Buzy) I would like to add to that.

17 We are also very interested in reviewing scenarios
18 that will be conducted at the simulator, the details of the
19 scenarios.

20 Q So am I to understand that once General Physics
21 develops the GTA, evaluates it with the utility, there is --
22 and the Staff observes, as you say, there is no further
23 certification that the GTA in fact is adequate?

24 A (Witness Clifford) The Staff is going to review
25 the results of the job task analysis.

AGB/eb8

1 Q Review the results. Could you make that clear?

2 A (Witness Clifford) The job task analysis ends up
3 with a number of data forms that show the tasks, the
4 information that is needed, the controls that are needed,
5 then compares the instruments and controls that exist
6 against the information and controls. And we will do a
7 review of that information.

8 Q And you say the projected completion date of both
9 the development as well as the evaluation is the end of May.
10 Is that what you said?

11 A (Witness Clifford) My best estimate right now
12 would be somewhere around the end of April, the beginning of
13 May.

14 Q All right. Thank you.

15 JUDGE FERGUSON: I have nothing further.

16 BY JUDGE BRENNER:

17 Q To be followed by the Staff's evaluation?

18 A (Witness Clifford) TUat's correct, the Staff review
19 of the job task analysis and evaluation.

20 Q Do you expect to do a written report of that
21 evaluation?

22 A (Witness Clifford) We will have a Safety Evaluation
23 Report of our review.

24 Q And could you tell me again -- I think you already
25 said it, but what your estimate of that would be assuming the

1 early May date for the utility to finish its work is accurate?

2 I suppose you will tell me it depends on what they
3 give you, but even allowing for that--

4 A (Witness Clifford) The job task analysis process
5 itself has a lot of self-correcting features in it. We
6 would expect to complete our review in approximately two
7 weeks and after that, a Safety Evaluation we would hope could
8 be issued, a Safety Evaluation two weeks after we complete
9 our review.

10 Q So if I apply that to your earlier estimate, and
11 of course it's assuming for the moment that those turn out
12 to be correct, that gets you into early June?

13 A (Witness Clifford) That's correct.

14 Q I wanted to ask some questions of this panel. I am
15 not sure who the right witness is, whether it would be
16 Mr. Hodges, because it relates to certain criteria. And
17 among other things, I am looking at the second paragraph of
18 GDC-17 which addresses the fact that the onsite electric
19 power supplies shall have sufficient independence, redundancy
20 and testability to perform their safety functions assuming a
21 single failure.

22 Is it correct-- Well, let me ask it this way:

23 What happens if one diesel is out of operation?

24 What does the plant have to do then?

25 A (Witness Hodges) You mean for maintenance or

AGB/eb 10

1 something of that nature?

2 Q Or breakdowns.

3 A (Witness Knox) There is a tech spec requirement,
4 72 days -- 73 hours, they would have to either fix it or
5 shut down the plant.

6 Q So the plant could operate for 72 hours with two
7 diesels?

8 A (Witness Knox) That's correct.

9 A (Witness Hodges) That's correct.

10 Q And during that 72 hours, how is the plant
11 satisfying that second paragraph of GDC-17 that I just
12 referred to?

13 A (Witness Hodges) In effect that failure was a
14 failure of the diesel, or you've got it out for maintenance or
15 for whatever reason it is not there during that 72 hours. That's
16 your failure during that time period basically. The 72
17 hours will give you a low probability that when you combine
18 that with the probability of the loss of the power -- of
19 having the additional failures plus the loss of the offsite
20 power, that's the type of logic that goes into the 72 days--

21 Q 72 hours you mean?

22 A (Witness Hodges) 72 hours. Excuse me.

23 Q Is there something in GDC-17 or any other
24 regulation that says the 72-hour standard is acceptable?

25 A (Witness Hodges) I don't think the limiting

AGB/eb 11

1 conditions for operation-- It is not just on the diesels;
2 there are similar types of conditions for pumps, the various
3 components in the plant. I don't think they are covered
4 explicitly in GDC-17 or any other regulations like that.

5 They are in the tech specs.

6 A (Witness Berlinger) The tech specs contain
7 limiting conditions on operations in action statements.

8 Q I understand that. I want to know why is it
9 permissible for the tech specs to permit that 72-hour
10 flexibility?

11 A (Witness Berlinger) Because 72 hours was thought
12 to be a short enough period of time such that the
13 probability of a LOCA occurring during that period or a
14 LOOP/LOCA during that period was very, very small and did not
15 have to be considered as part of the design basis of the
16 plant.

17 Q And where is the regulatory authority or source of
18 that? Of course I've read GDC-17 and I didn't see it in
19 there so I'm asking you if it is something else.

20 A (Witness Hodges) I don't know where that is
21 written down. It has been practiced ever since I've been
22 with the NRC, but I don't know where it is written down.

23 A (Witness Berlinger) I don't know either.

24 Q I mean why not 48 hours, or 96 hours, or 100 hours,
25 or no hours?

AGB/eb 12

1 A (Witness Hodges) You need some hours because the
2 equipment will break and you can make some arguments that it
3 is safe to continue operations. The numbers, whether it is
4 72 hours or two weeks, depending upon the piece of equipment,
5 is made on a probabilistic argument.

6 A lot of the limiting conditions for operations
7 for the older plants, the numbers were somewhat arbitrary
8 and so if you go to the limiting conditions for operation you
9 will see a fairly wide variation for the same system from
10 plant to plant. One plant may have it seven days and another
11 17 days for a pump, for example.

12 On something like the diesel, though, they are all
13 in hours as opposed to days, and I think that would be a
14 fairly typical type of number, the 72.

15 There is work that has been going on to try to
16 better define the limiting conditions for operation in terms
17 of the reliability and the probability arguments. I don't
18 think that work is yet to the point where it is freely used;
19 it is still in its infancy.

20 Q So if I understand it, if the diesels were called
21 upon to operate during that 72-hour period when one diesel
22 was not operable, and an operator was to perform an error,
23 or to commit an error such that he would load the single
24 largest piece of equipment on the plant and thereby exceed
25 3300, assuming the case where that happens -- I know that

AGB/eb 13

1 doesn't happen in all cases -- then that would become the
2 single failure during that period, if I define the period
3 as that particular timeframe.

4 A (Witness Hodges) If you did not take that outage
5 as a failure, that's correct. We normally do.

6 A (Witness Berlinger) Judge Brenner, I might add
7 that no plant in the country is designed to take an
8 additional single failure if we assume the first failure is
9 the equipment out of service for some reason during that
10 72-hour period.

11 Q I understood all your testimony to be that until
12 you added "during that 72-hour period," because you were I
13 thought always discussing a second failure as if it had to
14 happen right away or at the same time. And now as I
15 understand, you are defining the "same time" as to the diesels
16 at least as 72 hours.

17 A (Witness Berlinger) No, maybe I misled you.

18 When I referred to the 72 hours I'm talking about
19 the LCO or the action state time period, whether it be
20 72 hours or 14 days or three days or two days or whatever it
21 is.

22 What I'm saying is that no plant in the country is
23 designed in such a way that they have assumed that one
24 diesel is out of service and you take an additional single
25 failure on top of that. That has never been the way that

AGB/eb14

1 GDC-17 has been interpreted.

2 Q All right.

3 But you can't point me to where the 72-hour standard,
4 if I could call it that, for Shoreham -- what the source of
5 that is with respect to the diesels?

6 A (Witness Hodges) I think the 72 would probably
7 come from the standard technical specifications, but I
8 couldn't point you to a regulation.

9 Q How about an analysis that formed the basis for
10 the technical specifications?

11 A (Witness Hodges) No.

12 A (Witness Berlinger) I don't think I could point
13 you to one either.

14 JUDGE BRENNER: Redirect by the Staff?

15 MR. ELLIS: Judge Brenner, before they begin, just
16 to save time, would you happen to have the 50 CFR that we
17 could look at in the interim and maybe save time?

18 (Document handed to Counsel.)

19 MR. ELLIS: Thank you.

20 REDIRECT EXAMINATION

21 BY MR. REIS:

22 Q Mr. Berlinger, do you know if BMEP puts any
23 additional stress on the crankshaft of the diesels?

24 A (Witness Knox) Would you repeat that, please?

25 Q Do you know if BMEP puts any additional stress on

AGB/eb15

1 the crankshaft of the diesels?

2 A (Witness Knox) No, I don't know.

3 JUDGE BRENNER: You said you don't know?

4 WITNESS KNOX: That's right.

5 BY MR. REIS:

6 Q Mr. Berlinger and Mr. Clifford, is the adequacy of
7 design a separate question from the adequacy of procedures?

8 MR. DYNNER: Objection; asked and answered.

9 JUDGE BRENNER: Sustained.

10 BY MR. REIS:

11 Q Mr. Berlinger and Mr. Hodges, should the diesel
12 generators be sized to handle total connectable loads?

13 MR. DYNNER: Objection; asked and answered.

14 JUDGE BRENNER: Mr. Reis, do you have a response
15 to that?

16 MR. REIS: Yes. Mr. Dynner asked those questions
17 particularly of Mr. Clifford and I think others on the panel
18 who are more acquainted with this area should particularly be
19 given an opportunity to answer those questions.

20 JUDGE BRENNER: All right. I don't think
21 Dr. Berlinger had had an opportunity earlier. We will allow
22 the question asked of Dr. Berlinger.

23 WITNESS BERLINGER: Just for clarity, Mr. Reis,
24 could you repeat the question?

25 BY MR. REIS:

AGB/eb16

1 Q Should the diesel generators be sized to handle
2 total connectable loads?

3 A (Witness Berlinger) In my opinion?

4 Q Yes.

5 A (Witness Berlinger) I would say no.

6 Q And what are the reasons for that opinion?

7 A (Witness Berlinger) The total connectable load
8 goes way beyond or includes load which is much greater than
9 would normally be automatically loaded onto the diesel, and
10 it assumes that every possible piece of equipment, even
11 though it is not supposed to be loaded onto the buses would,
12 by operator error, so to speak, be added on top of everything
13 else.

14 I don't believe it is necessary to design the plant,
15 either this component or any other component in the plant, to
16 by design be able to sustain any comprehensible failure that
17 you could postulate. If you did that in the aircraft industry
18 the plane would never get off the ground, and with regard to
19 a nuclear plant, it probably would never be built.

20 Q Mr. Hodges, do you have anything to add to that
21 answer?

22 A (Witness Hodges) In general I see no need to go
23 to the full capability that could be loaded on. I would
24 generally agree with what Carl said.

25 Q Okay.

AGB/eb17

1 I want to ask the panel this:

2 Dr. Morris referred to the 1984 standard of IEEE.
3 Does the Staff accept each IEEE revision that comes along of
4 standards? Are they automatically accepted?

5 A (Witness Knox) No. Generally we have to go through
6 the process of writing a Regulatory Guide to accept a
7 particular revision.

8 Q Okay.

9 In writing that Regulatory Guide, what goes into
10 the Staff's concerns and thinking in writing such a
11 Regulatory Guide in evaluating a standard?

12 MR. DYNNER: Objection. It is irrelevant to the
13 contentions.

14 JUDGE BRENNER: It is at least hopelessly overly
15 broad. I will sustain it on that basis.

16 While Mr. Reis is considering whether to ask another
17 question, Mr. Knox, if you don't read it -- that is, the
18 IEEE standard revision -- how can you decide whether any
19 adjustment should be necessary in the Staff's regulatory
20 approach?

21 MR. REIS: I don't think that there is a basis
22 that Mr. Knox passes on these things and decides that type
23 of question.

24 JUDGE BRENNER: All right, maybe that will be his
25 answer. Fair enough.

AGB/eb18

1 Is that your answer?

2 Look, I'm serious. Let me back up.

3 I have read your testimony. I have read your
4 qualifications. You are talking about surveillance, the
5 requirements on the diesels. And as I read that IEEE 387,
6 it bears on the question of surveillance requirements. And
7 one of the things that we might have liked to have asked
8 but cannot is whether there is any difference in the
9 recommendations for surveillance requirements between the two
10 versions.

11 Maybe there isn't, but I certainly would have liked
12 to have gotten it one way or the other on the record since
13 we did at least obtain the information that there was another
14 standard. So, you know, I am not just fooling around up here.

15 Maybe you are not the one to look at it but based
16 on the paper, as I say, of your written testimony, I would
17 have supposed that your normal everyday job would have
18 involved working with the IEEE 387 standard. But perhaps I am
19 incorrect in that regard.

20 WITNESS KNOX: There is another group that actually
21 did the review. Since I participate in using the standard I
22 would be asked to comment and make my recommendations. As
23 a general rule, the standards are just updated to try to
24 incorporate industry comments and essentially they are not
25 substantially changed from one revision to the next.

AGB/eb 19

1 So the fact that we have not updated the Reg. Guide
2 is probably an indication that there is no difference --
3 substantial difference in the Reg. Guide -- in the standards.

4 JUDGE BRENNER: So in any event you performed your
5 review by applying the Reg. Guide?

6 WITNESS KNOX: I would apply the Reg. Guide 1.9
7 and the standard it endorsed.

8 BY MR. REIS:

9 Q Mr. Hodges, you testified to the 72-hour
10 limitation on plant operation if one of the diesels is down.
11 Do you know whether that is contained in the license of any
12 other plant?

13 MR. DYNNER: Objection. It's irrelevant.

14 JUDGE BRENNER: Sustained.

15 Unless you want to tell me why it's relevant,
16 Mr. Reis? I'll withdraw--

17 MR. REIS: It was to show general Commission
18 practice of having this type of condition generally in the
19 plant, the Commission generally determining, through the
20 issuance of licenses, that this was a proper condition.

21
22
23
24
25
End 12;
14 fls.
(No 13)

AGB14/agbl

1 JUDGE BRENNER: Well you see Mr. Dynner wants
2 you to be able to show Commission practice by going through
3 each plant seriatum, maybe not each plant but some large
4 number of plants, and I tried to explain -- with little
5 effect, apparently, on the audience -- what balancing we
6 tried to draw in applying that in different contexts and
7 your question is over the line of the balance and has the
8 potential to lead to collateral information.

9 Now if you wanted to ask it as a general question
10 as opposed to about any plant.... But I think we already
11 have some information bearing on that and the witnesses'
12 answers to my questions but you can probe it further if you
13 want.

14 BY MR. REIS:

15 Q Mr. Hodges, do you know whether that 72 hours
16 is a standard technical specification thing that is
17 generally in licenses issued by the Nuclear Regulatory
18 Commission?

19 A (Witness Hodges) I would have to look at the BWR
20 four standard technical specifications to verify the
21 exact 72 hours. I know a number like that is in the standard
22 technical specifications and it is applied to all the plants
23 with similar LCO's. Whether it is exactly 72 in the standard
24 tech specs, I would have to go back and verify.

25 Q Mr. Knox, do you know?

1 A. (Witness Knox) Yes, it is 72 hours in the standard
2 tech specs for all the NSSS standard tech specs.

3 MR. REIS: That's all I have.

4 JUDGE BRENNER: Any follow-up based on questions
5 asked since you last had the opportunity to ask, Mr. Ellis?

6 MR. ELLIS: Yes, sir.

7 RECROSS-EXAMINATION

8 BY MR. ELLIS:

9 Q Mr. Eckenrode, Mr. Dynner asked you a number of
10 questions --

11 JUDGE BRENNER: I'm sorry, I was too slow, I
12 didn't mean to interrupt you, I wanted to ask you before
13 you started: it's 5:30, I wanted to make an observation
14 and find out how much you have, I've got to make a decision
15 as to whether we should continue today or not.

16 MR. ELLIS: Five minutes or so at the most.

17 JUDGE BRENNER: Do you have anything further,
18 Mr. Dynner?

19 MR. DYNNER: No.

20 JUDGE BRENNER: All right.

21 Go ahead, Mr. Ellis.

22 BY MR. ELLIS:

23 Q Mr. Dynner asked you a number of questions related
24 to task analysis previously performed by General Physics
25 and reviewed by the Staff.

1 Does it make any difference to your ability to
2 review and understand the task analysis being done for
3 Shoreham that previous such studies may or may not have
4 focused specifically on diesel generator loading?

5 A. (Witness Eckenrode) No, task analysis is a
6 rather general process that is used for all kinds of things,
7 from training requirements to design of instruments and
8 controls to writing of procedures.

9 I have done it on probably 100 different systems
10 over the last 20 years and the individual -- the specific
11 item has very little bearing on it.

12 Q. Dr. Berlinger or any member of this panel, are
13 you aware that the standard technical specifications are
14 contained in the NUREG document?

15 A. (Witness Berlinger) In a new what?

16 Q. In a NUREG document?

17 A. (Witness Knox) Yes, I believe that they are.

18 Q. Are you aware that the standard technical specs
19 and the Shoreham technical specifications include provisions
20 for increased surveillance testing to demonstrate the
21 operability of the remaining diesel generators during the
22 72 hour period?

23 A. (Witness Knox) Yes.

24 Q. All right.

25 Do you recall what those additional surveillance

1 testing requirements are?

2 A. (Witness Knox) I believe on an 18 month basis
3 you have to do an inspection --

4 Q. My question, let me ask: Are you aware,
5 during the 72 hour period that during the first hour the
6 remaining diesels are required to be started and run for
7 an hour within an hour and then they must be started every
8 eight hours thereafter and run for an hour to demonstrate
9 operability?

10 A. (Witness Knox) That's part of the standard
11 tech specs.

12 Q. Mr. Buzy, as one minor point, let me clarify:

13 At one point in response to Mr. Dynner's questions
14 I think you said you were -- something like you were afraid
15 that the diesel generator portion would be just a portion
16 of the program at the simulator, that it would be given
17 intermediate priority.

18 Am I correct that you didn't mean to imply that
19 that was inappropriate in any way, did you?

20 A. (Witness Buzy) No, as an ex-examiner and part-
21 time trainer I like to think that the training folks
22 prioritizing the training that they are going to be giving
23 at the simulator.

24 This is one of many issues that have to be
25 covered and you have to establish some kind of priority

1 with it. I'm sure they'll be covered.

2 Q I take it you were satisfied with the emphasis
3 and priority that LILCO intends to give the simulator
4 training in connection with the qualified load.

5 A (Witness Buzy) I haven't seen the entire
6 program other than what is in the JTA, so at this time I'm
7 satisfied with it.

8 Q You are familiar as well, aren't you, with how
9 many sessions are planned for each operator at the simulator
10 and that the simulator training will include scenario
11 training?

12 A (Witness Buzy) Yes, but I haven't got the
13 actual numbers, I haven't got the exact program, you know,
14 the planned program for the period at the simulator.

15 Q Mr. Buzy, in the course of your responses to
16 Mr. Dynner you indicated that in the case of lectures
17 problem sets would be used.

18 In your opinion, is this an appropriate and
19 effective training method to use in connection with the
20 establishment of a qualified load?

21 A (Witness Buzy) It's part of an overall program.
22 Yes, I think it is a very effective mechanism for operators
23 to practice in class.

24 Q In response to Mr. Dynner's question you indicated
25 that results of the -- you anticipated that results of the

AGB14/agb6

1 job task analysis would be as appropriate used then for
2 the development of the training, is that correct?

3 A. (Witness Buzy) It could well be, yes.

4 Q. Am I nonetheless correct, however, that as of
5 today, given you review of the training plan, given the
6 time that you spent at Shoreham, that you are satisfied
7 at this time the training that LILCO has planned will be
8 adequate to train operators in connection with the establish-
9 ment of the qualified load?

10 MR. DYNNER: Objection, asked and answered.

11 JUDGE BRENNER: I am going to allow it as a
12 follow-up to the very answer that Mr. Ellis referenced in
13 asking his question.

14 WITNESS BUZY: Yes, I am.

15 BY MR. ELLIS:

16 Q. Mr. Clifford, Mr. Dynner asked you a number
17 of questions concerning whether you had reviewed certain
18 procedures and I think in some instances you said you had
19 and in others you hadn't.

20 Am I correct that in those instances where you
21 had not reviewed procedures or had not completed a thorough
22 review of procedures that it is your view that that is not
23 necessary to reach the conclusions and opinions that you
24 have given in your testimony here today?

25 A. (Witness Clifford) I believe that's what my

1 testimony said at the time, I reviewed those procedures I
2 felt were necessary to address this issue.

3 Q By "this issue," we are referring to the establish-
4 ment and maintenance of the qualified load, is that correct?

5 A (Witness Clifford) Qualified load for LOOP/LOCA
6 conditions or LOOP conditions.

7 MR. ELLIS: No further questions, Judge Brenner.

8 JUDGE BRENNER: Give us one moment because we
9 have a piece of unfinished business involving LILCO's pending
10 motion to strike part of these witnesses' testimony and I
11 want to do that before these witnesses go in case something
12 is affected by that.

13 (The Board conferring.)

14 JUDGE BRENNER: First of all, as a courtesy to
15 the witness, although maybe they won't see it that way for
16 keeping them here a few extra minutes, I promised Mr. Ellis
17 a further explanation of why I was permitting the inquiry
18 related to the total connectible loads of Mr. Clifford.

19 My recollection and some notes I have scrawled
20 based on Mr. Clifford's testimony before the break was
21 that he had given at least one answer and probably effectively
22 two answers related to the loads that he thought -- types
23 of loads that he thought should be connected, not in quantity
24 of Kw but by description, and he gave quite a lot in terms of
25 loads that the operators could potentially add and so on and

1 then there were some questions in that time well isn't
2 that the total connectible loads and he said well he wasn't
3 sure but he wasn't approaching it from that perspective.

4 Given that prior testimony -- well let me add,
5 when we reconvened today, you, Mr. Ellis, asked him some
6 questions about what loads he thought should be connected and
7 I perceived -- and maybe what he was saying this time was
8 different than what he had testified to previously and
9 at least I had the caution that it was being expressed in
10 different words and, given that potential, I did not, for
11 my own selfish point of view, want to have to go back and
12 look at the record and say gee I don't understand if he's
13 saying something inconsistent or if it's the same thing
14 using differnt words or what -- and when Mr. Dynner was
15 probing in terms of total connectible loads I was beginning
16 to understand Mr. Clifford's position a little better. And
17 that is an additional reason I wanted to allow the line of
18 questioning, for what that's worth.

19 I didn't want to say all that at the time because
20 I didn't want to interrupt the questions any more and I
21 didn't want my view to unduly affect Mr. Clifford's though
22 process.

23 Because as you know, but Mr. Clifford might not
24 have realized, I might have decided that all the views I
25 had at the time were totally wrong once I reviewed the

1 testimony -- lawyers and Boards go through that process, too,
2 of course.

3 All right. Enough about that.

4 We have a pending motion to strike by LILCO
5 involving page six of Mr. Knox's testimony. We said -- Do
6 you have that in front of you, Mr. Ellis?

7 MR. ELLIS: I don't have the motion in front of
8 me --

9 JUDGE BRENNER: No, just the page of the
10 testimony.

11 MR. ELLIS: Yes, I do, Judge Brenner.

12 JUDGE BRENNER: Okay.

13 Do you remember when the motion to strike was
14 the entire two full paragraphs beginning with "in order"
15 and then there was a back-up that well maybe the first two
16 sentences were acceptable?

17 I'm sorry to be this vague but I don't have your
18 motion to strike either. It was fresher in my mind at
19 the time.

20 We are inclined to leave the first two sentence
21 in consistent with the back-up position on the motion to
22 strike and with some of our own views but I wanted to
23 understand better what -- and to strike the rest.

24 While you're thinking about that, I'll give my
25 reasons for the ruling to strike and then we'll back up and

1 decide particularly which portions.

2 We had said we would hold the motion in abeyance
3 and invited any parties to ask these witnesses questions
4 to develop that Mr. Knox or anybody else on the panel had
5 the expertise to support that testimony which involves
6 apparently knowledge of how diesels operate in the context
7 of BMEP's and fuel rack positions and the immediate
8 sequence of loading in the overload position before -- as
9 I say "immediate," the first and second. And we also
10 told Mr. Ellis he did not have to make the inquiry, he had
11 made his case preliminarily.

12 No party including the Staff, whose witnesses
13 these are, pursued the inquiry -- during the first rounds
14 of examination would have been the appropriate time.
15 During this last round, out of the blue, I guess you asked
16 the question that was possibly pertinent, Mr. Reis, but
17 the answer you got was that the witness didn't know and
18 on that basis there is no possible argument to strike the
19 testimony that we can see.

20 Does the Staff have a different position?

21 MR. REIS: No.

22

23

24

25

#15

AGBbrb 1

1 MR. DYNNER: I would like a clarification, because
2 as I recall Mr. Knox's testimony, it was that the personnel on
3 the PNL panel --

4 JUDGE BRENNER: -- told him something --

5 MR. DYNNER: -- who he had relied upon, and I
6 understood -- perhaps incorrectly -- that we were to explore
7 at the time the PNL panel goes on whether someone there --

8 JUDGE BRENNER: I'll get to that.

9 MR. DYNNER: Thank you.

10 JUDGE BRENNER: That doesn't affect the fact that
11 there is no one on this panel with the expertise to support it;
12 and we will strike it now without precluding inquiry into that
13 subject from the other panel. And, in fact, the Board has some
14 questions in that area for the panel, if nobody else does; and
15 I suppose we'll have to discuss the motion by LILCO to add
16 rebuttal testimony on that subject, which we have not reviewed.
17 I've only read it -- in fact, just glanced at, because it was
18 handed to us at the moment we began this session, or a few
19 moments before that.

20 However, it seems to us that the general knowledge
21 to support the first two sentences might be present in Mr.
22 Knox's expertise. And since we're going to get at the subject
23 anyway, it would be harmless to leave the first two sentences
24 in, if nothing else as a reminder in the record that we've got
25 to come back to the subject through the appropriate witnesses.

AGBbrb 2

1 So we're inclined to leave the first two sentences in and strike
2 the remainder of page six. But I'll give you a chance to
3 address that, Mr. Ellis.

4 MR. ELLIS: Judge Brenner, the original motion, as
5 you observed, did cover both paragraphs. I think it's
6 discussion that we had in argument -- I think you put to me the
7 very same thing you're putting to me now.

8 JUDGE BRENNER: I see. I wasn't sure.

9 MR. ELLIS: And I think at the time I expressed
10 the same view I'll express now, which is that it's LILCO's
11 view that all of it should go, but certainly beginning with,
12 at least, "Thus," and going on to the end, as the Board has
13 already stated should go.

14 I think -- I quite agree with the Board that the
15 question is -- the issue is a little bit less clear with
16 respect to the first two sentences than it is for everything
17 thereafter.

18 JUDGE BRENNER: Let me put it to you this way, since
19 you've done some thinking about this subject; I infer that from
20 your motion. Is there anything controversial about the first
21 two sentences?

22 MR. ELLIS: No, Judge Brenner.

23 JUDGE BRENNER: All right. Let's err in the direction
24 of leaving it in, so we at least have a foundation.

25 Now, whether or not we're going to come back to it

AGBbrb3
1 with rebuttal testimony is a separate question which we can
2 address tomorrow.

3 All right. Our ruling will be, then, with respect
4 to page six of Mr. Knox's testimony, we will strike the
5 testimony beginning with the third sentence of the first full
6 paragraph, which begins, "Thus, during this ten-second-plus
7 time...", down to the rest of the page, which includes a second
8 paragraph at that point.

9 Let me note, for Mr. Knox's benefit, that this is no
10 reflection on him, other than his area of expertise does not
11 cover than; and, in effect, it was thanks to Mr. Knox's direct,
12 candid answers that we were able to understand the situation
13 very well, which we appreciated.

14 You don't have to add anything unless you --

15 WITNESS KNOX: I just wanted to make an observation
16 that the first two sentences and the fourth and fifth sentences
17 are saying similar-type things, just a different set of
18 circumstances, and I don't think they should be deleted.

19 JUDGE BRENNER: I think you're probably right. But
20 in that case there's probably no error since we've got it down
21 there the first time. There is a general rule that if you have
22 to separate the admissible from the inadmissible, it's perfectly
23 open to strike it all; and I guess we will fall back on that
24 general precept as to the rest of it.

25 I think we could dismiss the witnesses at this point.

AGBbrb4

1 All right. I'm sorry to have kept you here the extra five or
2 ten minutes, but in case something came up, since we were
3 discussing matters relating to your testimony for which you had
4 put in obvious effort, especially recently, I thought it was
5 courteous that we do it while you were here. And we do thank
6 you all for being here again, and are also pleased that we were
7 able to finish with your testimony on this first day of what
8 will be a long week for the rest of us. Thank you very much,
9 and you can all leave as I keep talking.

10 (Witnesses excused.)

11 JUDGE BRENNER: I think all other matters can wait
12 for tomorrow. But I just wanted to point out some matters that
13 we will have to take up -- not necessarily tomorrow, and
14 perhaps some of these things are matters that the parties should
15 discuss further.

16 Number one, you'll give us the report on the SNRC
17 letter tomorrow.

18 Changing subjects, in terms of the proposed
19 settlement of the parties on the monitoring of the camshaft
20 gallery cracks, I'm not sure there's a full meeting of the minds
21 now, based on the last letter. And I would like the parties
22 to further resolve whether or not there is any requirement for
23 measuring those cracks, in accordance with how they would be
24 measured is spelled out in the agreement so far.

25 If, for some unanticipated reason, there is operation

AGBbrb5 1 substantially in excess or by some measure in excess of the
2 normal monthly surveillance operation -- right now, the way you
3 have it it contemplates the measurement every three hours.

4 I wasn't clear. I translate that in my own mind as
5 every three hours, on the basis that there would be one hour
6 of testing each month. And the reason I expressed it in terms
7 of hours is you're not worried about each hour, obviously, since
8 you were willing to agree to every three hours mutually. On
9 the other hand, you might want some substantial period of
10 operation to be covered. Maybe you don't need it.

11 And, as I said before, I'm merely asking the
12 question. And my remaining problem was that as the letter came
13 back, expressing the parties' position, the agreement is not
14 quite in a position where we could approve it. I don't want
15 to approve it without that point -- with that left unresolved.
16 I'm not saying it's anything but a minor point. I would just
17 like it resolved.

18 We had, as you know, Mr. Ellis' letter of last week
19 requesting that we have some sort of settlement conference.
20 That letter accurately reflected that the Board said we would
21 always be willing, when called upon by the parties. If we
22 didn't further express it, I will do so now. What we had in
23 mind was, more or less, the mutual belief of the parties that
24 we could be helpful. As we read the letter, it appears as if
25 the County believes that nothing further could be done. I hate

AGBbrb6
1 to be a pessimist; usually I try to be an optimist in terms of
2 possible settlement. But from what I can glean by that exchange
3 of letters, if the situation is still as it is, it's unlikely
4 that we can be of any help.

5 Notwithstanding that, we're certainly willing to
6 have at least some discussion to determine whether further
7 discussion is useful. But I think, if the posture is still as
8 expressed in the letter, the parties had better do some more
9 talking among themselves before we burden the record. We are
10 willing to have discussions on or off the record, but we're not
11 willing to have off-the-record discussions if any party objects
12 to them.

13 I think that's all I have to keep you here for now.
14 I have a follow-up question that I'll ask, probably, tomorrow
15 based on the Staff's answer to my questions as to the status of
16 inspections or investigations of TDI. We did receive the
17 Staff's letter and Dr. Berlinger's statement attached to it. We
18 have not yet, to my knowledge, had the benefit of the courtesy
19 of a reply from the Office of Investigations.

20 Mr. Reis?

21 MR. REIS: To bring you up to date to this minute,
22 I have no knowledge of a reply from the Office of Investigations.

23 JUDGE BRENNER: All right.

24 MR. REIS: Let me ask, in this connection: Dr.
25 Berlinger intended to go home this evening. Would that mean

AGBbrb7

1 that you wanted to hear from him tomorrow?

2 JUDGE BRENNER: No. I have a question, and you could
3 give him the information or the question. I don't know that
4 he would be the one to answer it in any event.

5 MR. REIS: I don't intend to be here tomorrow either.

6 JUDGE BRENNER: I'm going to ask a question tomorrow
7 and presumably somebody can transmit it.

8 MR. REIS: But you don't look for me to be here?

9 JUDGE BRENNER: You're welcome.

10 MR. REIS: Thank you.

11 JUDGE BRENNER: Can we adjourn for the day?

12 MR. ELLIS: Judge Brenner, I might mention one point,
13 if I may. Before we had the one-week break and before we all,
14 I think, collectively saw that this particular panel would
15 carry over until now, I had made a plea that we take up the
16 crankshafts first thing when we resumed again on the fifth of
17 March, because of Dr. Pischinger's availability and travel
18 plans. And I know that the Board plans to begin with him in the
19 morning. We certainly, even if the parties did consider that a
20 settlement conference should take place, we think that we ought
21 to get started with the crankshaft panel quickly, because we --

22 JUDGE BRENNER: Okay.

23 I'm not dictating the timing of that conference, and
24 I don't even know if the conference will take place. The parties
25 have further discussions to undertake among themselves first.

AGBbrb8

1 MR. ELLIS: What we need to, if I may -- I know that
2 we have checked -- I think Mr. Stroupe checked with Mr. Dynner
3 and I don't think that it is reasonable to anticipate that the
4 crankshaft panel will go beyond the day. But could we visit
5 that subject right now, because --

6 JUDGE BRENNER: I mean, you could. I'm not focused
7 on it.

8 MR. ELLIS: We would like to be able to reassure
9 Dr. Pischinger that he could leave Thursday afternoon and go
10 back to Germany to a meeting. And that would give him, essentially
11 two full days on the stand.

12 JUDGE BRENNER: I'm not in a position to give that
13 assurance. Well, let me now just stop there with the safe
14 answer. I don't know of anything now that would prevent that,
15 either, other than examination of the panel that will exceed
16 that time.

17 MR. ELLIS: I'll check with Counsel --

18 JUDGE BRENNER: We don't have an unusual amount of
19 Board questions that I know of. Maybe that helps. And Mr.
20 Dynner's written plan is not extensive; but he doesn't always
21 keep to his written plan. Neither does anybody else, all the
22 time.

23 MR. ELLIS: I'm certainly in that same company.

24 JUDGE BRENNER: I'll try to keep preliminary matters
25 tomorrow to a minimum. I do want to ask the question about the

1 inspection and investigation so that the Staff can get cracking
2 on it.

3 Let me say for the benefit of OI that -- and the
4 Staff can transmit this also: if I do not hear from them in the
5 next general time frame -- say, a week or two -- I will assume
6 that I'm not going to get the courtesy of a timely reply from
7 them and I will take whatever action I deem appropriate in
8 light of that.

9 MR. REIS: Mr. Chairman, I think we made clear to
10 you that we can transmit our messages to OI but we have very
11 little ability to control their work.

12 JUDGE BRENNER: All right. So you might want to
13 transmit this little addition.

14 Related to completion of the load contention:
15 although we've recognized the overlap because of the way the
16 Staff's testimony was structured, we did not hear from the
17 parties with respect to proposed findings. I had thought the
18 parties were going to give us a message last week on that
19 subject. I would like to discuss that at least a little bit
20 tomorrow. But, on the subject of findings, but not on the
21 schedule, it is obvious that, among other subjects, we expect
22 the parties to discuss, in the context of the testimony of the
23 Staff's witnesses on a work that they are still going to perform,
24 and on the work that LILCO is still going to perform, the
25 standards for delegation by the Board to the Staff of the

AGBbrb 10

1 resolution of issues when those issues relate to matters in
2 controversy before the Board. And don't just give me the
3 general law, because I know the general law. Apply it to the
4 facts at hand. And the parties may have a different opinion on
5 that. I guess I know what the Staff's view is, because some of
6 the dialogue I had with Mr. Reis at the outset today obviously
7 relates to that subject of delegation. Well, I can infer
8 certain things from Mr. Reis' answers. But, in any event, we
9 won't go on that basis. We'll wait for the findings of each
10 party to more fully and articulately express the position of
11 each of those parties.

12 MR. REIS: Yes. The Staff would particularly like
13 a view to write out its opinion on this.

14 JUDGE BRENNER: All right.

15 MR. DYNNER: I'm sorry; I just wanted to -- you're
16 suggesting that this be included in the findings, not
17 preliminary to that?

18 JUDGE BRENNER: No. In the proposed findings.

19 MR. DYNNER: Thank you.

20 JUDGE BRENNER: I expected that it was probably
21 unnecessary for me to point that out, and that each party would
22 have done it anyway. But I wanted to make sure.

23 All right. There being nothing further, we'll
24 adjourn now, and resume at nine o'clock.

25 (Whereupon, at 5:58 p.m., the hearing in the

AGBbrb11

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above-entitled matter was recessed, to reconvene
at 9:00 a.m. the following day, Wednesday,
6 March 1985.)

CERTIFICATE OF OFFICIAL REPORTER

This is to certify that the attached proceedings before the UNITED STATES NUCLEAR REGULATORY COMMISSION in the matter of:

NAME OF PROCEEDING: LONG ISLAND LIGHTING COMPANY
(Shoreham Nuclear Power Station)

DOCKET NO.: 50-322-01

PLACE: HAUPPAUGE, NEW YORK

DATE: TUESDAY, MARCH 5, 1985

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission.

(sig) Anne G. Bloom/sg
(TYPED)

ANNE G. BLOOM
Official Reporter
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