

ORIGINAL

UNITED STATES
NUCLEAR REGULATORY COMMISSION

IN THE MATTER OF:

DOCKET NO: 50-322-OL

LONG ISLAND LIGHTING COMPANY

(Shoreham Nuclear Power Station,
Unit No. 1)

LOCATION: BETHESDA, MARYLAND

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1 UNITED STATES OF AMERICA

2 NUCLEAR REGULATORY COMMISSION

3 BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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5 In the matter of: :

6 LONG ISLAND LIGHTING COMPANY : Docket No. 50-322-1 (OL)

7 (Shoreham Nuclear Power Station):

8 - - - - - :

9 Nuclear Regulatory Commission

10 Fifth Floor Hearing Room

11 4350 East-West Highway

12 Bethesda, Maryland

13 Thursday, February 21, 1985.

14 The hearing in the above-entitled matter was
15 reconvened, pursuant to adjournment, at 9:02 a.m.

16 BEFORE:

17 JUDGE LAWRENCE BRENNER, Chairman,
18 Atomic Safety and Licensing Board.

19 JUDGE PETER A. MORRIS, Member,
20 Atomic Safety and Licensing Board.

21 JUDGE GEORGE A. FERGUSON, Member,
22 Atomic Safety and Licensing Board.

23 (Not present.)

24
25

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C O N T E N T S

<u>WITNESSES</u>	<u>DIRECT</u>	<u>CROSS</u>	<u>REDIRECT</u>	<u>RECROSS</u>	<u>BOARD EXAM</u>
Richard J. Eckenrode)					
Carl H. Berlinger)					
M. Wayne Hodges) (Resumed)					
John L. Knox)					
James W. Clifford)					
Joseph J. Buzy)					
by Mr. Dynner (Continued)	28034				
by Judge Morris					28150
by Judge Brenner					28152
by Mr. Reis			28157		
by Mr. Ellis				28171	
by Judge Brenner					28213

RECESSES:

A.M. - 28080
 NOON - 28112
 P.M. - 28164
 P.M. - 28222

P R O C E E D I N G S

2 JUDGE BRENNER: Good morning.

3 As a courtesy we had handed out copies of the
4 Appeal Board's decision dated today in the low-power
5 exemption proceeding. But I understand the Appeal Board has
6 also made arrangements to have counsel for the parties who
7 were more directly involved in that part of the proceeding
8 receive copies also.

9 Are there any preliminary matters?

10 (No response.)

11 JUDGE BRENNER: Mr. Dynner, could you give us a
12 time estimate?

13 MR. DYNNER: I would guess about two to two and a
14 half hours, sir.

15 JUDGE BRENNER: We are going to break for lunch
16 from 11:30 to 1:30 today, and I would urge you to try to ask
17 your questions so that you finish by 11:30, and we'll see
18 where it goes.

19 Why don't you proceed?

20 Whereupon,

21 RICHARD J. ECKENRODE

22 CARL H. BERLINGER

23 M. WAYNE HODGES

24 JOHN L. KNOX

25 JAMES W. CLIFFORD, and

26 JOSEPH J. BUZY

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

3

CROSS-EXAMINATION

4

BY MR. DYNNER:

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Q Gentlemen, I would like to ask you-- Your counsel
I think have put on the transcript from yesterday: you may
recall this.

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If you will turn for a minute to page 27956, in
line 11 you'll see that I asked the question as follows:

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"Do any of you know of another case in
which the single worst case operator error would
have resulted in a power load that exceeded the
short-term rating of the emergency diesel generators
when added to the power level required in a LOOP/LOCA
event?"

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Mr. Knox responded no; that is, no, he didn't know
of another case. And if you look at the following pages
you'll see that there was a clarification with Mr. Hodges
about what was meant by the term I used of a single worst
case operator error, and then I said,

21

22

"Any of you other gentlemen, do you all
agree, or do just some of you disagree?"

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At that point I was asking you whether or not you
agreed with Mr. Knox's answer; he had said no, he didn't
know of another case. And then the lawyers got into it.

1 And if you look at the bottom of page 27959 you'll see that
2 I at that point ambiguously asked you to please respond to
3 the question. And it's not clear when I asked you to
4 respond to the question whether I was asking you to respond
5 to the question of whether you know of any other case or
6 whether I asked you to respond to the question of do you
7 agree with Mr. Knox's answer.

8 So in order to clarify the record -- and if you'll
9 look, you'll see your answers at the top of page 27960.

10 Mr. Buzy, when you answered no, am I correct that
11 you were responding to the question of whether you know of
12 any other case?

13 MR. REIS: Mr. Chairman, I would like the
14 witnesses to have a few minutes to read the whole -- the
15 intervening pages, because I don't think--

16 JUDGE BRENNER: It's not necessary, Mr. Reis; he
17 is posing the same question again.

18 Do you just want to pose the question to them--

19 MR. DYNNER: That might be simpler, but I wanted
20 to explain why I was clearing up the record.

21 JUDGE BRENNER: I think it was sufficiently clear,
22 but just in case it's not, I am re-interpreting Mr. Reis'
23 problem, not to the point of them reading.

24 MR. DYNNER: All right.

25 JUDGE BRENNER: Let me make a suggestion. When

1 you re-put it, Mr. Dynner, why don't you discuss it in terms
2 of the single worst case load that could be connected, which
3 is what Mr. Knox talked of.

4 MR. DYNNER: Yes, certainly.

5 MR. ELLIS: Judge Brenner, may it also be
6 understood that he ought to have a foundation for the
7 question as to whether they have any basis for knowing.

8 JUDGE BRENNER: They answered it that way. Now
9 the only question is what is "it" that they were answering.
10 Some of them gave that very answer.

11 MR. DYNNER: I will repeat the question, and I'm
12 going to do it as Judge Brenner suggested. And this is
13 going to be for Mr. Buzy, Mr. Clifford, Mr. Eckenrode and
14 Dr. Berlinger.

15 BY MR. DYNNER:

16 Q Do you know of another case in which the single
17 load that an operator might erroneously add would have
18 resulted in a power load that exceeded the short-term rating
19 of the emergency diesel generators when added to the power
20 level required in a LOOP/LOCA event?

21 Mr. Buzy?

22 A (Witness Buzy) No.

23 Q Mr. Clifford?

24 A (Witness Clifford) My answer remains the same;
25 I'd have no basis.

1 AGBwr

1 Q Mr. Eckenrode?

2 A (Witness Eckenrode) My "no" was with respect to
3 having no basis for answering that question.

4 Q All right.

5 Dr. Berlinger?

6 A (Witness Berlinger) I had no basis to answer that
7 question.

8 Q Thank you.

9 JUDGE BRENNER: I hate to stay on that one area,
10 especially since it's not as important as getting more
11 directly to specific parts of the contention.

12 Did you purposely limit your question to a
13 LOOP/LOCA, as opposed to a LOOP?

14 The loads are higher in the LOOP situation, in the
15 Shoreham plant anyway.

16 BY MR. DYNNER:

17 Q Would any of your answers be different had I said
18 "LOOP" only instead of "LOOP/LOCA?"

19 Your answers would all be the same; is that
20 correct, gentlemen?

21 A (Witness Berlinger) That's correct for me.

22 A (Witness Hodges) With one qualification: for the
23 loss of offsite power, after about five or six minutes you
24 get a LOCA signal, although you do not have a LOCA in fact.
25 So all of the loads that would normally be shed for the

1 LOOP/LOCA would be shed for the loss of offsite power also.

2 You get the LOCA signal because with loss of the
3 drywell coolers on the loss of offsite power the drywell
4 heats up and pressurizes. And if you base it upon the 1.67
5 psig at which you would get the LOCA signal, in about six
6 minutes you would get an ECC signal.

7 So all the subsequent loads that you'd worry
8 about, after that time it's just like a LOOP/LOCA.

9 Q Thank you.

10 JUDGE BRENNER: So the higher the loads put down
11 as being possible if the single maximum load is erroneously
12 added, the fact that there are higher ones listed for the
13 LOOP situation as compared to the LOOP/LOCA situation for
14 Shoreham would only be applicable for that first five or six
15 minutes of the LOOP?

16 WITNESS HODGES: Right.

17 JUDGE BRENNER: Okay.

18 BY MR. DYNNER:

19 Q Mr. Knox and Dr. Berlinger, you were asked a
20 question by Mr. Ellis as to whether or not you agreed with a
21 sentence that appeared on page 12 of the December 18th SER.
22 This is at transcript page 27772, which is Tuesday, February
23 19th. And the sentence you were asked about was one that is
24 quoted here as,

25 "The NRC Staff concludes that the TDI

1 diesel generators at Shoreham Nuclear Power Station
2 Unit 1 will provide a reliable stand-by source of
3 on-site power in accordance with the General
4 Design Criterion 17."

5 It's true, isn't it, gentlemen, that in the SER
6 there is language in that paragraph that follows, including
7 language which refers to, and begins "subject to" and then
8 there's a bunch of conditions; isn't that right?

9 A (Witness Berlinger) Yes, Mr. Dynner. In the
10 Conclusions section it states that the evaluation is based
11 upon the NRC PNL review.

12 Q Well, when you answered that question about your
13 agreement with the particular sentence that was read to you,
14 am I correct that what you meant to include was the rest of
15 that paragraph; that is to say, your agreement was subject
16 to the rest of the material in the paragraph in the SER that
17 follows that particular sentence?

18 A (Witness Berlinger) It was subject to certain
19 actions which we specified for LILCO to perform, which
20 addressed an enhanced maintenance and surveillance program,
21 and implementation of any additional actions which the Staff
22 funds necessary at the conclusion of its reviews of the
23 Phase I reports.

24 The third item was the installation of a suitable
25 alarm.

1 Q Let me repeat, to make it simple.

2 If you look on pages 12 and 13 of the December
3 18th SER, when you said you agreed with the first sentence
4 I'm correct, aren't I, that you agreed with the first
5 sentence depending also upon your agreement with the
6 material that follows onto page 13; isn't that right?

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

8 Q Is that right, Mr. Knox?

9 A (Witness Knox) I don't know; I didn't participate
10 in the writing of this SER.

11 Q Well, do you have any basis for agreeing with the
12 first sentence and not agreeing with the material that
13 follows?

14 A (Witness Knox) I'm going to have to read the
15 material before I can answer that question.

16 Q Well, why don't you go ahead and read that, and
17 I'll come back to you.

18 Dr. Berlinger, you also answered one of
19 Mr. Ellis' questions to the effect that he was correct when
20 he said it was the Staff's position that testing at 3300 Kw
21 had established the diesel generators' capability to support
22 loads the diesels are realistically expected to support
23 following a LOCA or a LOOP/LOCA. And that appears on page
24 27787 of the transcript, lines 14 to 19.

25 A (Witness Berlinger) What day is that?

1 Q That's the same date, that's Tuesday, February
2 19th.

3 MR. REIS: May I have that page again, Mr. Dynner,
4 please?

5 MR. DYNNER: 27787.

6 WITNESS BERLINGER: I have that page.

7 BY MR. DYNNER:

8 Q When you answered that question, I'm right, aren't
9 I, that you didn't intend to include loads that an operator
10 might add through an error; isn't that right?

11 A (Witness Berlinger) The question you are
12 referring to starts on line 9?

13 Q Yes.

14 A (Witness Berlinger) Mr. Dynner, that is correct.
15 I did not-- Let me strike that answer.

16 Could you restate your question again? I'm sorry.

17 Q When you answered "That is correct, Mr. Ellis," to
18 his question, you didn't mean to suggest that the testing at
19 3300 had established the diesel generators' capability to
20 support loads that an operator might erroneously add on top
21 of the MESL; isn't that right?

22 MR. ELLIS: Judge Brenner-- I withdraw the
23 objection.

24 WITNESS BERLINGER: That is correct, Mr. Dynner.
25 I did not consider any of the loads which might be

1 attributable to an operator error.

2 BY MR. DYNNER:

3 Q I'm going to turn now to some questions
4 particularly focussing on the panel comprised of
5 Messrs. Clifford, Buzy and Eckenrode.

6 Mr. Knox, before I do that, can you now tell me in
7 answer to my question whether you have any basis to agree
8 with the first sentence of that paragraph, but not agree
9 with the rest of the paragraph?

10 A (Witness Knox) I don't have a basis to agree or
11 disagree.

12 Q With the entire paragraph?

13 A (Witness Knox) With the entire thing; that's
14 right.

15 Q Thank you.

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AGBeb

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JUDGE BRENNER: You are going to pick up with page 5 of the cross plan.

MR. DYNNER: I am going to probably pick up at page 6, but I have a few preliminary things. I will come back to page 5.

JUDGE BRENNER: Very well.

BY MR. DYNNER:

Q Gentlemen, are all three of you normally involved in -- as a part of your responsibilities in working for the NRC in the review of operating procedures for nuclear power plants?

A (Witness Eckenrode) No, I am not.

A (Witness Clifford) Mr. Dynner, I am.

A (Witness Buzy) I am normally not involved with it.

Q All right.

Mr. Buzy, can you tell me why are you involved in the review of these particular procedures if it is not your normal job?

A (Witness Buzy) I was involved in the reviewing of the training program for Shoreham's EDGs, and reviewing procedures as well.

Q Do your responsibilities at the NRC then focus on the training side?

A (Witness Buzy) That's correct.

AGBeb

1 Q Could you briefly tell me what responsibilities
2 you've had in reviewing and analyzing the training of
3 operators for nuclear power plants for NRC?

4 A (Witness Buzy) In the last five years I have
5 reviewed training programs which were submitted by licensees
6 as part of the FSAR using guidelines developed in NUREG 0800
7 Standard Review Plan. I reviewed Section 13.2 of the FSAR
8 which has to do with training.

9 In addition to that I also reviewed changes,
10 modifications to the requalification programs for licensed
11 operators.

12 Q Mr. Eckenrode, can you tell me what your normal
13 responsibilities are with the Commission?

14 A (Witness Eckenrode) My normal responsibilities
15 are review of the detailed control room design reviews. In
16 this particular case, my responsibility is examination of
17 the control room to determine if the proper information and
18 control capability is there, and in addition, to determine
19 if the task analysis effort performed to develop the
20 procedures and the information and control requirements is
21 being accomplished, or some analysis has been accomplished
22 that will satisfy that.

23 Q And have you had substantial experience in that
24 area?

25 A (Witness Eckenrode) Which areas?

AGBeb

1 Q In the areas that you've just described, control
2 room design and analysis?

3 A (Witness Eckenrode) Control room design review
4 for the last five years that I have been with the NRC, and
5 for the previous 20 years in human factors.

6 Q Am I correct also, Mr. Buzy and Mr. Clifford,
7 that you have significant experience in human factors areas?

8 A (Witness Clifford) My experience in human
9 factors areas go back to development of Staff programs. I,
10 myself, am not a human factors engineer or psychologist. I
11 have had some formal training and courses both with the NRC
12 and at a post-graduate level in human factors engineering
13 principles. And I have been involved in the development of
14 human factors principles as they apply to nuclear power
15 plants since I have been with the Commission.

16 A (Witness Buzy) I have had no formal education in
17 human factors. However, I have been a licensing examiner
18 since 1963 to 1981.

19 Q Mr. Buzy, if you have the same transcript handy
20 that I was referring to, that of Tuesday, February 19th, on
21 page 27,822 you were asked a question at the bottom of the
22 page as to whether you are familiar with the training
23 program in general at Shoreham for the operators. And you
24 answered you were.

25 And then you were asked:

AGBeb 1

2 "Are you generally satisfied that
3 this is an adequate and appropriate training
4 program?"

5 And you said:

6 "Yes, I am."

7 When you answered that question did you have in
8 mind to include the training program for operators to
9 maintain the EDG levels at 3300 or lower?

10 A (Witness Buzy) No, I did not.

11 Q What were you referring to when you answered that
12 question?

13 A (Witness Buzy) I have reviewed the latest
14 submittal for Section 13.2 for Shoreham's program, training
15 program.

16 Q What training program was that for?

17 A (Witness Buzy) This is all licensed and
18 unlicensed operator programs.

19 Q With respect to the training associated with
20 maintaining the EDG load limit to 3300 or below, have you
21 been given adequate information from LILCO in order to
22 determine whether or not that training program is adequate?

23 A (Witness Buzy) I have received one lesson plan
24 and what LILCO calls a job or task analysis, and I haven't
25 come up with any final conclusions for those.

Q Have they told you that that lesson plan is in

AGBeb 1 the process of being revised?

2 A (Witness Buzy) I am not aware of it.

3 Q So far as you know that is the final lesson plan?

4 A (Witness Buzy) That is a lesson plan.

5 Q Does that material that you have so far received
6 from LILCO -- is that material sufficient to enable you to
7 make an assessment of the training program for operators to
8 maintain the EDG limits, or would you need additional
9 information?

10 A (Witness Buzy) I would need additional time to
11 review the whole package before I can even answer that
12 question.

13 Q How much time would you estimate that you'd need
14 to review the material that you have so far regarding
15 training?

16 A (Witness Buzy) I would probably need several
17 days to review the job analysis and also the lesson plan.
18 Whether this takes me into reviewing revised procedures,
19 that would add even more time. I would estimate two days to
20 make that assessment of the adequacy of what they have
21 submitted so far.

22 Q Mr. Clifford, you were asked a question as to
23 whether you were prepared to tell LILCO each and every
24 change that the Staff wanted to insert into the procedures
25 regarding maintenance of EDG levels, or that would have an

AGBeb 1 impact on the maintenance of EDG levels to 3300.

2 Does the Staff normally tell a utility the
3 precise changes that it wants in language in procedures for
4 operations?

5 A (Witness Clifford) No, we do not.

6 Q In this particular case it is true, isn't it,
7 that you and other members of the Staff have had meetings
8 with LILCO regarding the procedures and training with
9 respect to the maintenance of EDG levels? Isn't that right?

10 A (Witness Clifford) Yes, we have.

11 Q Is that a normal procedure for the Staff to
12 follow--

13 A (Witness Clifford) Yes,--

14 Q -- with a utility?

15 A (Witness Clifford) -- we normally generate
16 comments that identify our concerns, and have meetings to
17 discuss those concerns before modifications are made.
18 That's the general process we go through.

19 Q And this letter that was sent of February 5th
20 which -- I don't remember what exhibit number that is, if it
21 is an exhibit number.

22 MR. DYNNER: I think it was marked for
23 identification, wasn't it?

24 MR. REIS: Yes, it was marked D-13 for
25 identification.

AGBeb

1 MR. DYNNER: Thank you.

2 BY MR. DYNNER:

3 Q Exhibit D-13, the letter of February 5th, is that
4 a type of comment letter the Staff would normally send to a
5 utility?

6 A (Witness Clifford) Yes, it is.

7 Q So that with respect to LILCO, is it fair to say
8 that you have followed the normal procedures the Staff would
9 follow in reviewing operating procedures for a utility?

10 A (Witness Clifford) Yes, that would be fair to
11 say.

12 Q And can any of you gentlemen tell me, is it
13 normal procedure for the Staff to have a plant operating
14 procedure reviewed by the same personnel that test operators
15 at Region I, for example?

16 A (Witness Buzy) Review of the adequacy of
17 procedures by regional personnel I believe is part of an
18 inspection program that is conducted by the Staff in the
19 region. That's the only tie I can make to that one. I
20 can't point to any inspection numbers.

21 Q But I am correct, aren't I, that the normal
22 process followed is for Mr. Clifford's organization to
23 review procedures. Isn't that right?

24 A (Witness Clifford) There are really different
25 types of procedure reviews. The region does have inspection

AGBeb 1 groups that use inspection modules that look at certain
2 aspects of all procedures.

3 Our group was formed after the Three Mile Island
4 accident to initially look at the types of problems that
5 existed in emergency operating procedures, and that is
6 really all we looked at immediately after Three Mile Island,
7 and to investigate other procedure areas to determine
8 whether Staff action was needed in those other procedural
9 areas.

10 So we have been primarily concerned with
11 emergency operating procedures. To the best of my
12 knowledge, they are a separate organization within the
13 region, not the operator licensing group that evaluates the
14 procedures for the region.

15 Mr. Dynner, it might help to amplify. As I said,
16 we evaluate emergency operating procedures to identify the
17 types of problems that existed. The current Staff program
18 is to evaluate programs for developing emergency operating
19 procedures and not the emergency operating procedures
20 themselves.

21 Q Am I correct then that with respect to what you
22 gentlemen have done concerning the procedures and training
23 to limit EDG levels at Shoreham that you have, in all
24 respects, complied with the normal practices of the NRC?

25 MR. ELLIS: I object to the question. I think

AGBeb 1 it is unnecessarily broad and vague, in addition to which it
2 is contrary to the previous answers that the witnesses have
3 given.

4 JUDGE BRENNER: I am going to sustain it on the
5 first ground. We are going to have to get more specific
6 very quickly, Mr. Dynner.

7 MR. DYNNER: I'm about to.

8 JUDGE BRENNER: Good.

9 BY MR. DYNNER:

10 Q Did any of you gentlemen participate in the
11 preparation of the February 5th letter and its request for
12 additional information?

13 A (Witness Clifford) I think I can speak for the
14 group. We all participated in the development.

15 Q All three of you?

16 A (Witness Clifford) Yes.

17 Q Could you please get that letter, Exhibit D-13,
18 in front of you?

19 (Pause.)

20 If you will turn to the request for additional
21 information which is attached to the cover letter of
22 February 5th, first of all there are a number of specific
23 procedures and revisions that are referred to on that page.

24 In addition to those, have you had an opportunity
25 to do a preliminary review of the revisions and other

AGBeb 1 procedures that LILCO has given you with respect to limiting
2 EDG load levels?

3 MR. ELLIS: Objection, asked and answered.

4 (The Board conferring.)

5 JUDGE BRENNER: The objection is correct, but I
6 don't know if the situation has changed since the question
7 was asked so I will allow it for that reason.

8 WITNESS CLIFFORD: We have conducted a
9 preliminary review of the revisions to the procedures listed
10 here that we have been provided.

11 BY MR. DYNNER:

12 Q Now look down under the heading "General" in "A."

13 You asked a question how the operators are to
14 physically manage these procedures.

15 Am I correct that this question evidences a
16 concern on the Staff's part as to whether or not operators
17 would be physically able to manage all of the necessary
18 procedures?

19 A (Witness Clifford) That's correct.

20 Q Could you briefly explain why you have this
21 concern?

22 A (Witness Clifford) The concern comes from
23 several sources. Initially when we reviewed various BWR
24 emergency operating procedures, based on the BWR Owners'
25 Group emergency guidelines, one of the specific areas of

AGBeb 1 concern we had was the number of procedures within those
2 guidelines that had to be simultaneously executed.

3 Part of that concern came from the fact that the
4 containment control procedure actually contains four
5 simultaneously executed sections. We determined that those
6 sections and the various portions of the BWR Owners' Group
7 guidelines could in fact be executed.

8 And what we saw here were the addition of a
9 number of other procedures that would have to be executed
10 under the conditions we were asked to evaluate, and that is
11 a LOOP/LOCA. We saw no evidence or no evaluation that
12 showed us that the operators could in fact manage the
13 procedures that they were expected to manage all at once.

14 MR. ELLIS: Judge Brenner, I move to strike part
15 of that answer because I think the reference was a review of
16 BWR Owners' Group emergency procedures rather than the
17 specific procedures here, but I may have misunderstood the
18 answer and so I do it with some humility about the value of
19 my motion.

20 JUDGE BRENNER: Even if you were correct we would
21 overrule the objection. You can come back at it with
22 follow-up. I'm not sure of the situation either.

23 Off the record.

24 (Discussion off the record.)

25 JUDGE BRENNER: Back on the record.

AGBeb 1

BY MR. DYNNER:

2 Q Are there a greater number of procedures now than
3 there were previously that were reviewed by the Staff?

4 A (Witness Clifford) Previously? As of when?

5 Q Well, did the Staff previously review the
6 emergency operating procedures for Shoreham?

7 A (Witness Clifford) As I believe I stated either
8 yesterday or the day before, I was involved in a review of
9 the Shoreham emergency operating procedures based on the BWR
10 Owners' Group guidelines, and those involved the level
11 control and containment control procedures, and I don't
12 remember whether that involved the emergency shutdown
13 procedure or not.

14 The other procedures, the loss of offsite power
15 and the loss-of-coolant accident coincident with a loss of
16 offsite power, are additional procedures that we did not
17 look at at that time.

18 MR. ELLIS: Judge Brenner, I don't think the
19 answer again was responsive.

20 JUDGE BRENNER: But let the questioner worry
21 about that.

22 MR. ELLIS: Can we have the answer read back with
23 the question?

24 JUDGE BRENNER: Yes, but I want to make progress
25 today, but we will have that done.

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

3 BY MR. DYNNER:

4 Q Is it fair to say then that the review of the
5 procedures and training that you are undertaking now with
6 respect to the EDG load level issue is more comprehensive
7 and in depth than was done before with respect to that
8 issue?

9 A (Witness Clifford) I guess I need a
10 clarification of the end of your question.

11 Q Okay.

12 The issue I am talking about is emergency
13 operating procedures and shutdown.

14 A (Witness Clifford) The review itself, I don't
15 know if I would characterize it as more comprehensive. We
16 were focused on a specific issue and that is the effect of
17 a 3300 kw load limit during loss of offsite power or
18 loss-of-coolant accident conditions.

19 We did, I would say, a more comprehensive
20 evaluation in my previous review of other events besides
21 those.

22 Q But this was a more focused review on these
23 particular matters which relate to the EDG load level
24 limitations. Is that right?

25 A (Witness Clifford) Yes, it is.

1 Q What information are you looking to receive from
2 LILCO in order to resolve your concern that operators may
3 not be able to physically manage these procedures?

4 A (Witness Clifford) We are looking really for a
5 couple of things. One is a description or an explanation of
6 how they expect operators to manage the procedures, and
7 taking the necessary procedures, determine the necessary
8 priorities between the various procedures.

9 And the second part we're looking for is an
10 evaluation of the operators in real time, under realistic
11 conditions, to be able to manage the procedures,
12 demonstration by the operators themselves that they can
13 manage these procedures.

14 Q Let me make sure I don't misunderstand you.

15 Are you saying that you would require a physical
16 demonstration by the operators with various scenarios, or
17 you just want a written description of how the physical
18 management of the procedures would occur in different
19 scenarios?

20 A (Witness Clifford) We want assurance that an
21 adequate demonstration either has been conducted or will be
22 conducted and, if it has not been conducted, we would expect
23 to look at the results of that evaluation. But we are
24 looking for assurance that the operators have in fact been
25 evaluated managing these procedures.

1 AGBeb

1 Q Let me turn to "B" now in your request.

2 It says:

3 "Explain how the operators establish
4 priorities between the various procedures and
5 between the necessary actions contained in the
6 various procedures."

7 Am I correct that by that question you are
8 expressing a concern on the part of the Staff that the
9 current procedures do not adequately establish priorities
10 between the various procedures and necessary actions?

11 A (Witness Clifford) As we describe later on in
12 some of the detailed comments, there are a number of
13 procedures that, in our opinion, contain conflicting
14 instructions that are not prioritized and could lead to
15 confusion. And I believe we discussed those in
16 cross-examination with LILCO yesterday.

17 MR. ELLIS: Judge Brenner, may I make a request
18 for clarity's sake?

19 I think it might advance things if when we talk
20 about the procedures if the questioner would make clear
21 whether they are talking about the procedures that they
22 initially reviewed or the ones which they have preliminarily
23 reviewed. I think it would help.

24 JUDGE BRENNER: All right, I think that would be
25 helpful, also. The letter doesn't even contain revision

1 numbers in some cases with respect to these procedures.

2 MR. DYNNER: Well, let me then ask:

3 BY MR. DYNNER:

4 Q Gentlemen, does your preliminary review of the
5 additional procedures or revisions that LILCO furnished you
6 that you didn't -- hadn't reviewed at the time that you
7 prepared this letter adequately answer the concerns that are
8 raised by this letter?

9 MR. ELLIS: I object. The very question inserts
10 "preliminary review."

11 JUDGE BRENNER: No, the objection is overruled.

12 WITNESS CLIFFORD: Are you talking about these
13 specific concerns that we have identified, or in general--

14 BY MR. DYNNER:

15 Q The general concerns which we are now exploring,
16 which I am going to explore with you which appear on the
17 first three pages of the request.

18 A (Witness Eckenrode) May I add something here?

19 Q Certainly.

20 A (Witness Eckenrode) To begin with, the request
21 in "C" is for an evaluation. That is something beyond just
22 the procedures themselves.

23 Secondly, there are several items in this request
24 for a description of displays, enunciators, alarms, et
25 cetera, which of course would also not be in the

1 procedures that were received.

2 Q Well, my question I suppose could be better
3 framed.

4 Does your preliminary review of the additional or
5 revised procedures that LILCO furnished you adequately
6 address any of the concerns that are set forth under the
7 section "General" in the first three pages?

8 A (Witness Clifford) That's why I took the time to
9 look through. Based on having read them here, I don't
10 believe that the procedure revisions or just submitting
11 procedures would get at the types of concerns we identify
12 here.

13 We are asking for descriptions of how they went
14 about developing things and evaluations of how they reached
15 conclusions.

16 Q All right.

17 Just to make things clear, in the future when I
18 refer to "procedures" and you refer to "procedures," I am
19 going to be talking about all of the procedures, both the
20 ones you reviewed in depth and the ones you preliminarily
21 reviewed.

22 And if you come to a question where it makes
23 sense to distinguish between them because you -- in thinking
24 about the answer to the question, there is a reason to
25 distinguish the -- let's call them "revised procedures,"

1 which means the ones you preliminarily reviewed, please make
2 that distinction in your answer.

3 MR. ELLIS: Judge Brenner, I think that makes
4 things worse.

5 JUDGE BRENNER: Let him do it because that's what
6 I thought you had the problem with, Mr. Ellis. And if I
7 misunderstood it I'm sorry, but I am going to let
8 Mr. Dynner--

9 MR. DYNNER: That's not even a proper objection.
10 It is just an interruption.

11 JUDGE BRENNER: I will feel free to interrupt if
12 I think matters are getting worse. We want to get some
13 facts here on the framework that you have now spent a lot of
14 hours yesterday and some more time today building.

15 MR. DYNNER: I'm trying.

16 JUDGE BRENNER: Let me ask one question, given
17 the way you want to proceed now.

18 Is it correct that you have preliminarily
19 reviewed all procedures identified by LILCO's witnesses as
20 being the latest revisions, or is the category of what the
21 Staff has preliminarily reviewed different than that
22 category of the latest revisions identified by LILCO's
23 witnesses?

24 WITNESS CLIFFORD: Judge Brenner, I would have to
25 look through that specific list to be able to answer that

1 AGEeb

1 specific question. We have looked at the revisions to level
2 control, loss of offsite power,....

3 JUDGE BRENNER: You are aware of what they
4 testified to, aren't you? I don't want to keep recreating
5 the record every time we shift witnesses.

6 Do you know what LILCO said is their latest
7 revisions?

8 WITNESS CLIFFORD: Not to the specific list of
9 procedures. We have been given a lot of procedures, some of
10 which we did not have before when they submitted their
11 initial set. And I don't know the specific list that they
12 referred to.

13 JUDGE BRENNER: If I gave it to you now could you
14 tell me whether that's included in the ones you have
15 preliminarily reviewed?

16 WITNESS CLIFFORD: Yes, I could.

17 JUDGE BRENNER: All right.

18 For emergency diesel generators-- Do you need
19 the numbers also of the procedure?

20 WITNESS CLIFFORD: I would need the revision
21 number.

22 JUDGE BRENNER: I'll give you the revision
23 number. I mean the basic number.

24 WITNESS CLIFFORD: Not the basic number.

25 JUDGE BRENNER: All right.

1 Emergency diesel generators, Revision 12.

2 WITNESS CLIFFORD: That one has not been revised,
3 as far as we know.

4 JUDGE BRENNER: All right. So that one is fully
5 reviewed in terms of -- to the point of having been
6 considered as part of your request for additional
7 information.

8 WITNESS BUZY: I have reviewed the emergency
9 diesel generators.

10 JUDGE BRENNER: All right.

11 My question as to each of these to the three of
12 you is going to be whether you have reviewed the revision I
13 give you, and then the next question-- If the answer to
14 that is "No," that will tell me.

15 If the answer to that is "Yes," then the
16 additional explanation I would appreciate is whether it was
17 a review that is reflected in your request for additional
18 information, the February 5th letter, or if, as to that
19 latest revision that I am going to give you, it is what you
20 have termed your preliminary review which you have performed
21 after generating that request, because I want to make sure
22 we all understand what you've looked at and if so, to what
23 extent in the context of what your position was at the time
24 you sent the letter which is the same point in time as of
25 the time you wrote the testimony. All right?

1 AGBeb

1 So as to Revision 12 of the emergency diesel
2 generators procedure, what category does that fit in with
3 respect to your review?

4 WITNESS BUZY: That fits into the second. We
5 have requested additional information on that revision.

6 JUDGE BRENNER: Okay.

7 The loss of offsite power emergency procedure,
8 Revision 9.

9 Mr. Ellis, you feel free to tell me if I've
10 messed up the revision number as I go through this. What I
11 am trying to do is give the same latest revision number as
12 testified to by your witnesses.

13 MR. ELLIS: Yes, sir.

14 WITNESS CLIFFORD: That was a preliminary review.

15 JUDGE BRENNER: You did, however, review an
16 earlier provision for the purpose of generating the request
17 for additional information?

18 WITNESS CLIFFORD: Yes, we did.

19 JUDGE BRENNER: I guess I will broaden my
20 question if I could. Could you tell me what the revision
21 now is?

22 WITNESS CLIFFORD: I have Revision 7.

23 JUDGE BRENNER: I am only going to give you the
24 procedures that LILCO says are still in existence, and we
25 have had testimony as to others.

1 The level control emergency procedure, Revision
2 5.

3 WITNESS CLIFFORD: We reviewed Revision 4.
4 Revision 5 is preliminary review.

5 JUDGE BRENNER: All right.

6 I'll give some shorthand here, and if you need
7 some information I will give it to you.

8 The service water operating procedure, Revision
9 11.

10 WITNESS CLIFFORD: We have not looked at that
11 procedure.

12 JUDGE BRENNER: Okay. In any revision?

13 WITNESS CLIFFORD: No, in any revision.

14 JUDGE BRENNER: The core spray operating
15 procedure, Revision 14.

16 WITNESS CLIFFORD: We have not looked at that
17 procedure.

18 JUDGE BRENNER: The RHR low pressure coolant
19 injection operating procedure. I'm not sure that is the
20 exact title. I can give you the number if you need it.

21 WITNESS CLIFFORD: We have not looked at that
22 procedure.

23 JUDGE BRENNER: Was that title sufficient for you
24 to identify it?

25 WITNESS CLIFFORD: Yes, it is.

1 MR. DYNNER: That was Revision 3, Judge?

2 JUDGE BRENNER: Revision 3.

3 MR. DYNNER: Thank you.

4 JUDGE BRENNER: How about the suppression pool--
5 I'm not sure that's the right title. It's an operating
6 procedure involving the suppression pool. It is 23.702.04,
7 Revision 4.

8 WITNESS CLIFFORD: We have not reviewed that
9 procedure.

10 MR. ELLIS: Judge, if you would like the title of
11 that one it is suppression pool leakage return.

12 JUDGE BRENNER: Thank you.

13 And I have another one that I am not sure of the
14 exact title, but it is the emergency procedure dealing with
15 containment control. It is 29.023.03, Revision 9.

16 WITNESS CLIFFORD: We reviewed that procedure
17 after preparing our request for additional information, and
18 we have done a preliminary review -- detailed review on
19 Revision 8 and a preliminary review on Revision 9.

20 JUDGE BRENNER: All right.

21 Was the detailed review on Revision 8 also after
22 preparation of the request for additional information?

23 WITNESS CLIFFORD: It was I believe after the
24 preparation, and it now occurs to me that our comments on
25 that procedure are not included in our request for

1 additional information.

2 JUDGE BRENNER: There are some other procedures.
3 I am not sure whether they are included in this category or
4 not, but I'll give them to you. There are just three more.

5 The emergency diesel generator start and load
6 test procedure, which would be Revision 9.

7 WITNESS CLIFFORD: We have not looked at that
8 procedure.

9 JUDGE BRENNER: The diesel generator emergency AC
10 power load sequencing test, Revision 8.

11 WITNESS CLIFFORD: We have not looked at that
12 procedure.

13 JUDGE BRENNER: And the emergency diesel
14 generator load rejection test, Revision 8.

15 WITNESS CLIFFORD: We have not looked at that
16 procedure.

17 JUDGE BRENNER: If anybody else has any
18 suggestions of other procedures which we should list so we
19 know what was reviewed and what wasn't, and then take it
20 from there, I'll welcome them -- including the witnesses, if
21 there are some others that we should identify and understand
22 which ones you looked at, to what extent.

23 MR. DYNNER: I think there are a few more, and
24 some of them are identified in the request itself.

25 But we have the loss of instrument air, which is

1 Revision 4. These are listed at the top of the request.

2 JUDGE BRENNER: I left out procedures that have
3 been deleted, and I thought that one fell in that category.
4 Maybe I am incorrect.

5 MR. DYNNER: Well, I mean as I recall the record,
6 the only one that was deleted, Judge, is the loss-of-coolant
7 accident coincident with a loss of offsite power.

8 JUDGE BRENNER: You are correct; at least that's
9 my recollection.

10 MR. ELLIS: Yes, Judge. But I think you were
11 correct also before in your other statement because I think
12 what was revised there is the loss of instrument air. The
13 reference to that is not included in the emergency operating
14 procedures for loss of offsite power.

15 JUDGE BRENNER: All right. Let's find out which
16 ones of the other ones you listed in your request for
17 information-- We already have one that I've left out at
18 least, and there are some others that I see also.

19 WITNESS CLIFFORD: The emergency shutdown
20 procedure I don't believe you covered.

21 JUDGE BRENNER: I did not. And you have a
22 Revision 4 listed.

23 WITNESS CLIFFORD: That's correct.

24 JUDGE BRENNER: Do you know whether that's the
25 latest one or not?

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WITNESS CLIFFORD: That's the latest one that I'm aware of. I don't have my list of revisions here.

JUDGE BRENNER: Right. It is just to the extent of your knowledge. What we're interested in finding out is what you gentlemen have reviewed and considered, not necessarily whether you correct that in fact that's the latest revision.

And how about the loss of instrument air? You have listed Revision 4 as the one you evaluated.

1 WITNESS CLIFFORD: That's correct.

2 JUDGE BRENNER: And do you know if there's another
3 one, to your knowledge?

4 WITNESS CLIFFORD: We are not aware of another
5 one.

6 JUDGE BRENNER: For the overall main control room
7 conduct of personnel procedure, you have listed Revision 7.
8 Do you know if there's another one?

9 WITNESS CLIFFORD: I'm not aware of another one.

10 JUDGE BRENNER: When I say "you have listed," of
11 course you know I'm reading from the first page of the
12 attachment to Staff Exhibit D-13. I believe I covered the
13 others in that opening list.

14 If there are others mentioned somewhere in here
15 that I've missed, I'll let the parties suggest it now or
16 pick it up later.

17 Mr. Ellis.

18 MR. ELLIS: I just was going to ask, Judge
19 Brenner, what was the revision number you listed with
20 respect to the main control room conduct of personnel?

21 JUDGE BRENNER: Revision 7.

22 MR. ELLIS: I don't have that procedure in front
23 of me, so I cannot tell you whether that's the latest or
24 not. But I'll find out.

25 JUDGE BRENNER: All right.

1 The main focus here is to find out what the latest
2 one is that these witnesses have looked at. And there was a
3 subset of that. That's to the extent of their looking at
4 it.

5 All right; I'm sorry to have taken the time here.
6 But, as I've already said, I could have used a better
7 description in the written testimony of what was looked at,
8 when, and I got confused as you were asking your questions,
9 Mr. Dynner, as to what these gentlemen have looked at. And
10 they are giving us their best efforts to tell us what the
11 result of their review has been. And it behooves us to
12 understand, as they do in their own minds, what constitutes
13 the bases for those conclusions.

14 MR. DYNNER: I think that was a valuable
15 addition. I should have thought of that myself.

16 JUDGE BRENNER: I don't know how valuable it is.

17 But my next point is:specific, Mr. Dynner. I have
18 looked at your cross plan, there are some valuable questions
19 there that will adduce specific information. You seem
20 overly hung up, I think, on making sure the framework for a
21 review is on the record. And I think that was important.
22 But I think you have gone past the point where you have
23 achieved that purpose.

24 Now you can proceed, as I think you were starting
25 to, to go through, identifying what their specific concerns

1 are in terms of -- the specific nature of their concerns,
2 let me say, not necessarily line-by-line concerns.

3 MR. DYNNER: Yes, I'm attempting to do that now.

4 JUDGE BRENNER: All right. We'll go for about ten
5 more minutes and then take a mid-morning break.

6 BY MR. DYNNER:

7 Q I have a quick specific question for you regarding
8 the loss of offsite power emergency procedure, Revision 9,
9 which you say that you reviewed preliminarily, and you had
10 reviewed Revision 7 in depth.

11 Based upon your review to date of the Revision 9,
12 do you believe that this loss of offsite power, Revision 9,
13 adequately satisfies your concerns about the need for
14 establishing priority between necessary actions and/or
15 necessary procedures?

16 A (Witness Clifford) No, it does not.

17 Q Why not?

18 A (Witness Clifford) The procedure, as modified,
19 has a general caution that says: do not exceed a load of
20 3300 Kw on any emergency diesel generator.

21 There currently is no specific action listed in
22 this procedure that tells the operator to reduce load if, in
23 fact, he is over 3300 Kw. The operator is referenced
24 specifically to Table 1, and if I may read from the
25 procedure, it says,

1 "Refer to Table 1--"

2 Starting at the beginning of the step, and this is
3 Step 4.3 on page 2 of the procedure:

4 "If the 3300 Kw load limit is, or will be
5 exceeded by addition of other loads, refer to Table 1
6 for a listing of loads which may be removed."

7 The only specific action directed in that step is
8 to refer to Table 1. There is no specific action to tell
9 the operator to manage loads, to take any loads off.

10 In addition, this procedure, if it is in fact a
11 load management procedure, only deals with non-safety loads,
12 and does not manage all the loads that can be operated on
13 the diesel.

14 Q Well, does Table 1 give you an adequate priority
15 as to which loads ought to be removed, in which order?

16 A (Witness Clifford) We haven't looked at this as a
17 priority listing. We heard last week that it was intended
18 to be a listing of priorities, but that is not reflected
19 anywhere in the procedure as it's written.

20 MR. DYNNER: I'm on page 6. At the top you'll
21 notice that there is a cross-reference, Judge.

22 JUDGE BRENNER: You're talking about the cross
23 plan?

24 MR. DYNNER: I'm talking about the cross plan.

25 At the top of page 6 you'll see there is a

AGBwrb 1 reference to the other cross plan.

2 JUDGE BRENNER: I have them both.

3 MR. DYNNER: I'm going to take your suggestion, as
4 I usually do.

5 JUDGE BRENNER: I don't know if your caution
6 statement in the first cross plan, cross-referencing me into
7 the second cross plan, was adequate from a human factors
8 point of view. But we have figured it out, as you can see.

9 MR. DYNNER: It worked.

10 The consequences of our not understanding it would
11 not have been terribly severe.

12 JUDGE BRENNER: That's right. And we had a lot of
13 time to figure it out, also.

14 MR. ELLIS: So will our caution notes work.

15 JUDGE BRENNER: Go ahead.

16 BY MR. DYNNER:

17 Q What's the main priority in a LOOP/LOCA situation,
18 gentlemen, in your judgment?

19 A (Witness Clifford) The main priority is to
20 maintain safety functions. Those safety functions-- I'll
21 defer to Mr. Hodges and ask for his assistance if I get any
22 of these wrong, so the record is accurate. --are to
23 maintain RCS inventory, to maintain containment integrity,
24 and to maintain an adequate supply of auxiliary, or
25 electrical power for operation of the site -- or operation

1 of the equipment necessary to meet the other safety
2 functions.

3 Q Could I shorthand that and say: to cool the core
4 and maintain the retainer to the containment integrity?

5 A (Witness Clifford) Yes; I would say that.

6 Q That would be reasonable shorthand of what you
7 said.

8 Mr. Hodges, do you agree with that?

9 A (Witness Hodges) I will agree. That's a
10 reasonable description of the priorities.

11 Q Can the operator violate procedures, or technical
12 specifications, if he believes the core is in danger?

13 A (Witness Clifford) I'm not exactly sure of the
14 exact wording. I believe if, in the operator's judgment, he
15 needs to take actions outside his procedures to maintain
16 public health and safety, he can do that, yes.

17 Q You said some things the other day in response to
18 some of Mr. Ellis' questions which I would like to just
19 explore very briefly.

20 As I understood what you say, is it your belief,
21 gentlemen, with respect to -- and given your human factors
22 background, that operators in the case of Shoreham would
23 tend to place a fairly low priority on the requirements of
24 maintaining EDG level below 3300 in a LOOP/LOCA situation,
25 as opposed to other things that they might be doing to

1 control the emergency?

2 A (Witness Clifford) I'm not sure that's a fair
3 characterization. I would hope that they would try to
4 manage what they had to do within the 3300 Kw load limit.
5 And that's the objective we're trying to get to.

6 A (Witness Buzy) I think the only way you could
7 really answer that question is to have had contact with the
8 training and personnel at Shoreham. And I have not had any
9 contact with operators at Shoreham to date, other than folks
10 that I have interviewed.

11 Q When you talked about looking at the situation, or
12 having a --"demonstration" was, I think your word -- would
13 you be satisfied with a demonstration that was done on the
14 Limerick simulator?

15 A (Witness Clifford) If that was the only
16 evaluation that was done, no, I would not. We would expect,
17 because a lot of the actions that needed to take place, and
18 a lot of the loads are outside of the control room, we would
19 expect any demonstration on the simulator to be supplemented
20 by as close to real time walk-throughs in the plant -- as
21 close to real time as possible in the plant.

22 Q Have you reviewed.... I'm sorry; you wanted to
23 add something, Mr. Buzy?

24 A (Witness Buzy) Yes. You would have to look at
25 the capabilities of the Limerick simulator as well, to see

1 how close they reflect Shoreham; and, if they're not close,
2 to look for other means of evaluating those particular
3 sections where the simulator doesn't reflect Shoreham.

4 Q Did you hear Mr. Notaro's testimony about what had
5 been done to date on the Limerick simulator?

6 A (Witness Clifford) I do not know the details of
7 it, no. I don't know what level he went into in his
8 testimony, what level of detail.

9 Q Have you reviewed anything that was done on the
10 Limerick simulator by LILCO?

11 A (Witness Clifford) We were told that Mr. Notaro
12 and, I believe, the training manager: I'm not sure of his
13 name: went to the Limerick simulator to exercise these
14 procedures.

15 Q But Staff was not present?

16 A (Witness Clifford) No, we were not.

17 Q Were you given any report or review? -- any
18 report or written document that explained what was done
19 there?

20 A (Witness Clifford) No, we have not been given
21 such a document.

22 A (Witness Buzy) I think testimony of the LILCO
23 panel indicates what they did. I read that over the
24 week-end. I know it exists, but I really can't tell you
25 what they did. But there is reference in the testimony.

1 Q So you haven't evaluated yet what they've done?

2 A (Witness Buzy) No, I have not.

3 Q Do you intend to?

4 A (Witness Buzy) As soon as we finish with this
5 panel, yes.

6 JUDGE BRENNER: We can finish for fifteen minutes'
7 worth anyway, and take a break at this point.

8 I want to ask one question, though, to make sure I
9 understand one of your answers, Mr. Clifford.

10 You're not aware of the testimony given by LILCO's
11 panel on the subject, either by having been in the room or
12 having read the transcripts?

13 WITNESS CLIFFORD: I've read through the
14 transcript. I don't feel, without having a transcript in
15 front of me, I'm prepared to answer questions. I don't
16 remember the details of what they said.

17 JUDGE BRENNER: Okay.

18 We lawyers have to be a little more careful with
19 semantics. Hearing the testimony-- I assume you intended
20 to get to at least knowledge of the testimony, Mr Dynner,
21 and reading the transcript would have sufficed for that
22 purpose.

23 MR. DYNNER: Yes, certainly.

24 JUDGE BRENNER: All right. We'll take a break
25 until 10:30.

1 MR. ELLIS: Judge Brenner, could I just have an
2 idea of what you have planned, what you anticipate for the
3 rest of the day, off the record?

4 JUDGE BRENNER: All right. I want to take a break
5 also, but we want to finish this panel. I'm getting
6 concerned about what time we'll finish the panel. We'll
7 stay on the record with it. And then we are going to need
8 some time with the parties. I don't know what that time is,
9 but certainly more than minutes. Probably an hour or so.

10 I want to get a status report of what settlement
11 or other actions might be taking place. I don't know if the
12 Appeal Board's decision today affects any strategic
13 decisions by any party or not, but it might; and if that's
14 part of what you're going to tell me today, I'll understand
15 that.

16 I have some questions about some items that we
17 asked about a long time ago in this case, and have not had
18 any follow-up on, and that is the status of investigations.
19 The last word I had on it was-- I have the papers down in my
20 office, but it was approximately April of 1984. And I want
21 to hear about that, I guess primarily from the Staff, and
22 give them time to give me an update on it in the near
23 future.

24 So I wanted to put that question out while we were
25 on the record.

1 MR. REIS: Mr. Chairman, you don't expect that
2 today, do you?

3 JUDGE BRENNER: I want to ask you if you know
4 anything about it. And, of course, I don't expect your full
5 answer at the moment I give it, but I'm going to ask to
6 receive something next week on it. But to the extent you
7 know anything today.

8 But no, I certainly didn't expect a definitive
9 answer. It's just that there has been a lot of silence for
10 a long time. And we didn't get a very good answer the first
11 time.

12 Let me modify that. I understood the answer we
13 got the first time, but it didn't give any information for
14 reasons expressed in the answer. I think it was the Office
15 of Investigations letter.

16 MR. REIS: This is limited to the TDI
17 investigations, and not general investigations involving
18 Shoreham as a whole that might have been encompassed in
19 your prior partial initial decision?

20 JUDGE BRENNER: Well, I don't know what you have
21 in mind, but I'm talking about investigations related to
22 TDI, the diesels.

23 MR. REIS: Fine.

24 JUDGE BRENNER: I'm not talking about QA, if
25 that's what you had in mind.

1 And we may be able to tell you what our feeling is
2 as to the -- on a preliminary basis, based on the evidence
3 we've heard so far, including today, as to certain subparts
4 of these contentions, and the ones that appear to be
5 potentially important and the ones that appear to be
6 potentially unimportant, given the low levels involved, and
7 so on. That's on a preliminary basis, and not considering
8 the subjects of the testimony we have yet to hear, of
9 course.

10 We might do that. And our purpose in doing that
11 would be to assist you in focussing your findings, so that
12 those parties who might disagree with our preliminary
13 notions can focus fully on them to disabuse us, and show us
14 the error of our ways, because it is preliminarily, and
15 maybe spur some settlement negotiations on those areas also,
16 by pointing out our preliminary review.

17 I don't know if we'll be able to do that. And I
18 personally need to get some information from these witnesses
19 in order to factor that into at least one area.

20 So I hope you all will give me the chance to ask
21 those questions today.

22 MR. ELLIS: Thank you, sir.

23 JUDGE BRENNER: All right, let's break and come
24 back at ten-thirty-five.

25 (Recess.)

JUDGE BRENNER: You may proceed, Mr. Dynner.

BY MR. DYNNER:

Q We were discussing Limerick, and I understand that you have something you would like to add.

A (Witness Eckenrode) Yes. Although we agree completely with-- I agree completely with the process of Mr. Notaro and, I guess, Mr. Rottkamp, the training supervisor, in trying out these procedures at the simulator and trying out these processes, our concern is basically whether the operators can do it or not. And it is this verification that we are really looking for.

It is sort of like a professor developing an exam for his students and then taking it to see if the students will pass it. We want to know if the operators are going to be able to do it.

Q How many operators would you want to be evaluated in an actual demonstration?

A (Witness Eckenrode) I'm not prepared to answer this now. Some percentage that would be a representative number.

Q Are you concerned at all about the fact that the watch engineer's permission is needed to shut down certain load in a number of the emergency procedures, as contrasted with the fact that the watch engineer's permission is not needed to add loads?

1 A (Witness Clifford) I would say our concern in
2 general-- Off the top of my head I can't say whether or not
3 the watch engineer's permission is or is not needed to add
4 loads. Our concern in general is that the watch engineer is
5 tied up, I guess I would say, more directly than I would
6 have expected him to be, in individual loads. And
7 especially with loads outside the control room I would
8 expect the watch engineer to be able to dispatch an operator
9 to take a specific action.

10 What it looks like will have to happen now is an
11 operator-dispatched call-back into the control room and have
12 another operator check what the load is, and then get back
13 through the watch engineer to give an auxiliary operator
14 permission to operate a specific piece of equipment. And
15 that sequence adds -- in our view, is during a very critical
16 time in trying to address a LOOP/LOCA and all the various
17 possibilities that could occur during a LOOP/LOCA.

18 The watch engineer's attention should not be that
19 directly focussed in the management of individual loads.

20 Q Well, in your experience, does a watch engineer,
21 or whoever the person with command in the control room might
22 be, is he normally in a situation where he has to be
23 worrying about adding or subtracting individual loads?

24 My question is to any of you up there, not just
25 Mr. Clifford.

1 A (Witness Clifford) Generally the watch engineer
2 will give a direction to accomplish a section of a
3 procedure, or a procedure, and he will give that to the
4 operator responsible for accomplishing that set of actions.
5 And he doesn't get involved with the details of whether one
6 train can be started or stopped, he just lets the operator
7 operate the trains as necessary as directed in the
8 procedure.

9 It appears what's happening, by the information we
10 have, is that the watch engineer's permission is going to be
11 necessary for operation of the individual pieces of
12 equipment. And I have not seen that in the evaluations that
13 I have done, anyway.

14 Q I'm trying to understand: Is that something
15 that-- Is the watch engineer's intimate involvement -- if I
16 can put in shorthand what you just said; is that something
17 which you view as good or bad?

18 MR. ELLIS: Judge Brenner, I'm going to object to
19 this line of questions. My objection is based on the fact
20 that it has proceeded on facts which are not at all in the
21 record. I don't know that the witness' recollection is
22 correct at all on what the permission is needed. The record
23 is very specific on what permission. And, if you'll permit
24 me, I'll state it. If you would rather I didn't, I won't.
25 But it has nothing whatever to do with 3300 in terms of--

1 JUDGE BRENNER: Now, if you're right, then my
2 recollection is wrong.

3 MR. DYNNER: If I can speak to the objection?

4 JUDGE BRENNER: Let me say this:

5 Some of Mr. Clifford's assumptions that he gave as
6 part of his answer may not be reflected in the previous
7 record, and may or may not be inconsistent in places; in
8 some cases I don't know if it's inconsistent or consistent
9 because it is an interpretation of something that was stated
10 in the record; that is, how certain things would have to be
11 effectuated.

12 So I don't know if that's consistent or
13 inconsistent.

14 If you are going to say that the record is such
15 that the watch engineer has nothing to do with managing the
16 loads, then that is contrary to my recollection of the
17 record, and I don't want to go into any further detail. But
18 if you want to assert that much, I'll send the witnesses out
19 of the room and I'll look at it.

20 MR. DYNNER: That would be an improper objection,
21 anyway.

22 MR. ELLIS: May I finish?

23 JUDGE BRENNER: Wait a minute, Mr. Dynner.

24 MR. DYNNER: I thought you were allowing me to
25 answer his objection.

1 JUDGE BRENNER: No; I wanted to know if he was
2 asserting that there was nothing -- that what's in the
3 record is totally inconsistent with that idea, because that
4 would be a proper objection; that is, we're proceeding on
5 facts that are contrary to the evidence.

6 MR. ELLIS: The objection, put specifically, was
7 that the prior testimony was that the watch engineer's
8 permission was needed only with respect to certain
9 equipment.

10 JUDGE BRENNER: Stop right there. I have that
11 type of recollection also. But you said something else in
12 the course of your objection which is broader than that.

13 MR. ELLIS: My point there was that--

14 JUDGE BRENNER: Is it correct or not that the
15 record says that the watch engineer's involvement has
16 nothing to do with management of the loads on the diesels,
17 that there is no such involvement?

18 MR. ELLIS: No; the record-- You're correct, the
19 record does say that.

20 JUDGE BRENNER: I thought it said that.

21 We'll overrule the objection.

22 You can come back on questions of certain things
23 that Mr. Clifford stated he was assuming as to how actions
24 would have to be carried out.

25 MR. DYNNER: I don't think that's a proper

1 characterization. The witness-- I'm exploring with the
2 witness procedures that he has reviewed.

3 JUDGE BRENNER: Mr. Dynner, let me interrupt you,
4 please.

5 It doesn't matter, because the objection is
6 overruled. You can ask your question. And my advice to
7 Mr. Ellis, which it seems to me you don't have standing to
8 object to at this time, is that he can go into it in his
9 questioning if he desires.

10 I'm trying to save time for your questions.

11 MR. DYNNER: Thank you.

12 BY MR. DYNNER:

13 Q You probably don't remember my question.

14 A (Witness Clifford) No, sir, I don't.

15 Q I think I remember it; I'm going to try.

16 Is the watch engineer's involvement with these
17 individual loads, to the extent that the procedures require
18 that involvement, in your view good or bad?

19 A (Witness Clifford) My understanding of the watch
20 engineer's involvement is that-- To answer your question
21 directly, it is bad; it takes away from his management
22 overview of the plant and the response of the operator
23 actions in general to maintaining the safe condition of the
24 plant.

25 Q And just so that we can round out this record: In

1 reviewing the procedures that you did review, do you recall
2 whether or not the watch engineer's permission is needed to
3 shut down certain loads?

4 A (Witness Clifford) Off the top of my head I don't
5 remember a specific reference to the watch engineer's direct
6 involvement.

7 Q Well, do you recall in general whether the
8 procedures, any of the procedures that you reviewed, had
9 such provisions in them?

10 A (Witness Buzy) I'm going back to the procedures
11 that were submitted -- or the procedure changes of 12/20,
12 and I don't recall any direction as far as reduction in
13 loads: that's my recollection; whether or not the operators
14 are required to get permission from the watch engineer.

15 Q If that's the case, what's the basis for your
16 answers, Mr. Clifford, concerning the involvement of the
17 watch engineer in shutting down loads or, indeed, in adding
18 loads?

19 The question is properly addressed to any of the
20 three of you that were involved in preparing the February
21 5th letter.

22 JUDGE BRENNER: I'd like to get Mr. Clifford's
23 answer first.

24 MR. DYNNER: I would. I would like to hear the
25 others also.

1 JUDGE BRENNER: Mr. Clifford, maybe I can shorten
2 it up, unless you're ready to answer anyway.

3 WITNESS CLIFFORD: I believe I am, Judge.

4 JUDGE BRENNER: All right.

5 WITNESS CLIFFORD: The involvement of the watch
6 engineer, and our concern with that, came out of our review
7 of the loss of offsite power procedure -- I'm sorry; with
8 the loss of offsite power coincident with a LOCA procedure,
9 which states in Step 4.2 -- and I recognize that this
10 currently is not on the record, because this is the
11 procedure that had been deleted by LILCO:

12 "When the reactor vessel level and
13 temperature can be maintained without operating all of
14 the emergency equipment, the watch engineer may direct
15 the non-safety loads supplied by the emergency buses be
16 placed in operation."

17 In my request for additional information I had
18 looked at loss of offsite power procedures, and this is
19 Revision 7....

20 (Pause.)

21 It dealt specifically with-- I'll have to make a
22 correction.

23 In the request for additional information, dealing
24 on page 7 with the request for additional information, it
25 says "Page 3--" I'm sorry; Item 11, Page 3, "Notes after

1 Step 4.4.7," and that should be "Notes before Step 4.4.7,"
2 or, conversely, "Notes after Step 4.4.6."

3 The second note in the loss of offsite power
4 procedure, after Step 4.4.6, says,

5 "Other emergency power equipment may be
6 required at this time depending on plant
7 conditions."

8 This implies that loads can be added as necessary
9 without specifying who controls the various equipment, where
10 a related procedure, which is loss of coolant accident, loss
11 of offsite power procedure, specifically directed that any
12 additional equipment be added only at the watch engineer's
13 specific direction.

14 JUDGE BRENNER: All right.

15 WITNESS CLIFFORD: That's the origin of our
16 concern.

17 JUDGE BRENNER: Mr. Dynner had made the offer to
18 the rest of the panel also, at least to Messrs. Buzy and
19 Eckenrode. And the three of you can confer if you want to
20 add anything also.

21 The reason I wanted to hear your answer first,
22 Mr. Clifford, was as a follow-up to understand your previous
23 answer.

24 If any of you want to add anything, you can do
25 that now.

1 WITNESS ECKENRODE: I have no basis to add
2 anything. I have not reviewed these procedures in the
3 detail that Mr. Clifford has.

4 JUDGE BRENNER: Mr. Dynner.

5 BY MR. DYNNER:

6 Q Do you have with you the core spray system
7 procedure, Revision 14? That's SP No. 23.203.01.

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

9 Q Did you recall any of the testimony of LILCO's
10 witnesses concerning the need for permission from the watch
11 engineer before shutting down certain loads?

12 A (Witness Buzy) I don't recall any.

13 A (Witness Clifford) Off the top of my head I don't
14 recall it; no.

15 Q Gentlemen, would you turn for a minute to page 2
16 of your request for additional information, and direct your
17 attention to Paragraph 2?

18 You asked a question there,

19 "What means are provided to allow the
20 operators to determine priority loads and keep
21 track of which loads are stopped and which loads
22 are running?"

23 Am I correc that by asking that question you were
24 evidencing your concern that, based upon the procedures that
25 you review, there are insufficient means in those procedures

1 to allow the operators to determine priority loads, and to
2 keep track of which loads are stopped and which loads are
3 running?

4 A (Witness Clifford) That is correct. We did not
5 feel there were sufficient means.

6 The concern came out of some of the things we have
7 been discussing on the panel about the possibility of having
8 loads -- some loads stopped, some of the safety loads
9 stopped, additional loads added, and then needing safety
10 loads at a later time, and not having a record of what is
11 running in the plant and what is not, so that the watch
12 engineer could make a decision as to what equipment to take
13 off to make room for the safety equipment if, in fact, it
14 was needed later.

15 Q Am I correct that your concern in this regard, at
16 least in part, was that with the EDG limitation there would
17 be a restriction on the flexibility of the operator to
18 select particular equipment in a particular event?

19 A (Witness Clifford) We felt that that was a
20 distinct possibility, that the operator's flexibility would
21 in fact be limited.

22 Q Isn't that concern inherent in having this EDG
23 load limitation, regardless of what the procedures say?

24 A (Witness Eckenrode) I think it is. I'm basing it
25 strictly on the count of the number of loads that we have to

1 deal with. Table 8.3.1 of emergency diesel generator -- I'm
2 sorry...

3 (The panel conferring.)

4 A (Witness Eckenrode) Table 8.3.1 of the loss of
5 offsite power procedure lists some 70 different loads that
6 cannot be used.

7 MR. ELLIS: May we know what revision number,
8 Judge?

9 JUDGE BRENNER: Could you help them out with the
10 revision number?

11 WITNESS ECKENRODE: Actually I'm reading from the
12 FSAR, Revision 34, October '84.

13 MR. ELLIS: Then I would move to strike the
14 answer, because the answer dealt with procedures. --or the
15 question, I beg your pardon, dealt with procedures.

16 JUDGE BRENNER: No; the question was, Doesn't this
17 concern always exist, regardless of how the procedures are
18 written, or designed; or words to that effect.

19 We'll allow the answer.

20 Mr. Eckenrode, I'm sorry for the interruption.

21 WITNESS ECKENRODE: The list in the FSAR is
22 substantially the same as that in the loss of offsite
23 power. I wouldn't try to go on an individual basis
24 one-by-one.

25 Really what I'm trying to do here is to indicate

1 that there are some seventy different loads that can be
2 hooked up and removed. Approximately thirty-five or
3 thirty-six of them are controlled in the control room
4 itself, and some thirty-one are controlled at local panels,
5 and another two are controlled at back panels. The display
6 of this information is also in various places.

7 We feel it becomes a problem for an operator, or
8 operators to be able to manage seventy loads in this way.
9 That's why we're asking in Question 2 how they intend to
10 manage them.

11 BY MR. DYNNER:

12 Q Does your answer, Mr. Eckenrode, imply that in
13 order to manage all these loads adequately that you would
14 need some redesign of the control room equipment?

15 A (Witness Eckenrode) Not necessarily redesign of
16 the control room equipment. There are job aids, that type
17 of things, that can be done.

18 Q I'm sorry; job aids?

19 A (Witness Eckenrode) That's a possibility.

20 Q What is a job aid?

21 A (Witness Eckenrode) One might be, in the
22 procedure, a check-off item.

23 The use of a computer is another possibility.

24 Q What do you mean by use of a computer?

25 A (Witness Eckenrode) Monitoring loads by the

1 computer.

2 Q And if you monitor loads by the computer, where
3 would they be displayed to the operators?

4 A (Witness Eckenrode) They could be displayed on
5 the CRTs in the control room.

6 I'm not recommending, necessarily, any particular
7 method; I'm asking what method they have to manage it, to
8 keep track of the loads.

9 Q Do you recall testimony from the LILCO panel to
10 the effect that operators write down in a log the different
11 loads?

12 A (Witness Clifford) I remember that testimony,
13 yes.

14 A (Witness Eckenrode) Yes.

15 Q Would writing down these loads in a log satisfy
16 your concern with this area?

17 A (Witness Clifford) I believe the way they
18 described the logging of the loads would not address this
19 particular concern.

20 The way it was described-- In my experience the
21 way it generally occurs is that there is a significant time
22 delay -- in our opinion a significant time delay between the
23 action being taken and the documentation of that load in a
24 log. And I believe the time limit was bounded in that
25 testimony at fifteen minutes.

1 A lot of things can happen in fifteen
2 minutes, and a lot of loads can be operated and turned on
3 and turned off in fifteen minutes.

4 Unless there were some assurance that a timely
5 accurate record was being kept, that method may or may not
6 be appropriate.

7 The testimony that was given -- and if I assume a
8 fifteen-minute time lag from operation to recording it would
9 not be adequate, in our opinion.

10 Q Now, also in paragraph 2 of your February 5th
11 letter and the request for additional information, you ask
12 the question,

13 "For loads that are stopped, what
14 parameters must be monitored to alert operators
15 that loads need to be restarted?"

16 Am I correct that by that question you mean to
17 evidence a concern that, based upon the procedures that you
18 did review, there are not sufficiently stated parameters
19 that must be monitored to alert operators on the loads that
20 must be restarted? Is that correct?

21 A (Witness Clifford) This concern came out of the
22 fact that a number of the loads had to be monitored outside
23 of the control room. It was not clear to us how those loads
24 would be monitored if a decision had to be made at some
25 later time to turn them on, if they had been turned off.

1 Q So I'm correct that the concern that I stated is
2 one of your concerns?

3 A (Witness Clifford) Could you restate your
4 concern?

5 Q Yes.

6 Your concern is that, based upon the procedures
7 that you have reviewed, that for loads which are stopped
8 there are not sufficiently stated parameters that must be
9 monitored to alert operators that loads must be restarted.

10 A (Witness Clifford) I'm not sure that the stating
11 of the parameter is necessarily what the concern is. It
12 is-- The location of where that parameter is to be
13 monitored was more the concern.

14 Q Is that a problem that would be addressed by
15 written procedures, in your view?

16 A (Witness Clifford) I don't think exclusively,
17 no.

18 Q Well, without telling me line-by-line detail, how
19 would that concern be addressed in general?

20 A (Witness Clifford) We would be looking for some
21 indication as to how the equipment that is operated outside
22 the control room, primarily outside the control room, is
23 monitored during the loss of offsite power LOCA condition to
24 determine if conditions existed that would require the use
25 of that equipment.

1 This again gets into the long-time operation of
2 the plant concern where decisions may have to be made to
3 turn off non-safety equipment to operate safety equipment,
4 and at some later time turn the non-safety equipment back
5 on.

6 When we're talking non-safety equipment, all of
7 that equipment is not necessarily critical to the safety of
8 various components out in the plant, and we do have some
9 concerns, for example with the main generator and loss of
10 oil to the main generator and some of the problems that that
11 could cause.

12 A (Witness Buzy) What I would like to add to that,
13 too, is in turning off power to equipment such as the
14 generator, you have to take into account that you could end
15 up with another problem. For example, you might end up with
16 hydrogen leaking out of the seals of the generator and
17 setting up for either an explosion or a fire.

18 The depth of evaluation-- I haven't looked in
19 depth at those particular loads that could cause that, but
20 this is an example.

21 MR. ELLIS: Move to strike since there is no
22 basis that that has any application to Shoreham at all.
23 What we are getting is speculation and not facts based on
24 Shoreham.

25 (The Board conferring.)

1 JUDGE BRENNER: Mr. Dynner, do you want to
2 respond?

3 MR. DYNNER: Yes.

4 I think it is an improper objection. There is no
5 basis at all for saying it's speculation. The witness is
6 talking-- We have been talking about Shoreham. I have not
7 shifted to ask him general questions--

8 JUDGE BRENNER: All right.

9 MR. DYNNER: -- about power plants, and he hasn't
10 responded in that way.

11 JUDGE BRENNER: All right. We can solve that
12 problem.

13 Were you talking about Shoreham, Mr. Buzy?

14 WITNESS BUZY: Yes, I was. But I also prefaced
15 that that I haven't evaluated it in depth, but I am just
16 giving this as an example.

17 JUDGE BRENNER: Okay. Let me make sure I
18 understand the context of your example.

19 Were you using it as an example of something
20 adverse that could occur at the plant and affect safe
21 shutdown and maintenance of the plant at that level, or were
22 you using it as an example of something adverse that an
23 operator should or would have in mind and, therefore, be one
24 of your concerns in terms of the load management concerns?

25 WITNESS BUZY: It would be under the load

1 management concerns if the power supply were turned off, and
2 you could establish a leak from the generator seals.

3 JUDGE BRENNER: All right.

4 MR. ELLIS: Judge Brenner, may I?

5 I think my remark in my objection was based on
6 his--

7 JUDGE BRENNER: Mr. Ellis, let me stop you at
8 this point. I haven't forgotten our conversation of
9 yesterday and I am trying to keep it in mind, even though
10 you may not think so.

11 You made your objection on the basis that it
12 wasn't related to Shoreham. I thought that that could be a
13 problem and we stopped and interrupted Mr. Dynner's line of
14 questioning and established that. That was your only
15 objection.

16 I don't want to come back to another objection
17 now that we have solved that, so I am going to go to the
18 question. And if I'm wrong, I'm sorry, I have just missed
19 something there. But I am going to go back to Mr. Dynner's
20 question.

21 BY MR. DYNNER:

22 Q Gentlemen, I would like to now direct your
23 attention to the numbered paragraph 5 which starts on page 2
24 of your request for information.

25 Could you please briefly elaborate on the concern

1 that you raise in 5, which has to do with the reading
2 accuracy of the installed EDG kilowatt meter?

3 A (Witness Eckenrode) Our concern is that the
4 meter can only accurately be read to 50 kilowatts. Despite
5 testimony of last week that indicated that some operators,
6 after years of practice, do read it to less than that, it
7 still cannot be read from a human-factors point of view --
8 we believe it still cannot be read more accurately than 50
9 kilowatts.

10 As a result, any load that is small, under 100
11 kilowatts, is going to have to -- cannot be added really
12 unless the meter reading is below 3200. And this is true of
13 any of the larger ones also. It is strictly a matter of the
14 accuracy with which it can be read.

15 And our question really is how accurately does it
16 have to be read. This is part of the information that is
17 generally provided through a task analysis.

18 A (Witness Clifford) In addition, the concern came
19 from-- We were given a list of loads and the low level that
20 those loads would provide. And we were provided that by our
21 Systems Branch within the NRC. And that load on the diesels
22 was in excess of 3200. And if you take the reading accuracy
23 of the meter as stated here, the operator will need to take
24 something off before he can put anything else on.

25 As as we read the procedures, and getting into

1 specifically loss of offsite power, there were loads that
2 were required to put on but no direction on what to take off
3 before doing that.

4 And it was just an assumption that-- There
5 appeared to be an assumption in that procedure that the
6 operator could take that action when called upon without
7 consideration for taking safety loads off, or the impact
8 that taking those safety loads would have before putting on
9 these non-safety loads.

10 Q Let me see if I understand part of the concern
11 perhaps that you're raising.

12 We explored previously with the LILCO panel some
13 of the procedures, and some of them have cautions that have
14 been added that say, for example, don't add-- Well, here's
15 one I think we've talked about before. It's in the level
16 control procedure.

17 But just as an example it says do not start a CRD
18 pump if the associated emergency diesel generator load is
19 above 3050. And some of the other cautions also have an
20 increment of 50 rather than an increment of 100.

21 Is your concern that these cautions ought to be
22 in increments of 100 so that -- because of the problem of
23 reading the meter within the finer values?

24 A (Witness Clifford) No, I don't believe that is
25 our concern.

1 AGBeb

1 Q Well, that would be a concern, wouldn't it,
2 though, if by the addition of the load that you are warning
3 about you would come up to above -- you would come up to a
4 load level that would be less than 50 kilowatts from the
5 load limit, wouldn't it?

6 A (Witness Clifford) That would restrict
7 additional actions. In that sense it would be a concern.

8 JUDGE BRENNER: But I think he is asking you
9 about the particular action being taken at that time, or at
10 least I will ask you about that now.

11 WITNESS CLIFFORD: About whether that action
12 could possibly lead the operator to think he was over 3300?
13 Is that the question?

14 JUDGE BRENNER: Let me try this because I think
15 this is why Mr. Dynner asked you about whether the concern
16 was that using an interval of 50 rather than 100 was your
17 problem:

18 If I take what you said in paragraph 5, starting
19 on page 2 of your request for additional information, I
20 understand the premise that it is your view that the
21 accuracy of the meter is at the assumed best 50 kw, the
22 range of 50 kw, or the accuracy with which it could be read.
23 This is what I'm talking about, not any inherent error in
24 the meter.

25 And if I take that it would occur to me that if

1 I'm adding a load of, say, 25 kw, it would be acceptable if
2 the caution said "If the load is 3025 or above, do not add
3 this 25 kw load," because at the worst I am going to end up
4 at-- I'm sorry, 3225, because I'll end up in reality at
5 3250, and taking account for error, at the worst I will be
6 at 3300, and that would still be okay.

7 Yet you don't phrase it that way. Your
8 conclusion is given that 50 kw in accuracy, you say before
9 any load can be started less than 100, the meter would have
10 to be reading 3200; the load will have to be reduced to
11 3200.

12 And that implies to me that beyond just the 50
13 kw, you are also concerned at the particular interval. In
14 other words as I read that, you seem to want the operator to
15 take into account the accuracy at which the meter can be
16 read in a conservative direction of 50 kw, plus go down to
17 the next lowest even interval on the meter, which is another
18 50.

19 WITNESS CLIFFORD: Judge, I understand the
20 problem now.

21 JUDGE BRENNER: I don't know if that was
22 Mr. Dynner's problem, but that is why I asked the question.
23 I don't know.

24 WITNESS CLIFFORD: I will try to explain the
25 concern as succinctly as I can, and knowing I can still say

1 AGBeb

1 that word gives me hope.

2 (Laughter.)

3 When we looked at the loads that were on the
4 diesel generators, based on the tabular values in the FSAR,
5 all the diesel generators, to the best of my recollection,
6 were above 3200.

7 And this statement was meant to say that before
8 any load, regardless of the size -- and I was speaking more
9 to even the smaller loads of the lube oil pumps and the
10 turning gear motors and that sort of thing -- were initially
11 directed to be operated in the loss of offsite power
12 procedure, that a load reduction would have to occur,
13 because the operator would have to assume, based on the
14 reading accuracy of the meter, that any load added would get
15 him in fact to 3300 or above. He would not really be able
16 to tell whether he was really at 3250 or 3260.

17 . So we're speaking of a specific situation that
18 had not been explained in the request for additional
19 information.

20 JUDGE BRENNER: I can see, using what you say in
21 paragraph 5 there, that if it was a load of 50 kw then your
22 conclusion follows, that the load indicated on the meter
23 will have to be reduced to at least 3200 to leave a margin
24 for your 50 kw range for the concern with respect to
25 reading, the ability of the operator to accurately read the

1 meter.

2 But if it is a load of, say, 25 kw, why couldn't
3 he reduce it to 3225 before adding the load? And the
4 question is did you pick 3200 because getting levels as
5 accurately as somewhere between something less than 50 kw
6 intervals would also present a problem?

7 (Witnesses Clifford and Eckenrode conferring.)

8 JUDGE BRENNER: Maybe I will phrase it a little
9 better.

10 Are you suggesting that from the point of view of
11 the concern of the operator reading the meter accurately
12 that the operator has to assume a 50 kw difference in the
13 conservative direction plus then, wherever that gets him,
14 go down to the next lowest 50 below that in order to have a
15 readable interval to start from?

16 (Witnesses Clifford and Eckenrode conferring.)

17 WITNESS ECKENRODE: Yes, you are correct,
18 Judge Brenner. A load below 50 kw, you could assume that
19 the operator can read the meter to 50 kw and therefore, if
20 it was below 3250 -- if it was 3250 or below, he could add a
21 load of less than 50.

22 I think our basic concern is that they recognize
23 that the limit he can read it to and the accuracy he can
24 read it to is 50 kw, and we want to make sure that is taken
25 into consideration in their procedures and any other way

1 that they would have to use it.

2 WITNESS CLIFFORD: Part of the basis for this
3 concern was the level of accuracy that the loads were
4 recorded in the procedures we reviewed. And if we take--
5 And my recollection is diesel generator 103 was at 3253.7.
6 I believe that is an FSAR tabular value. That is 3 kw in
7 excess, or 3.7 kw excess of 3250.

8 The operator can't really tell that level of
9 accuracy. And at the time we received the procedures he was
10 being asked to evaluate the reading accuracy of the meter to
11 a much greater level of detail than the meter allowed him to
12 do.

13 JUDGE BRENNER: I know you were concerned with
14 the reading accuracy. I was trying to explore, and you have
15 answered, whether or not you were double-counting that
16 concern in that paragraph 5 and if so, whether there was a
17 reason for double-counting it. But you have answered the
18 question.

19 Mr. Dynner.

20 BY MR. DYNNER:

21 Q Gentlemen, take a look at the cover letter, would
22 you, the February 5th letter?

23 A (Witness Clifford) We don't have the cover
24 letter itself.

25 MR. DYNNER: I will furnish you with a copy of

1 AGBeb 1 it.

2 (Document handed to the witness panel.)

3 JUDGE BRENNER: Mr. Dynner, while they're getting
4 it, I am unfortunately going to have to cut you off promptly
5 at 11:30. Do you want me to cut you off now, or--

6 MR. DYNNER: No, of course I am not going to have
7 completed my questions. I think that I would like to ask a
8 couple more. I think it will be a natural break.

9 JUDGE BRENNER: When I said "cut you off" I meant
10 interrupt for the lunch break.

11 MR. DYNNER: All right. Let me ask a couple of
12 questions if you don't mind. I don't think it will take
13 more than three or four minutes.

14 WITNESS CLIFFORD: We have a copy of the cover
15 letter now.

16 MR. DYNNER: Thank you.

17 BY MR. DYNNER:

18 Q Is it your testimony, gentlemen, that based upon
19 everything you have done to date, that LILCO has not
20 performed an adequate operational evaluation or analysis of
21 the effectiveness of the procedures to be relied upon or of
22 the instrumentation to be used to limit operator error?

23 A (Witness Clifford) As stated in this letter,
24 based upon the review to date, that is the conclusion we
25 came to because the information that we had showed that if

1 they had done such an evaluation, a number of these concerns
2 should not have occurred.

3 Q And as of this date today, is that still your
4 testimony?

5 (The panel conferring.)

6 A (Witness Clifford) We believe the concern still
7 exists. We have not received the information that we feel
8 we need to determine if they have performed an adequate
9 evaluation.

10 Q So is your answer to my question Yes?

11 A (Witness Clifford) Yes, it is.

12 Q Thank you.

13 Now, gentlemen, is it also your testimony today
14 that as of today, the training program to limit operator
15 error has not been developed by LILCO, nor has it been
16 implemented?

17 A (Witness Buzy) A training program has been
18 developed and from the testimony given, it has started.

19 Q Am I correct that you have not yet had the
20 opportunity to evaluate the training program to determine
21 whether you believe it is satisfactory or not?

22 A (Witness Buzy) That's correct.

23 Q And am I also correct that you have not yet had
24 an opportunity to evaluate any implementation of the
25 training program that might have begun?

1 A (Witness Buzy) That's correct.

2 Q Is it your testimony today, based upon all that
3 you have done in this area, that there are a number of
4 procedure-related problems that may increase rather than
5 reduce the likelihood of operator error with respect to the
6 procedures that you have reviewed?

7 (Witness panel conferring.)

8 MR. ELLIS: Judge Brenner, I object to the
9 question because it doesn't make clear increase from what or
10 decrease from what.

11 (The Board conferring.)

12 JUDGE BRENNER: All right.

13 Can you clarify that in your question,
14 Mr. Dynner? Or maybe this is better:

15 If the witnesses can clarify that in their
16 answer, since it is their sentence that Mr. Dynner is using,
17 that would be helpful.

18 BY MR. DYNNER:

19 Q For your reference, gentlemen, the question I
20 have asked you is based upon the sentence that appears in
21 the second paragraph of that letter at the last sentence.

22 JUDGE BRENNER: What I'm really saying, and this
23 will make it more direct for you in light of Mr. Ellis'
24 objection which we agreed with, you have to tell us whether
25 you believe that sentence is correct and also, or at least

1 if so, what you mean by that sentence.

2 WITNESS CLIFFORD: The assumption made by LILCO
3 was that operator errors would be kept from occurring based
4 on the procedures and training, and that was the basic
5 premise that we started with in our comparison. If you
6 compare it against no errors, then some errors could be made
7 to occur, based on what we saw.

8 I will speak for myself; I won't speak for the
9 other two gentlemen.

10 I believe there still are a number of problems
11 based on the initial review we have done of the revised
12 procedures that could still lead to the operator making an
13 error, and not wanting to cut too much into the lunch
14 break,--

15 JUDGE BRENNER: We have a conference call
16 scheduled and we've got some things in advance. It is not
17 our eating habits that is of sole concern, but that is part
18 of it.

19 WITNESS CLIFFORD: The review for adequacy that
20 we do in terms of operators is in terms of taking-- There
21 is no absolute assurance that you can provide for
22 operators. What you do is you try to optimize the tools
23 that an operator has to work with, and the tools he has to
24 work with are the control room instrumentation controls, his
25 procedures, and the training.

1 And you really need to optimize those three areas
2 to minimize or reduce as much as possible the likelihood of
3 an operator error. And if the procedures can cause errors,
4 then you are-- If they directly lead to errors by the
5 operator following the procedure, that is a much more
6 significant problem than ambiguities which-- If the
7 operator takes a wrong action based on his training where
8 you could have specified in a procedure enough information
9 to keep him from making that mistake, that is still a
10 significant problem.

11 And this sentence talked to things in the
12 procedures that we felt if the operator followed the
13 procedure as it was written that it could lead to actions
14 that would cause the diesels to overload.

15 JUDGE BRENNER: All right.

16 I am going to stop it there. I realize we could
17 get a greater specification in theory, and maybe another
18 question will in practice in terms of what is the relative
19 timeframe, increasing or decreasing the likelihood of
20 operator error given the 3300 qualified load approach or
21 increasing over what the situation was even pre-existing to
22 that approach.

23 But I am not going to stay with it now. For one
24 thing, I don't know if it matters in terms of an abstract
25 proposition. What may really matter is the current state

1 of affairs, regardless of what the incremental change is
2 over.

3 We will take a break until 1:30. Right after we
4 recess I will hand out, one copy to each of the three
5 parties which are present, the latest correspondence, which
6 is not recent, relative to the Staff's informing the Board
7 and the parties of the status of inquiries, inspections and
8 investigations into TDI.

9 And we will have some questions about the status
10 of that which we don't necessarily expect to be answered
11 today, and also request that we get an updated status as
12 well as a question as to whether things that have come out
13 on the record of this diesel proceeding last fall are being
14 factored into persons who are looking at these subjects of
15 TDI and its diesels.

16 (Whereupon, at 11:36 a.m., the hearing in the
17 above-entitled matter was recessed to reconvene at
18 1:30 p.m. the same day.)

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AFTERNOON SESSION

(1:34 p.m.)

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JUDGE BRENNER: Good afternoon. We're back on
the record.
Whereupon,

RICHARD J. ECKENRODE,
CARL H. BERLINGER,
M. WAYNE HODGES,
JOHN L. KNOX,
JAMES W. CLIFFORD
and
JOSEPH J. BUZY

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

JUDGE BRENNER: You were in the middle of your
cross-examination, Mr. Dynner.

MR. REIS: A very short preliminary matter.

I have been informed -- I think it is pertinent
to all Shoreham proceedings -- I have been informed that the
New York State Supreme Court issued some sort of a ruling
involving the legal authority of LILCO to carry on onsite
emergency planning.

JUDGE BRENNER: Onsite emergency planning?

MR. REIS: Offsite emergency planning, I'm
sorry.

1 I'm not aware of any of the details of the
2 decision, just that one was issued. And I just wanted to
3 inform the Board of that.

4 JUDGE BRENNER: All right. I assume somebody is
5 going to inform the Board here in the emergency planning
6 proceeding.

7 MR. REIS: I'm sure the parties will. It is an
8 obligation of the parties to the New York State proceeding
9 particularly to send copies of any pertinent documents or
10 opinions to the staff as well as the boards in that
11 proceeding.

12 JUDGE BRENNER: Okay.

13 Do all the parties know about this? I assume
14 LILCO and the County know.

15 MR. REIS: LILCO and the County know about it,
16 yes.

17 JUDGE BRENNER: I don't know if I have to know,
18 but I'm not sure what the ruling is, I'm sorry.

19 MR. ELLIS: I personally do not know what the
20 ruling is or what the scope is, and I have not seen it.

21 JUDGE BRENNER: Okay.

22 MR. ELLIS: I know there is a ruling. I'm sure
23 that the folks who are in the emergency planning hearing
24 know about it.

25 JUDGE BRENNER: Okay. All right. Thank you.

1 Mr. Dynner, do you think you'll be able to finish
2 rather quickly?

3 MR. DYNNER: Yes.

4 JUDGE BRENNER: Can you quantify that somewhat?

5 MR. DYNNER: Yes. I'm going to guess a
6 half-hour, no more than that.

7 JUDGE BRENNER: I know the Board has questions,
8 and that's why I'm concerned about the time.

9 MR. DYNNER: I understand that.

10 JUDGE BRENNER: I'm assuming there's redirect.

11 MR. ELLIS: I can quantify that if you would like
12 to me try.

13 JUDGE BRENNER: Staff has redirect?

14 MR. REIS: The Staff has about ten or fifteen
15 minutes.

16 JUDGE BRENNER: You have follow-up also,
17 Mr. Ellis?

18 MR. ELLIS: I have follow-up, and I have reviewed
19 it, and I think -- I told Mr. Dynner that I thought I had
20 approximately two hours.

21 I have a proposal that I think might shorten that
22 somewhat.

23 JUDGE BRENNER: Do you want to make it.

24 MR. ELLIS: The proposal is that I not examine on
25 procedures at all, and that we hold the procedures panel

1 until such time as we see if we resolve the things, and then
2 put them up together with the LILCO panel on any procedures
3 that are not resolved or points that are not resolved.

4 JUDGE BRENNER: I want to try and finish the
5 issue. And I am going to encourage, as I already have, the
6 parties to settle it. But I don't want any more litigation
7 before me on the subject unless there are grounds for
8 reopening the record.

9 MR. ELLIS: Judge Brenner, isn't -- when LILCO
10 does respond to the RAI, and if that response satisfies the
11 concerns --

12 JUDGE BRENNER: Let me leave it this way:

13 While we may or may not have to revisit things --
14 I don't want to assume that we do -- and while these
15 witnesses are here, I would like to complete matters.

16 MR. DYNNER: I just would like to make a brief
17 comment --

18 JUDGE BRENNER: Wait.

19 (Board conferring.)

20 JUDGE BRENNER: Yes.

21 MR. DYNNER: Yes. I wanted to say that I have a
22 brief comment to make on Mr. Ellis's statement.

23 JUDGE BRENNER: Well, you don't have to because
24 we are going to question --

25 MR. DYNNER: I understand. But I think it should

1 be clear.

2 This relates exactly back to what I said
3 initially about the moving target. And now for some reason
4 Mr. Ellis believes that somehow the response that could have
5 been sent between February 5th and now is somehow going to
6 be made a part of this record and a part of this
7 litigation. And I think that's precisely the issue of the
8 moving target that I was talking about initially. It's
9 exactly the situation that need not have occurred.

10 And if the procedures -- if LILCO didn't feel it
11 was in a position to litigate it, it could have asked for a
12 delay and didn't. And that's the only comment I wanted to
13 make.

14 JUDGE BRENNER: All right. You have made your
15 comment.

16 We are going to finish with these witnesses today
17 unless it becomes impossible. And if necessary, we will
18 have to work out some other arrangements to continue the
19 conference we want to have with counsel perhaps late
20 tomorrow afternoon -- I don't know -- but we're not
21 available in the morning.

22 There is another proceeding scheduled in this
23 room tomorrow, in fact, in which Judge Morris sits on the
24 board. But that may be completed, to leave an hour at the
25 end of the day tomorrow. But I'm not sure, because after

1 tomorrow the Board won't be together as a Board for a week
2 -- for next week. And so we will have to work something
3 out. And the best thing we can work out is to try to get
4 everything done today.

5 We have been talking about this potential
6 schedule for today for a long time now. Let's just proceed
7 with the questioning efficiently.

8 I don't want to mislead the parties. The Board
9 has serious areas that we want to inquire with these
10 witnesses -- into with these witnesses. And I don't know
11 how long it is going to take, but it is more than just a few
12 minutes.

13 Go ahead, Mr. Dynner.

14 MR. DYNNER: I will try to be brief, sir.

15 CROSS-EXAMINATION (Continued)

16 BY MR. DYNNER:

17 Q Gentlemen, would you take a look for a minute at
18 page ten of your testimony. And referring to the last
19 sentence of your testimony of Messrs. Clifford, Buzy and
20 Eckenrode, where you say -- and I quote:

21 "We believe that if the specific concerns
22 identified in our February 5, 1985 request for
23 additional information are adequately addressed
24 by the Licensee, reasonable assurance could be
25 found that these three questions would be satisfied."

1 MR. DYNNER: Judge Brenner, I'm back on page six
2 of my cross plan for this panel -- Excuse me, I almost
3 forgot that Mr. Hodges mentioned to me at the break that
4 there is something he would like to clarify with respect to
5 his previous testimony at this time rather than waiting for
6 the redirect.

7 BY MR. DYNNER:

8 Q Go ahead, Mr. Hodges.

9 A (Witness Hodges) Thank you.

10 Earlier this morning when we were talking about
11 the loss of offsite power I made the statement that you
12 would lose the drywell coolers and the containment would
13 heat up in about six minutes. I have been informed by LILCO
14 that they have modified their design so they are different
15 now from most other plants so that they do not lose the
16 drywell coolers in their loss of offsite power event. So
17 the statement I made about the six minutes was incorrect for
18 LILCO for Shoreham.

19 Q Mr. Clifford, and also Messrs. Buzy and
20 Eckenrode, have you reviewed the testimony filed by the
21 County of Mr. Bridenbaugh and Mr. Minor in this case?

22 A (Witness Buzy) I have not.

23 A (Witness Clifford) I have looked at it, yes.

24 A (Witness Eckenrode) I haven't looked at it, but
25 we were here for the testimony.

1 Q Could you turn for a minute, Mr. Clifford, to
2 page 25 of the County's witnesses' testimony.

3 A (Witness Clifford) I have it.

4 Q Do you agree with these witnesses' testimony that
5 the operation of the EDG equipment in the emergency
6 situation, that those operations are relatively complex and
7 offer many opportunities for error?

8 A (Witness Clifford) In general, yes, I would
9 agree with that.

10 Q Take a look, will you, at page 12 of the December
11 18th SER. And I'm referring you specifically to paragraph
12 3.7.

13 In the last paragraph there is the following
14 sentence, and I quote:

15 "It is well established that operators
16 are more prone to error during times of stress,
17 such as during a LOOP or LOOP/LOCA event."

18 Do you gentlemen agree with that statement?

19 A (Witness Eckenrode) I certainly do.

20 A (Witness Clifford) Yes, I do.

21 A (Witness Buzy) Yes, I do.

22 Q Could you tell me what the basis is for your
23 agreement with that statement? Mr. Eckenrode, let's start
24 with you.

25 A (Witness Eckenrode) It's a fairly well known

1 factor of a human being that when they are in a non-normal
2 situation there is a certain amount of stress induced. And
3 this is my basis.

4 Q Are you aware of any history or pattern that has
5 been established in the past through operator errors that
6 have occurred in the past during times of stress?

7 A (Witness Eckenrode) Not in this field, I
8 haven't.

9 Q So your statement is based upon your general
10 knowledge of human factors?

11 A (Witness Eckenrode) Yes.

12 Q Mr. Clifford, what's the basis for your
13 agreement?

14 A (Witness Clifford) The basis for my agreement is
15 my general knowledge of the field of human factors. I'm not
16 aware of any studies that have applied specifically to
17 nuclear power plant operations.

18 Q Mr. Buzy.

19 A (Witness Buzy) I would say over 18 years as an
20 examiner I have seen numerous times, particularly on
21 simulators.

22 Q In the nuclear field?

23 A (Witness Buzy) That's correct.

24 I must say this: Quite often these errors are
25 picked up by the remaining portions -- or the remaining

1 people in the control room team, and quite often they are
2 corrected. But there have been errors, numerous errors.

3 A (Witness Clifford) Mr. Dynner?

4 Q Yes.

5 A (Witness Clifford) I would like to add that my
6 experience and training in qualifying both new personnel and
7 experienced personnel at the prototype during my tour there
8 has also given me some insights into the types of things
9 that can happen to operators under levels of stress,
10 although, as I said before, I'm not aware of any specific
11 studies that have been conducted.

12 Q What prototype were you referring to, please?

13 A (Witness Clifford) It is a training prototype
14 run by the Navy at Windsor, Connecticut, the S-1C
15 prototype.

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1 Q Aside from you three gentlemen, is anyone else on
2 the panel aware--

3 Dr. Berlinger, you were responsible I think for
4 the preparation of this SER. Do you have any basis for that
5 statement, or know of any additional bases for that
6 statement?

7 A (Witness Berlinger) None other than just general
8 background and experience relative to human nature under
9 stressful conditions.

10 Q Were you the author of that particular sentence?

11 A (Witness Berlinger) No, I was not.

12 Q Who was, do you recall?

13 A (Witness Berlinger) I think his name is listed
14 on the transmittal memorandum on the bottom left-hand
15 corner. I think it was Emmet Murphy.

16 His name is not shown on the transmittal
17 memorandum dated December 18th.

18 JUDGE BRENNER: Are you still talking about
19 Mr. Murphy?

20 WITNESS BERLINGER: Yes.

21 JUDGE BRENNER: What about Mr. Caruso?

22 WITNESS BERLINGER: His name is shown there but
23 usually we indicate "name of contact," but in this case it
24 wasn't done. But I think Mr. Murphy was the author.

25 BY MR. DYNNER:

1 Q Do you know what his qualifications are in
2 human-factors areas?

3 MR. ELLIS: Your Honor, I object to this.

4 MR. REIS: I object. It is just-- It is very
5 tangential to the truth of the statement. I think the truth
6 of the statement has been explored. What Mr. Murphy's
7 qualifications, who is not a witness here, may or may not be
8 doesn't seem pertinent.

9 MR. DYNNER: The Staff may--

10 JUDGE BRENNER: Mr. Ellis has made an objection.

11 MR. DYNNER: I'm sorry.

12 MR. ELLIS: Yes, sir. We object on the grounds
13 that the testimony would be hearsay. We would not have an
14 opportunity to cross-examine on qualifications. And we also
15 think it is cumulative. And I think what he is entitled to
16 is what these witnesses' basis is, and they have given him
17 that.

18 And it would not give us an opportunity to
19 examine on that statement -- I mean on the basis for that
20 statement or the qualifications.

21 JUDGE BRENNER: I'm inclined to agree
22 particularly with Mr. Reis' objection. You would have a
23 different situation if you had a disagreement that you
24 wanted to try to impeach these witnesses with. But you've
25 put it to these witnesses directly, and you've gotten their

1 agreement with the statement.

2 BY MR. DYNNER: I won't belabor the issue then.

3 JUDGE BRENNER: I will sustain the objection.

4 And I don't have to reach discussing Mr. Ellis' objection of
5 hearsay.

6 You would have had a different problem, Mr. Reis,
7 if we had accepted this into evidence the way you wanted to,
8 but because of our ruling, you don't have to face that
9 problem.

10 Go ahead, Mr. Dynner.

11 MR. DYNNER: Judge Brenner, would you turn to
12 page 3 of the cross plan?

13 BY MR. DYNNER:

14 Q Mr. Knox, on page 7 of your testimony you refer
15 to certain pre-operational testing. Is it the Staff's
16 intention to subject the EDGs at Shoreham with the
17 replacement crankshafts to additional pre-operational
18 testing?

19 A (Witness Knox) Not any more than as specified
20 here. I would expect the diesel generators with the
21 replaced crankshafts would be subject to these
22 pre-operational tests I have listed here.

23 JUDGE BRENNER: The question, Mr. Knox, is from
24 this point forward, or are you saying that that has already
25 been done and therefore, you don't expect anything further

1 between now and possible operation?

2 WITNESS KNOX: I don't know if the
3 pre-operational tests have been completed yet or not.
4 However, based on what I'm saying, I will assume that they
5 will be done with the replaced crankshaft.

6 WITNESS BERLINGER: Judge Brenner, would like
7 to-- I think I previously testified that the
8 pre-operational testing has been completed on all three
9 engines, and I would like to supplement Mr. Knox's testimony
10 to say that in the future, the engines would be required to
11 undergo periodic surveillance testing in accordance with
12 regulations.

13 BY MR. DYNNER:

14 Q Mr. Knox, am I correct that you were responsible
15 for reviewing the figures that LILCO came up with for its
16 MESL?

17 A (Witness Knox) Yes.

18 Q Could you tell me whether you did anything to
19 verify the accuracy of those figures?

20 MR. ELLIS: Objection, asked and answered in my
21 examination.

22 JUDGE BRENNER: It was.

23 Mr. Dynner, do you have a problem about you don't
24 remember and you have to ask follow-up questions from this
25 point forward?

1 MR. DYNNER: I don't believe it was asked and
2 answered, and if it is not terribly burdensome for the
3 Board,--

4 JUDGE BRENNER: Do you need it for your--

5 MR. DYNNER: -- I would like to have an answer to
6 it directly. I don't recall, maybe Mr. Ellis asked that. I
7 didn't memorize the transcript.

8 JUDGE BRENNER: I realize it has been asked and
9 answered but if you need it to pursue further questions to
10 follow up I will let you get it again for that purpose.

11 MR. DYNNER: It is going to lead to another
12 issue,--

13 JUDGE BRENNER: All right.

14 MR. DYNNER: -- aside from the MESL.

15 JUDGE BRENNER: All right.

16 Your objection is correct, Mr. Ellis, but we will
17 give Mr. Dynner that leeway since he wants to ask some other
18 questions and needs to have that knowledge in his mind now.

19 Do you recall the question, Mr. Knox?

20 WITNESS KNOX: Yes.

21 My review was based on information presented in
22 the tables in the FSAR. I didn't do anything to
23 specifically verify that information.

24 BY MR. DYNNER:

25 Q Do you have any reason to question the testimony

1 of Mr. Minor and Mr. Bridenbaugh concerning the plus or
2 minus margin for error in nameplate ratings, I think they
3 said plus or minus 5 percent that would in their experience
4 ordinarily be applied to the nameplate ratings?

5 MR. REIS: Your Honor, I object to the form of
6 the question. It is not probative whether he-- The
7 ultimate issue here is whether he agrees or disagrees with
8 Mr. Bridenbaugh. The question might be put directly, and we
9 can get at the direct issues. And I object to the question
10 in that it is not relevant to the issues here as phrased.

11 JUDGE BRENNER: I'm sorry, I am going to overrule
12 it.

13 I say I'm sorry because maybe I just don't
14 understand the objection. It is relevant and it seems to be
15 a fairly direct question. If it inaccurately characterizes
16 the County's testimony, that would make it arguably
17 irrelevant, but my recollection is that it does not do
18 that.

19 BY MR. DYNNER:

20 Q Mr. Knox, do you have any reason to disagree with
21 that testimony by Mr. Bridenbaugh and Mr. Minor?

22 A (Witness Knox) I have no reason to disagree.

23 Q Looking for a minute at page 8 of your testimony,
24 on the bottom of the page you referred there to some
25 kilowatt numbers that were in LILCO's testimony.

1 Did the Staff do anything to verify the accuracy
2 of those numbers?

3 A (Witness Knox) What numbers are you referring
4 to?

5 Q At the bottom of page 8. You see starting there
6 is "1," and then it says "3, 4, 5, 9.4 kilowatts on EDG
7 101," and then there are two other numbers given there.

8 A (Witness Knox) What was your question again,
9 please?

10 Q Did the Staff do anything to verify the accuracy
11 of those numbers?

12 A (Witness Knox) We did not.
13 (Counsel conferring.)

14 Q Dr. Berlinger, I would like to know whether the
15 standard for compliance with GDC-17, which the Staff is
16 applying with respect to the issue before us now, is whether
17 or not the EDGs can survive a LOOP/LOCA event if their
18 maximum continuous load is 3300 kw. Is that your standard
19 for compliance with GDC-17?

20 A (Witness Berlinger) Mr. Dynner, I think I have
21 already stated several times in the last couple of days what
22 the basis of the regulations are, namely, GDC-17, that we
23 review the adequacy of the diesels on the basis of their
24 operability, their capacity, et cetera.

25 Q Well, what I'm getting at is--

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1 A (Witness Berlinger) We don't--

2 Go ahead.

3 Q Go ahead, please.

4 A (Witness Berlinger) No, you first.

5 Q All right.

6 What I'm trying to get at is in order to comply
7 with GDC-17, in the Staff's view, do these EDGs have to do
8 anything more than demonstrate that they can survive a
9 single LOOP/LOCA event?

10 A (Witness Berlinger) They have to satisfy the
11 single-failure criteria and there has to -- it has to be
12 demonstrated that there is adequate assurance that they will
13 provide the functional requirements which, in this
14 particular case for this component, would be that they
15 provide onsite power in the event of a loss of offsite
16 power.

17 There is nothing specific in the regulations that
18 requires that the diesel generator be able to support 3,000
19 or 3300 or 4000 kilowatts.

20 Q Dr. Berlinger, what I'm getting at is the Staff's
21 interpretation of assurance as used in GDC-17 and set forth
22 in the first paragraph, requiring that the EDGs have the
23 capacity and capability to assure that they can fulfill the
24 safety functions that are set forth in that paragraph.

25 I am trying to get at the Staff's interpretation,

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1 and what I'm asking you is in that sense, with respect to
2 the capacity and capability to assure that they can fulfill
3 the functions set forth therein, do you require anything
4 more than a showing that the EDGs can survive a single
5 LOOP/LOCA event?

6 A (Witness Berlinger) Are you limiting it just to
7 LOOP/LOCA?

8 Q Yes.

9 A (Witness Berlinger) LOOP/LOCA is one of the
10 things that is considered to determine whether or not --
11 what the needs are for the engine and therefore, if you can
12 satisfy the needs of the plant with a particular engine then
13 it satisfies the GDC-17.

14 Q In the case of the Shoreham plant with these
15 EDGs, what needs have to be satisfied besides the need to
16 survive a single LOOP/LOCA event, in the Staff's view?

17 A (Witness Berlinger) I don't know if I can add
18 anything more to what I have already said, Mr. Dynner. I am
19 not quite certain what it is you are asking me to provide
20 you with in the way of testimony. Maybe you could rephrase
21 the question.

22 Q All right.

23 You said I believe that in the Staff's view
24 GDC-17's requirement of capacity and capability to assure
25 that the EDGs can fulfill their required safety functions

1 means that the EDGs have to fill the necessary needs for the
2 plant. Is that right?

3 A (Witness Berlinger) Yes, the functional
4 requirements.

5 Q All right.

6 And you agree with me that one of those
7 functional requirements would be that they would have to
8 survive a single LOOP/LOCA event. Isn't that right?

9 A (Witness Berlinger) Yes, among other things that
10 they would be evaluated against.

11 Q Okay.

12 Now my questions is: Aside from that single
13 LOOP/LOCA event, what other needs do the EDGs have to
14 fulfill in order to satisfy the requirements of GDC-17 as
15 interpreted by the Staff?

16 A (Witness Berlinger) I think I have already
17 answered the question, but maybe I'm wrong. Am I missing
18 the question?

19 JUDGE BRENNER: Dr. Berlinger, the problem is you
20 have said they would have to be evaluated against a
21 LOOP/LOCA among other things. And the question is what
22 other things as applied to Shoreham, not just the abstract
23 words of GDC-17.

24 WITNESS HODGES: Carl, should I try to--

25 MR. DYNNER: No, I would like to get

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1 Dr. Berlinger's answer first.

2 WITNESS BERLINGER: They would have to satisfy
3 not only a LOOP/LOCA event but any other accident would have
4 to be evaluated such that the maximum requirements to be
5 placed on that engine could, one, be determined and then,
6 based on the capability of the machine to satisfy the very
7 general requirements in GDC-17, then be able to determine
8 whether or not that machine has the capability and the
9 capacity to provide reliable service as required by Shoreham
10 or any other plant that you would be evaluating the diesels
11 for.

12 BY MR. DYNNER:

13 Q What other events were you talking about,
14 Dr. Berlinger?

15 WITNESS BERLINGER: Did you want to add
16 something to it?

17 MR. DYNNER: No, I would like to get your answer
18 before I hear from Mr. Hodges.

19 WITNESS BERLINGER: What other events?

20 BY MR. DYNNER:

21 Q Yes, besides the LOOP/LOCA event, what other
22 events?

23 A (Witness Berlinger) Accidents and transients.
24 In other words you have to, in doing a single-failure
25 analysis, look at the spectrum of events, postulated events,

1 for a particular plant and then determine what is the
2 limiting single-failure event and determine whether or not
3 the engine is capable of providing the service required for
4 that limiting event.

5 Q All right.

6 And what is the limiting event for Shoreham,
7 Dr. Berlinger?

8 A (Witness Berlinger) I think it was the LOOP
9 event in which the power requirements were slightly higher
10 than the LOOP/LOCA event.

11 I could refer to my notes but I think that is
12 what it was,--

13 Q Well, then,--

14 A (Witness Berlinger) -- to be more accurate.

15 Q -- do I understand you to say that the EDG would
16 have to be capable and have the capacity of assuring that it
17 could handle all of the postulated events that might occur
18 during the time when the engine is sought to be licensed and
19 used in the plant?

20 A (Witness Berlinger) It would be evaluated
21 relative to all postulated accidents in order to determine
22 which were the most limiting from the standpoint of the
23 functional requirements that have to be met in order to
24 determine those requirements and then compare its
25 capabilities to its requirements to see whether it can meet

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1 the requirements.

2 Q You went back to the most limiting event, and
3 that's the LOOP.

4 Do I understand you to say that if the EDG could
5 be shown to be capable of surviving a single LOOP event that
6 then it would be adequate under the GDC-17 requirements as
7 interpreted by the Staff?

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1 A (Witness Berlinger) If my previous statement is
2 accurate, that the LOOP event is the single limiting
3 failure, or the single limiting event from the standpoint of
4 the maximum functional requirement, or the maximum amount of
5 power to be produced by these diesels, then yes, I agree
6 with your statement.

7 Q So that you would qualify a diesel under GDC-17 if
8 it could survive a LOOP, but then six months later it
9 couldn't survive a LOOP/LOCA; is that your testimony?

10 MR. REIS: Mr. Chairman,--

11 WITNESS BERLINGER: No, that's not my testimony.

12 BY MR. DYNNER:

13 Q Explain to me why I'm confused, then; because I
14 thought you said you could qualify it if it was shown to be
15 capable of surviving a single LOOP.

16 A (Witness Berlinger) That-- I'm sorry; go ahead,
17 finish your question.

18 Q Are you saying that it would have to be shown
19 certainly to be capable of surviving that single LOOP event,
20 but in addition it would have to be capable of surviving and
21 functioning during all of the other postulated possible
22 events, postulated by the FSAR, during the period that the
23 engine was sought to be used in the licensed plant?

24 MR. REIS: I object to the question as being
25 unclear whether we're talking for the life of the engine

1 during the plant -- during one event. It's unclear from the
2 question whether we're talking of one event or throughout
3 the life of the plant, or before a six-month period was put
4 in. I'm not sure what the question is at this point.

5 JUDGE BRENNER: I think that's part of the
6 information that the questioner is attempting to ascertain
7 from the witness.

8 We'll overrule the objection.

9 MR. DYNNER: This question--

10 JUDGE BRENNER: I don't know what the answer is
11 either, Mr. Reis, and that's really what your objection is,
12 that you really don't know what the answer is.

13 MR. REIS: My objection was, I don't know what the
14 question is.

15 JUDGE BRENNER: I know what the question is.

16 MR. DYNNER: This question was very precise,
17 because I did, in fact, in this question stipulate--

18 JUDGE BRENNER: Mr. Dynner, you won.

19 MR. DYNNER: Yes, I know I did.

20 JUDGE BRENNER: Quit while you're ahead.

21 BY MR. DYNNER:

22 Q Do you understand the question?

23 A (Witness Berlinger) Yes, I think I do,
24 Mr. Dynner.

25 Q Can you answer it?

1 A (Witness Berlinger) If you're asking me what the
2 design basis is for our review and acceptance of the diesel,
3 I think I've clearly stated it; you look to see what the
4 limiting event is, you assume also-- Or let's put it
5 another way: you don't assume that that event only occurs
6 once; in other words, you could have a LOOP event every
7 month. And supposedly the engines, if they meet your
8 acceptance criteria, or our acceptance criteria, or
9 licensing criteria, you would expect that they would be able
10 to perform in response to repeated events.

11 To be perfectly honest with you, if the plant
12 experienced a LOOP/LOCA I really could care less as to
13 whether or not the diesels would ever be needed to operate
14 again. That would be very secondary, as far as my thoughts
15 are concerned. I would want to know that for a LOOP/LOCA
16 event the engine could respond and provide the service
17 required in order to protect the plant. But I would not be
18 concerned.

19 As a matter of fact, if a plant such as Shoreham
20 were to experience a LOOP/LOCA -- not such as Shoreham; but
21 if Shoreham were to experience a LOOP/LOCA, the Staff would
22 require for the service -- assuming that the engines were
23 required to operate for an extended period of time, based on
24 our maintenance and surveillance requirements specified in
25 our December 18th SER -- most likely if the engine operated

1 for a full week period in the event you could not restore
2 offsite power, that it would be required to tear the engine
3 down and inspect it before putting it back in service.

4 And that would go for each and every one of those
5 engines.

6 Q With respect to the LOOP/LOCA that you just talked
7 about, is your standard, then, on the LOOP/LOCA that it
8 would have to survive at least a week's operation during a
9 LOOP/LOCA event?

10 A (Witness Berlinger) It's generally postulated as
11 a limiting condition that a LOOP/LOCA event might take place
12 over a period of one week duration.

13 As far as evaluating the capability of the
14 diesels, I don't believe that it's necessary to be concerned
15 with regard to the performance of the diesels after the
16 initial portion of the event; for several reasons:

17 One, I don't think that they would be required to
18 operate for more than hours, as opposed to days, and,
19 secondly, I would estimate that the load requirements on the
20 diesels, in particular as you got into the event, in excess
21 of an hour into a LOOP/LOCA, the load requirements would
22 drop down considerably, so there would never be any concern
23 over the capability of these engines to continue operating
24 through the entire event, even if you wanted to postulate
25 and evaluate it on the basis of one week's running time.

1 Q I asked you whether, in fact, you are evaluating
2 it on the basis of one week's running time in a LOOP/LOCA.

3 A (Witness Berlinger) We assumed-- And I was
4 trying to give you the best answer I could. We assumed that
5 it would operate a week. But there is no concern with
6 regard to these engines, especially at what I would consider
7 the continuous load requirements after the event had
8 progressed a period of an hour or more, where the load
9 requirement on the engines would be considerably lower than
10 the MESL that's been included in the FSAR.

11 Q How many LOOP events would the engine have to
12 survive in order to be qualified, in your view?

13 A (Witness Berlinger) I don't understand the
14 question. Could you rephrase it?

15 We generally don't qualify an engine for a certain
16 number of events.

17 Q I thought you testified previously that the LOOP
18 was the limiting event, and that you would require that
19 maybe -- that it would have to be capable, the diesel would
20 have to be capable of surviving many LOOP events during the
21 course of its operation in the licensed plant.

22 Isn't that what you said?

23 A (Witness Berlinger) The LOOP event, as I have
24 stated it, is a design basis, because it is the limiting
25 event to determine adequacy of the design and operability

1 of the diesel.

2 So we don't say it has to operate for 'x' number
3 of LOOPS; it has to take the limiting event. And we assume
4 that the diesels will be adequate for the life of the plant.

5 Q So you could assume any number of LOOP events
6 during the time that the plant was operating, and the diesel
7 would still be expected to be capable, and have the capacity
8 of assuring a safe shutdown and safety function during that
9 entire period; right?

10 MR. ELLIS: I object to the question. There is no
11 testimony that any shutdown is required; in fact, there's no
12 testimony on what the LOOP event requires. So I would
13 object to the question.

14 MR. DYNNER: I'll rephrase the question.

15 BY MR. DYNNER:

16 Q Is it true that in order to be qualified, in your
17 interpretation, the Staff's interpretation, that the EDGs
18 would have to be capable, and have the capacity of operating
19 safely and reliably during any number of LOOP events?

20 A (Witness Berlinger) During any event which
21 challenged the system, whether it be a LOOP or whatever.
22 And it's based on the approach used by the Staff in
23 evaluating against the single failure criterion.

24 Q Let me put it this way: The engine would have to
25 be capable of surviving a LOOP event this week, and then if

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1 a LOOP event occurred one month later it would have to
2 survive that one also, wouldn't it--

3 A (Witness Berlinger) That's correct.

4 Q --in order to be qualified?

5 A (Witness Berlinger) That's not a basis for it to
6 be qualified. The last part of your question, if you had
7 deleted it, or not stated it, I'd give you a clear yes.
8 But, in fact, we don't specify in determining the adequacy
9 of a component and its design, whether it be a diesel engine
10 or anything else in the plant that-- Well, maybe I
11 shouldn't make as broad a statement.

12 As far as the diesels are concerned, we don't
13 specify the number of events it must survive. It must
14 survive any event. And the way you determine whether it
15 will is, you postulate all events, and you take and compare
16 the design against the most limiting.

17 Q But as I understand your testimony, you wouldn't
18 be blessing these EDGs if it could be shown that they might
19 fall apart after they operated in a single LOOP event; isn't
20 that right? --a single LOOP event.

21 A (Witness Berlinger) Let me make sure I understand
22 your question.

23 If you were an applicant and came in, and you had
24 a diesel design, and you said that these diesels were good
25 enough to take one LOOP event, and then after that you throw

1 them away and you replace them-- Is that what you're
2 postulating, or posing to me in the question? --that type of
3 scenario?

4 Q Let me try to clarify the question.

5 You know, don't you, the amount of time that an
6 EDG has to run during a LOOP event, and you know the power
7 level that it has to run during a LOOP event, from the data
8 that has been furnished by LILCO in this case; isn't that
9 right?

10 MR. ELLIS: Objection; there's no showing that
11 that data has been supplied by LILCO.

12 MR. DYNNER: That's the question.

13 JUDGE BRENNER: That's the question. And we'll
14 overrule the objection on that basis. I've got concerns
15 broader than that, but I'll let this answer to, and then
16 I'll jump in.

17 WITNESS BERLINGER: Could you restate your
18 question, please?

19 MR. DYNNER: Yes.

20 BY MR. DYNNER:

21 Q Do you know, based on information that you have
22 received, how many hours, or parts of an hour, and at what
23 load levels the EDGs would have to operate in a LOOP event;
24 which, as you testified, is the limiting event?

25 A (Witness Berlinger) Right. We can postulate a

1 profile for that, yes, a load versus time profile.

2 Q Right.

3 Now let me just, for simplicity's sake--

4 JUDGE BRENNER: Mr. Dynner, let me interrupt, for
5 simplicity's sake.

6 I don't know where you're going with the last few
7 minutes at least, and perhaps beyond that, in the context of
8 the load contention that the qualified load is the maximum
9 load at which it may be operated, but other loads may be
10 imposed over it, such as intermittent and cyclic loads,
11 diesel load meter instrument error, and so on, and also that
12 the endurance run is inappropriate as applied to this panel
13 because the operators were permitted to control the
14 generators at plus or minus 100, and because instrument
15 accuracy was not considered.

16 I don't know where you're going, and I'm about
17 ready to tell you you're down to your last few moments.

18 You told me at one-thirty that you had about a
19 half hour. You have not probed this afternoon, in my
20 opinion, any particular details that would enlighten us on
21 those parts of the contention.

22 Some of what you have asked about may more
23 appropriately fall over into the other panel, but I'm not
24 even sure of that.

25 I recognize there's that gray area, and so I did

1 let you go with, I think, almost no interruption, at least
2 from the Board.

3 MR. DYNNER: I'm about to-- If I get an answer to
4 this question I'm about to bring it right squarely into the
5 contention -- into one of the subparts of the contention you
6 just mentioned.

7 This is foundation for the purpose of doing that.

8 JUDGE BRENNER: Tell me now where it's relevant.
9 Maybe I've missed a very important point. But I just don't
10 see how you're going to tie that in.

11 I also want to know if you're going to finish in
12 the next few minutes.

13 MR. DYNNER: This is the last, about three
14 minutes, if I can get an answer.

15 JUDGE BRENNER: Well, I don't know if you can get
16 an answer. Tell me why it's relevant.

17 MR. DYNNER: All right.

18 I'm moving right into A-4 of the contention.

19 JUDGE BRENNER: That's, for the benefit of the
20 witnesses: that operators may erroneously start additional
21 equipment.

22 Is that right? We're talking about the same
23 subpart?

24 MR. DYNNER: That's right.

25 JUDGE BRENNER: You sure moved around and around

1 and around before moving into it.

2 I don't understand why you just can't ask your
3 direct question, if you have one.

4 MR. DYNNER: I can't get a direct answer, or I'd
5 be able to do it a lot quicker.

6 JUDGE BRENNER: Even if you had gotten more direct
7 answers to some of your questions as to the application of
8 the GDC, -- which I thought was a good question, and we let
9 you pursue that. But now you're beyond that one.

10 You've been getting, I think, direct answers to
11 the last few.

12 What's your question again? Give me the pending
13 question, and ask it in a way that will show me that it's
14 going to be very quickly related to that subpart of the
15 contention.

16 BY MR. DYNNER:

17 Q Now, Dr. Berlinger, when you make your assessment
18 under GDC-17 as to the capacity and capability of the EDG,
19 do you take, in order to see whether the EDGs can safely and
20 reliably operate, do you take the number of hours and the
21 load factors, as you put it, the load profile for a LOOP,
22 and say that you just take one of those LOOP event with that
23 number of hours times the kilowatts, or do you take several
24 of them? And that's important; because, just to clarify the
25 question further, if you're talking about a single LOOP you

1 might be talking only about three-quarters of an hour or
2 half of an hour of operation at a given load level, but if
3 you're talking about a number of potential events, then
4 you're talking about a lot more number of hours of operation
5 at a particular load level.

6 So which do you use?

7 A (Witness Berlinger) In evaluating the Shoreham
8 diesels, as stated within the December 18th SER, there are
9 many aspects that the Staff reviewed, one of which is the
10 load profile and the actual load that would be experience
11 by the engines.

12 We do consider, for the event, whether or not the
13 engine will survive it. We expect that if the design is
14 adequate that the engine will survive it. We expect that
15 the engine will provide reliable service for the life of the
16 plant.

17 In order to assure that from month-to-month or, as
18 you have stated in your question, LOOP-to-LOOP, that the
19 engine maintains its high level of reliability, we have been
20 very specific in our review and recommendations within the
21 SER regarding enhanced maintenance and surveillance programs
22 which we feel are essential to assure the continued high
23 level of reliability, and to assure, over the 40-year life
24 of the plant, that the engines will continue to meet GDC-17.

25 If the engines in this plant were left there and

1 not maintained in accordance with our recommendations, I
2 couldn't guarantee that they would survive a monthly LOOP
3 event for the life of the plant.

4 But we have not only maintenance and surveillance
5 programs, we have periodic testing and surveillance programs
6 which are very clearly stated in the SER. And I think on
7 the basis of our overall review, as it has been clearly
8 defined in our SER, that that is -- that in that SER that is
9 the basis under which we have evaluated the diesel engines
10 at Shoreham and found that they meet GDC-17, not for a
11 month, not for a year, but for the life of the plant.

12 Q And I'm correct, aren't I, that in making that
13 assessment you have not taken into consideration the
14 possibility of an operator adding additional loads to the
15 EDGs through error, or otherwise?

16 A (Witness Berlinger) The EDG electrical system is
17 designed to meet the single failure criterion. We do not
18 specifically, as Mr. Hodges has testified, consider
19 additional operator error separate from what might be
20 postulated in evaluating, in accordance with the single
21 failure criteria, as either operator or component error.

22 Q So you have not taken those into consideration; is
23 that correct?

24 A (Witness Berlinger) We do not consider that in
25 determining the design adequacy of the engines.

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MR. DYNNER: Thank you. That completes my
cross-examination.

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JUDGE BRENNER: All right. Thank you,
Mr. Dynner.

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We are going to vary the sequence of questions
slightly. We have a subject that Judge Morris is going to
ask questions on. And after we complete that subject we are
then going to hold off on the potential remainder of our
questions on all subjects that these witnesses have
testified to and go to the redirect and follow-ups since
there is apparently a substantial number of questions from
those parties.

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And then at some point we will ask the remaining
Board questions, if any remain after that process. I'm not
sure if we will ask our questions after the Staff's redirect
and before LILCO's follow-up or after LILCO's follow-up; and
I'm even not sure in relation to any possible follow-up by
the County, although I suspect we'll ask ours before that
possibility.

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So Judge Morris has some questions at this time.

22

EXAMINATION BY THE BOARD

23

BY JUDGE MORRIS:

24

Q Mr. Knox, in your consideration of the qualified
load for the Shoreham diesels did you consider in any way
the integrated electrical test results?

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- 1 A (Witness Knox) They weren't considered.
- 2 Q How did you consider them?
- 3 A (Witness Knox) I said I did not consider them.
- 4 Q You did not. I'm sorry.
- 5 Mr. Clifford.
- 6 A (Witness Clifford) Yes, Judge Morris.
- 7 Q The same question.
- 8 A (Witness Clifford) I got the numbers for my
- 9 evaluation from Mr. Knox, so the answer would be the same; I
- 10 did not consider the integrated electrical test.
- 11 Q Mr. Eckenrode.
- 12 A (Witness Eckenrode) The answer would be the
- 13 same. Our effort came from Mr. Knox.
- 14 Q Mr. Buzy.
- 15 A (Witness Buzy) My answer is the same as
- 16 Mr. Clifford and Mr. Eckenrode.
- 17 Q Mr. Hodges.
- 18 A (Witness Hodges) Same answer.
- 19 Q Dr. Berlinger.
- 20 A (Witness Berlinger) Judge Morris, the only
- 21 aspect in which the integrated electrical test was
- 22 considered even in the most remote way was the fact that the
- 23 information was made available to us and we were aware that
- 24 some of the total load measurements were reported in that
- 25 document, which gave us some measure -- just a yardstick;

AGBmpb 1 it was not used in the detailed evaluation -- as to the
2 loads to be expected in the event of a LOOP/LOCA event.

3 Q But it was not used in reaching any of your
4 conclusions?

5 A (Witness Berlinger) No, not at all.

6 (Board conferring.)

7 JUDGE MORRIS: Thank you.

8 BY JUDGE BRENNER:

9 Q When each of you said it hasn't been considered
10 in the review -- except Dr. Berlinger had a further
11 explanation -- did anyone review the results of the IET and
12 the way the IET was performed in any event? And I guess I'm
13 guessing that, Mr. Knox, you are the one on the panel with
14 the qualifications in that area; but if I'm wrong the panel
15 can correct me.

16 A (Witness Knox) The IET was a test to demonstrate
17 the electrical independence of redundant divisions, which I
18 think is beyond the scope of this hearing.

19 The tests would be reviewed as part of the normal
20 function of our regional inspectors or the I&E branch of the
21 NRC.

22 Q LILCO's witnesses have testified that that IET is
23 also valid to determine how the load profile would exist and
24 evolve during the LOOP/LOCA event, and that the IET is valid
25 to assess what the loads actually would be. Do you disagree

AGBmpb 1 or agree?

2 MR. ELLIS: I, Judge Brenner, again with
3 trepidation, object to your question because I don't think
4 there is any basis -- in fact the questions that have been
5 asked demonstrate that there is no basis on which these
6 witnesses can answer the question unless they have reviewed
7 the IET. And therefore I would object to the --

8 JUDGE BRENNER: All right. Let me find out.

9 BY JUDGE BRENNER:

10 Q Do any of you know enough about the IET to be
11 able to answer the question I just put?

12 And I'll start with you, Mr. Knox, and then open
13 it to anybody else.

14 A (Witness Knox) When the IET was submitted to
15 us--

16 Q Well, the question is:

17 Do you know enough about it in order to be able
18 to judge whether or not it could validly be used for the
19 purpose of assessing what the reasonably postulated maximum
20 load would be in the event of an actual LOOP/LOCA at the
21 plant?

22 A (Witness Knox) I don't have enough information
23 to say one way or the other.

24 A (Witness Berlinger) Judge Brenner, I reviewed
25 the information. I didn't do a detailed technical review of

AGBmpb 1 it, but I reviewed the information that was submitted to the
2 NRC. And I did discuss how the tests were run in order to
3 gain some understanding as to whether or not there is any
4 value associated with the IET for purposes of evaluating the
5 diesel performance.

6 And I came to the conclusion that although the
7 information was interesting and it gave relative indications
8 as to what the load profiles might look like, I did not have
9 any basis to assume that it was totally representative or a
10 100 percent accurate representation of how the plant would
11 respond in fact to the posulated event.

12 Q Well, what's your basis for the last statement?

13 And you'll forgive me if I point out, just
14 reading your paper qualifications, it occurs to me that you
15 don't have -- while there may be one particular area of
16 qualifications appropriate, it may be a combination of
17 electrical engineering and electrical systems expertise
18 along with nuclear reactor systems expertise in
19 combination.

20 Tell me what your basis was for that statement
21 and why you think you are qualified to have a basis.

22 A (Witness Berlinger) One primary basis for the
23 statement was discussions with the engineering people and
24 the licensing people from LILCO, who indicated to me clearly
25 in our discussions last fall that the integrated electrical

AGBmpb 1 tests could not wholly model -- or -- the actual plant
2 conditions. For instance, they were not actually able to
3 simulate heat loads or lighting, emergency lighting, or air
4 conditioning needs because of the fact that the plant itself
5 was not operating. And although they attempted to simulate
6 some of those conditions, I did not feel it would be
7 reliable to base any of my decisions on that information.

8 Q And why not?

9 A (Witness Berlinger) Because I could not assess
10 on its own merits how good that information would be.

11 Q Well, I guess I still have the same question:
12 Why not?

13 The background is we have testimony from LILCO's
14 witnesses that although it doesn't model the LOOP/LOCA as it
15 actually would occur, they have presented testimony to us as
16 to why they believe it's valid for the purpose of looking at
17 approximately what the maximum expected load would be in the
18 event of a LOOP/LOCA, and they've described how they believe
19 they have simulated certain of the loads, particularly the
20 larger ones we asked them about. And given that testimony
21 -- Have you evaluated that?

22 A (Witness Berlinger) I looked at the
23 information. But before I made an independent analysis I
24 asked the Licensee, the Applicant, as to whether or not they
25 felt that I could use that information contained in the

AGEmpb 1 integrated electrical test report, and they recommended that
2 I not use it.

3 Q Use for what purpose?

4 A (Witness Berlinger) For purposes of evaluating
5 the actual -- or a better estimate of the actual plant load
6 requirements for a simulated accident.

7 So although I did not independently review -- or
8 totally review that information, on the basis of the
9 utility's reluctance to submit it in support of the diesel
10 review, there was no reason for me to utilize that
11 information other than to give me a relative measure, to
12 give me something to look at.

13 Q Has any member of the panel -- and I guess I'm
14 thinking that, Mr. Knox, you might be a possibility. Have
15 you performed reviews of integrated electrical tests, even
16 though not the one run for Shoreham?

17 A (Witness Knox) I guess I have not done a
18 specific review of an integrated electrical test or a load
19 acceptance test specifically. The issue has never come up
20 for review.

21 Q All right. Thank you.

22 JUDGE BRENNER: That's all we have for now of
23 these witnesses.

24 I'd like to go a little further before the
25 break. If you want to take a break now before the Staff's

AGBmpb 1 redirect I'll take it, but I would prefer that you begin
2 your questioning.

3 REDIRECT EXAMINATION

4 BY MR. REIS:

5 Q Mr. Berlinger, following up on the Board's
6 questions a moment ago, in an integrated electrical test
7 what is the ability to model the current drawn by various
8 motors, battery chargers, lighting, and how are they
9 affected?

10 MR. ELLIS: I object to the question because I
11 still don't think there is a basis. I don't think the
12 witness is competent to testify.

13 And if the Board will permit me on voir dire, I
14 have deposition testimony to the effect that he is not
15 competent to testify.

16 JUDGE BRENNER: You are going to have to
17 establish his qualifications to answer that question as a
18 predicate to asking it because, from what we know in front
19 of the paper record before us, I don't see that he would be
20 qualified to do it.

21 Now to be sure, there may be information that
22 leads us to a different conclusion, but you'll have to
23 establish that on the record.

24 MR. REIS: I'll withdraw the question then.

25 BY MR. REIS:

ACBmpb

1 Q Dr. Berlinger, if the diesels, during the course
2 of their operation, should operate over the qualified load,
3 whatever the qualified load is, or the qualified load that
4 is set in the Staff's SER, what surveillance and maintenance
5 is necessary for the engines to go through before they are
6 put back into service?

7 MR. ELLIS: I object. I don't think that's
8 within the scope of the contention that we are hearing
9 today.

10 JUDGE BRENNER: I'm inclined to sustain that,
11 Mr. Reis. I say "inclined" because I'll let you respond
12 after I tell you why.

13 Questions of the parties -- particularly
14 Mr. Dynner -- strayed into that area. I don't think you've
15 got all the right witnesses here, looking ahead to the
16 witnesses you're going to have on the next panel. And that
17 issue, to be sure, is going to come up because they're
18 talking about operation at certain continuous load and then
19 the ability for short term operation. And although
20 Mr. Dynner claimed all of that 45 minutes or so -- or some
21 part of it -- was leading up to his question about whether
22 they consider operator error, it certainly was not in my
23 mind. And he could have asked that question first instead
24 of last, or somewhere in the middle.

25 So unless you have a particular reason why you

AGBmpb 1 think it's pertinent to this contention, I'll sustain the
2 objection.

3 MR. REIS: I didn't feel it was -- I felt it was
4 particularly pertinent to Mr. Dynner's cross-examination on
5 -- going to the times these engines would see and so forth.
6 If you --

7 JUDGE BRENNER: I think you need the other --

8 MR. REIS: If you think it's better going to the
9 next time the Board meets on this, certainly it could be
10 taken up at that time.

11 JUDGE BRENNER: All right.

12 MR. REIS: I don't care. I just wanted to make
13 sure the record would not -- part of the record would not be
14 misinterpreted.

15 JUDGE BRENNER: I understand why you asked it,
16 and I think we should hold it for the witnesses who know
17 more about diesel engines.

18 BY MR. REIS:

19 Q Mr. Knox, you were asked a question about
20 Mr. Bridenbaugh's testimony. Do you recall
21 Mr. Bridenbaugh's testimony?

22 A (Witness Knox) I believe I recall the questions
23 and answers that were put to me, yes.

24 Q And you specifically recall the full context of
25 the questions put to you?

AGBmpb

1 JUDGE BRENNER: Mr. Reis, I'm sorry, I don't know
2 what you're talking about, but -- although I could guess,
3 the record doesn't expressly know what you're talking
4 about.

5 And one other point: I have no reason to believe
6 that the witness and you are on the same wave length when
7 you ask the questions that way.

8 Why don't you point him to the particular piece
9 of testimony you want to ask him about, or at least
10 paraphrase what it is.

11 MR. REIS: I don't have it before me.

12 JUDGE BRENNER: Do you want to ask him about the
13 plus or minus five percent accuracy of nameplate ratings?
14 Is that it?

15 MR. REIS: Yes, and I'm trying to find it.

16 JUDGE BRENNER: All right.

17 Mr. Knox, do you recall that you said you had no
18 reason to disagree with the proposition -- whether it be in
19 testimony or otherwise -- that nameplate ratings are only
20 accurate to plus or minus five percent?

21 WITNESS KNOX: Yes, I recall the answer.

22 JUDGE BRENNER: All right.

23 WITNESS KNOX: I could add to that in that I --

24 JUDGE BRENNER: Well, wait.

25 Now you want to ask a question about that, right,

AGBmpb 1 Mr. Reis?

2 I'm sorry, I was just trying to help. I'll back
3 off.

4 (Laughter.)

5 MR. REIS: I'll let that one go also.

6 JUDGE BRENNER: What do you want to add about it,
7 now that we've got it hanging in the record?

8 Mr. Knox, if you wanted to add something, go
9 ahead.

10 WITNESS KNOX: I have no basis to agree or
11 disagree with Minor's testimony about the plus or minus five
12 percent.

13 BY MR. REIS:

14 Q Mr. Clifford, you were also pointed to
15 Mr. Bridenbaugh's testimony as to the complexity of certain
16 actions with regard to diesels. Do you recall answering
17 that question?

18 MR. DYNNER: Objection. I think it is a
19 mischaracterization. I don't know what he's talking about.

20 JUDGE BRENNER: Well, you know what he's talking
21 about and I know what he's talking about.

22 MR. DYNNER: If I'm right about what he's talking
23 about he's mischaracterizing it. If I'm wrong, then I don't
24 know what he's talking about.

25 JUDGE BRENNER: Your witness said he wasn't

AGEmpb 1 familiar with the testimony, Mr. Reis, and then Mr. Dynner
2 backed-up and asked him the question more directly, although
3 there was some time wasted while the witness was looking at
4 it. But if you can ask -- I guess what's good for the goose
5 is good for the gander, and I'll give you your own
6 suggestion:

7 You should ask the question directly, whatever
8 question it is you want to ask.

9 MR. REIS: Okay.

10 JUDGE BRENNER: I also restrained myself mightily
11 when I learned that, although we had gone through great
12 pains in setting up the particular sequence of filing
13 testimony, things had not occurred that I would have
14 supposed would have occurred. But I'll save that maybe
15 forever or maybe for another time.

16 BY MR. REIS:

17 Q Mr. Clifford, you testified in cross-examination
18 about the complexity of certain diesel procedures, is that
19 correct?

20 A (Witness Clifford) The question was addressed
21 talked about the operation of EDG equipment in the emergency
22 situation.

23 Q Is the operation of the diesels more complex than
24 the operation of other systems within -- in that emergency
25 situation in the control room or outside the control room,

AGBmpb 1 or in the plant generally?

2 A (Witness Clifford) The operation --

3 Q Of the diesels.

4 A (Witness Clifford) Of the diesels is automatic
5 with monitoring.

6 Q How does it compare with the complexity of
7 operating other equipment in that emergency situation -- in
8 an emergency situation?

9 MR. DYNNER: Objection. The question is vague
10 and ambiguous, and it is unclear in that it doesn't state
11 whether we are talking about under 3300 kilowatt limit or
12 not.

13 JUDGE BRENNER: There are some other potential
14 ambiguities with the question even beyond that, Mr. Reis,
15 and you're going to have to back up and break it up into
16 more specific portions.

17 I think one reason contributing to the problem
18 is, of course, these witnesses have been asked a lot of
19 questions up until this point. And when an area is stated
20 rather broadly there are any one of several particular
21 aspects that could be the one that is meant to be brought in
22 by the question. But it is not immediately apparent
23 sometimes to me, and perhaps more importantly necessarily to
24 the witness.

25 So when asking about questions they have been

AGBmpb 1 asked about before, particularly where there has been so
2 much this week, you're going to have to more precisely draw
3 the area to the attention of the witness.

4 So we'll sustain the objection.

5 Maybe this would be a good time for a break, if
6 you would like.

7 MR. REIS: Yes.

8 JUDGE BRENNER: All right.

9 Let's take a break until 3:15.

10 (Recess.)

11 JUDGE BRENNER: Back on the record.

12 Mr. Reis, you may continue.

13 BY MR. REIS:

14 Q Mr. Clifford, during cross-examination by
15 Mr. Dynner you were directed to page 25 of Mr. Bridenbaugh's
16 testimony, and a portion of that testimony was read to you
17 which states:

18 "We have examined the Shoreham site
19 procedures governing the operation of the
20 EDG equipment in the emergency situation
21 and find that the operations are relatively
22 complex and offer many opportunities for error."

23 Focusing on the word "relatively" in that
24 statement, and your answer to that question, what did you
25 interpret the word "relatively" to refer to?

AGBmpb

1 MR. DYNNER: Objection. The witness has already
2 answered this question. This is supposed to be redirect.
3 And I gather what he is trying to do is impeach his own
4 witness.

5 JUDGE BRENNER: The objection is overruled.

6 He is probably asking redirect based on your
7 cross-examination.

8 WITNESS CLIFFORD: When I answer the question I
9 will have to admit that I misinterpreted the words that I
10 saw here, and the question I thought I was answering was
11 whether the operation of equipment, operated under the
12 conditions where the EDGs would be involved, were complex.
13 Seeing the follow-on, specific comments deal with the
14 specific emergency generator procedure and did not get at
15 what I thought was the question.

16 So I guess I answered the wrong question back
17 then I guess is what I'm trying to say.

18 If the question were posed to be right now, I did
19 not evaluate the operation of the EDG equipment as it is
20 outlined in this particular procedure, which is the
21 emergency diesel generator procedure, SP23.307.01, Revision
22 12. Mr. Buzy is the one who evaluated that particular
23 procedure.

24 MR. ELLIS: Judge Brenner, I don't know if there
25 is a question pending.

AGBmpb 1

2 JUDGE BRENNER: No, we're waiting for another
3 question. I assumed we all were.

4 BY MR. REIS:

5 Q Do you have anything to add to that question,
6 Mr. Buzy, to the answer?

7 MR. ELLIS: I object. I don't see how Mr. Buzy
8 could add to a question about how Mr. Clifford interpreted a
9 word.

10 JUDGE BRENNER: All right.

11 You're going to have to pose another question,
12 Mr. Reis.

13 MR. REIS: I'll withdraw that question.

14 BY MR. REIS:

15 Q During the testimony here there was much
16 discussion of task analysis. Can you please define what you
17 mean by task analysis?

18 A (Witness Eckenrode) I believe I stated in the
19 earlier testimony that it is a systematic process in which
20 operator tasks are identified and examinee in terms of the
21 conditions, the information and control requirements,
22 training requirements, communication requirements, for
23 instance, any other details associated with the tasks.

24 The objective is to gather together all of the
25 information necessary to make sure that the operator has
what he needs to do the job.

AGBmpb

1 As compared to a job analysis, I'm not sure
2 exactly what is meant by a job analysis. I have looked at
3 the job analysis that was submitted by LILCO since our
4 review up in January. It appears to me to be simply a
5 listing of the steps and the procedures, along with an
6 indication of who performs a step and whether or not there
7 are any -- what kind of training requirements might be
8 needed. It doesn't take the step down to the level that is
9 needed to really analyze it, and this is where a task
10 analysis will accomplish that.

11 Now a task is a specific activity, such as 'close
12 a valve,' where this indication, the steps and the
13 procedures aren't down to that level. They may indicate the
14 starting of a pump which may require several activities
15 beyond that such as opening valves in order to start the
16 pump, to look at indications to determine whether or not the
17 pump is able to be started, the status of the pump, et
18 cetera.

19 So there are a lot of sub-activities that are
20 involved in each step. This is what needs to be looked at
21 in a task analysis.

22 JUDGE BRENNER: Mr. Eckenrode, I'm confused on
23 one thing. Maybe you could help me out.

24 I understood your last part, describing what you
25 would look for in a task analysis's. But the first part of

AGBmpb 1 your answer was, I believe, describing the job analysis or
2 what you thought might be in it.

3 Did I hear you say that you haven't really looked
4 at the job analysis presented by LILCO?

5 WITNESS ECKENRODE: I have looked at it, your
6 Honor.

7 The first thing I described was what a task
8 analysis is. It is a detailed analysis -- I'm sorry.

9 JUDGE BRENNER: I heard what you said.

10 WITNESS ECKENRODE: Okay.

11 JUDGE BRENNER: But you have looked at the job
12 analysis?

13 WITNESS ECKENRODE: Yes.

14 JUDGE BRENNER: I'm sorry, to divert you,
15 Mr. Reis. Do you have a copy of the February 20th
16 transcript?

17 Could somebody loan him a copy?

18 (Document handed to the witness.)

19 JUDGE BRENNER: And I'm looking at page 27,899.
20 And there was a series of questions -- I think it's
21 Mr. Ellis who is the questioner, I'm not sure. But in any
22 event, at the page I directed you to you were asked:

23 "Mr. Eckenrode, did you review the job
24 analysis?"

25 That's at line four. And as set forth in the

AGBmpb 1 transcript it says:

2 "No, I didn't review the job analysis as
3 it stands."

4 And you went on to an explanation.

5 Now maybe that was in a particular context, and I
6 have not refreshed my recollection of the whole context.
7 But is there a contradiction or am I missing something?

8 WITNESS ECKENRODE: No, no. I had not reviewed
9 the job analysis. I have since looked at it in order to try
10 to determine whether it is satisfactory as a task analysis.
11 And that's the only reason.

12 JUDGE BRENNER: All right.

13 WITNESS ECKENRODE: I haven't looked at the
14 detail beyond that job analysis.

15 JUDGE BRENNER: Okay.

16 WITNESS ECKENRODE: I looked at the analysis in
17 general.

18 JUDGE BRENNER: Since yesterday.

19 WITNESS ECKENRODE: Pardon me?

20 JUDGE BRENNER: You looked at it since yesterday?

21 WITNESS ECKENRODE: Yes.

22 Part of the reason is we are negotiating, I
23 believe, to have a get-together with LILCO in order to
24 establish some of the problems we still have. And as a
25 result of this we want to be able to describe to LILCO what

AGBmpb 1 we think is needed.

2 JUDGE BRENNER: Okay. All right. Thank you.

3 I'm sorry to interrupt, but I had remembered that
4 testimony from yesterday for a number of reasons, and this
5 confused me today. Thank you.

6 BY MR. REIS:

7 Q Mr. Berlinger, after the crank shafts were
8 replaced has each engine -- and this goes to some questions
9 of Chairman Brenner yesterday -- after each crank shaft was
10 replaced has each engine been run for 24 hours continuously
11 at a load of 3500 Kw? And I'm talking -- When I say "each
12 engine" I mean 101, 102 and 103.

13 A (Witness Berlinger) Mr. Reis, yes. Each of the
14 three engines has completed their pre-operational testing,
15 which includes a 24 hour run. And that run included at
16 least -- well, the testing on all three engines has included
17 at least 22 hours at 3500 kilowatts, and at least two hours
18 at 3900 kilowatts.

19 Q Was the testing that was performed at the
20 qualified loads more demanding than that which is usually
21 required for EDGs to see if they comply with GDC-17?

22 A (Witness Berlinger) Clearly the testing to
23 establish the qualified load is in excess of what's normally
24 required in the way of either factory testing or onsite
25 pre-operational testing for diesel generators.

AGBmpb 1

MR. REIS: That's all I have.

2

3

JUDGE BRENNER: Do you still have a couple of hours? I think that was your preliminary estimate, Mr. Ellis.

5

My question is is that still your estimate?

6

7

8

9

MR. ELLIS: Yes, sir, it is. It is certainly no less in light of the fact that I gave you that estimate at the lunch break and we have now gone several hours beyond it.

10

(Board conferring.)

11

12

13

JUDGE BRENNER: All right. As we said, we'll hold off on what questions we might have at this time and we'll let you proceed.

14

REXCROSS-EXAMINATION

15

BY MR. ELLIS:

16

Q Dr. Berlinger --

17

18

19

20

21

JUDGE BRENNER: Let me state the obvious: You see what the time situation is here. I'm not going to stop you from getting anything productive. But we are all going to be alert, including primarily you, to make sure that it is indeed productive.

22

MR. ELLIS: Yes, sir.

23

24

I think I have identified some things that I think are necessary to do for the Applicant, and I will --

25

JUDGE BRENNER: I'm sure you have.

AGBmpb 1 MR. ELLIS: And I'll do my utmost to expedite it,
2 but....

3 BY MR. ELLIS:

4 Q Dr. Berlinger, do you have before you IEEE-387?

5 A (Witness Berlinger) Yes, I do.

6 Q You were asked a number of questions --

7 JUDGE BRENNER: Any particular version?

8 MR. ELLIS: I'm going to come to that. 1977,
9 Judge Brenner.

10 BY MR. ELLIS:

11 Q You were asked a number of questions by

12 Mr. Dynner concerning that standard relating to margin.

13 Look at paragraph 5.23, if you would, please.

14 MR. DYNNER: Objection. I asked Mr. Knox
15 questions about this, not Dr. Berlinger, as I recall.

16 MR. ELLIS: I think Dr. Berlinger answered
17 questions on that.

18 JUDGE BRENNER: I know that Dr. Berlinger
19 testified about meanings of certain terms in there; I don't
20 know who asked him the question.

21 MR. ELLIS: Judge Brenner, if I'm going to
22 expedite I would hope that the objections...

23 JUDGE BRENNER: Go ahead.

24 BY MR. ELLIS:

25 Q Dr. Berlinger, do you see paragraph 5.23?

AGBmpb 1 A (Witness Berlinger) Yes. On page 11?

2 Q On page 11.

3 5.23 says -- quote:

4 "The diesel generator units may be
5 utilized to the limit of their power
6 capabilities as defined by the continuous
7 and short time ratings."

8 You agree with me, don't you, that this standard,
9 which is endorsed by RegGuide 1.9 does not require any
10 margin between the design load and the rating?

11 A (Witness Berlinger) That's correct.

12 Q And, Dr. Berlinger, I'm correct, am I not, then,
13 that in any answers to Mr. Dynner you did not mean to imply
14 that GDC-17 or the regulations require specifically any
15 margin between design load and rating?

16 A (Witness Berlinger) Yes, that is correct.

17 And if you refer back to the questions that were
18 asked in which an example, a hypothetical example was given
19 in which the load rating of the engine was 3405 kilowatts
20 and the load requirement of the engine in the application
21 was 3400, I was asked whether or not I would approve an
22 engine with five kilowatts margin. I said yes. But it
23 wasn't on the basis of five kilowatts margin; it's just that
24 there was a greater capability than load required and it is
25 greater than zero.

1 Q It's true, isn't it, Dr. Berlinger or Mr. Knox,
2 either one, that the design load does not include loads
3 attributable to operator error?

4 A (Witness Knox) That's correct.

5 Q And it's also true that the IEEE standard and
6 RegGuide 1.9 do not require that the single worst case
7 operator error load be accommodated in the short term rating
8 of the diesel?

9 A (Witness Knox) That's correct.

10 Q Mr. Hodges, you, in a number of your responses, I
11 think there was -- Strike that.

12 Mr. Hodges, you were asked a number of questions
13 which you answered concerning the necessity or lack of
14 necessity to take into account an operator error. To sum
15 up, let me ask you to assume that operating procedures
16 provide reasonable assurance that operators will not add
17 load to the diesel generators resulting in exceeding the
18 qualified load of 3300, or that if it is exceeded that they
19 will be timely reduced.

20 Would you agree that if one diesel fails due to
21 either equipment failure or operator error after a LOOP/LOCA
22 that the utility is not then required by regulation to
23 design the capacity of the diesels to withstand the further
24 failure of a diesel due to an operator error or equipment
25 failure?

1 A (Witness Hodges) Given your predicate, yes.

2 Q And, Dr. Berlinger, on the other subject of the
3 single worst -- on the subject of single worst operator
4 error, it's true, isn't it, that the Staff under the
5 qualified load approach does not require ten-to-the-seventh
6 cycle testing at a load that includes a single worst
7 operator error in addition to the MESLs?

8 A (Witness Berlinger) That's correct.

9 Q In this instance, Dr. Berlinger, the Staff is
10 aware, is it not, that the engines have been run for some
11 considerable period of the 745 hours at loads in excess of
12 3300?

13 A (Witness Berlinger) Yes. I think I have
14 previously stated estimates of number of hours at the loads
15 in excess of 3300 kilowatts.

16 Q And that experience is relied upon in part by the
17 Staff to reach its conclusions on the adequacy of the
18 engines independent of procedures?

19 MR. DYNNER: Objection. That's not the subject
20 matter of this portion of the hearing.

21 MR. ELLIS: May I...

22 JUDGE BRENNER: Mr. Ellis.

23 MR. ELLIS: Yes, sir, that is, you see, because
24 what we're talking about here is the basis on which judgment
25 was made.

1 I'm not going to get into whether they were
2 correct in their decision that this additional operating
3 hours above -- 3500 or above is adequate to justify their
4 conclusions, but whether it was taken into account reaching
5 the conclusion independent of procedures.

6 JUDGE BRENNER: All right.

7 For that relatively limited purpose we'll permit
8 the question.

9 WITNESS BERLINGER: Could you please restate the
10 question?

11 MR. ELLIS: Yes, sir.

12 BY MR. ELLIS:

13 Q I'm correct, am I not, that the Staff, in
14 reaching its conclusion concerning the adequacy of the
15 diesels at Shoreham to withstand an operator error apart
16 from whether procedures would provide reasonable assurance
17 or not, has relied on and used this operating experience of
18 3500 or above?

19 A (Witness Berlinger) That is correct. And the
20 detailed information with regard to the basis for our
21 evaluation is in our December 18th evaluation report, safety
22 evaluation report.

23 Q I guess the point more directly that I will ask
24 you is that the judgment made as to the adequacy of the
25 diesels at various loads by the PNL panel, by the loads

1 specified in there, accommodate operator error and do not
2 rely on procedures, isn't that correct?

3 A (Witness Berlinger) You're testing my memory.
4 Hold for just a second.

5 (Witness reviewing document.)

6 Mr. Ellis, I would not agree with your statement
7 exactly as you have stated it in the question.

8 In essence the Staff's evaluation was based on
9 our assessment of the load requirements relative to the
10 qualified load that had been established by test; and the
11 load capability of the engine was evaluated on the basis of
12 its continuous load requirements which were all clearly, for
13 each of the diesels, below 3300 kilowatts.

14 It also considered the possibility of cyclical
15 and intermittent loads and that those loads in fact were
16 considered, and in the case where the total load --
17 including the continuous plus the intermittent and cyclical
18 loads -- may have exceeded 3300, the Staff presented an
19 evaluation based on the testing which had been performed for
20 the 745 hours during the endurance testing.

21 And I think it is -- In addition to that there
22 were postulated conditions that our consultants were asked
23 to address, and they did address in the testimony that has
24 been filed with the Board but has not yet been discussed
25 here which will be discussed which go in more detail to the

1 specific load requirements.

2 And so based on the SER I can't clearly give you
3 a simple answer. But based on what the PNL review has
4 encompassed, then I can answer yes, the load in excess of
5 3300 as part of the 745 hours of operation has been
6 considered in evaluating the adequacy of the diesels.

7 Q Thank you.

8 Dr. Berlinger, in your answer you indicated that
9 in addition to the cyclic and intermittent loads that PNL
10 had also considered, I think you said, other load
11 conditions. What I was getting at is those would be the
12 load conditions attributable to operator error, wouldn't
13 they?

14 MR. DYNNER: Objection.

15 This is going well beyond the basis on which the
16 previous objection was overruled. He is now getting into
17 what PNL did or didn't do, and I think that's the subject of
18 the other panel.

19 JUDGE BRENNER: No, actually he was closer on the
20 question just before this, to which I thought there might be
21 an objection.

22 He is now trying to understand from these
23 witnesses -- who supposedly looked at loads that potentially
24 may be caused by operator error -- to understand if those
25 are the loads, because then when we get to the next group

1 there is the danger that they are going to say, 'Gee, I
2 don't know; Joe gave me these numbers.'

3 MR. DYNNER: Dr. Berlinger, of course, is on the
4 panel for the other --

5 JUDGE BRENNER: Yes, but Dr. Berlinger did not
6 perform -- at least prepared or filed written testimony that
7 addresses this operator error testimony. So there is some
8 area of overlap.

9 But it is proper for Mr. Ellis to put that
10 question while these witnesses are still here. And we gave
11 you more than similar leeway.

12 WITNESS BERLINGER: Mr. Ellis, could you repeat
13 the question, please?

14 JUDGE BRENNER: But are you directing it to
15 Dr. Berlinger or the panel?

16 MR. ELLIS: I had directed it to Dr. Berlinger --

17 JUDGE BRENNER: All right.

18 MR. ELLIS: -- because he was the sponsor of both
19 pieces of testimony relating to PNL as well.

20 JUDGE BRENNER: He hasn't sponsored any
21 testimony.

22 MR. ELLIS: I beg your pardon. But I elicited
23 from him that he did participate.

24 JUDGE BRENNER: That's another problem not of
25 your making.

1 Go ahead and ask your question.

2 BY MR. ELLIS:

3 Q Dr. Berlinger, in your answer that you gave
4 before the objection was made, I believe you referred to PNL
5 having considered other power loads. And I just wanted you
6 to confirm for me, if you would, please, the purpose of
7 their considering these other power loads was to accommodate
8 the operator error.

9 A (Witness Berlinger) The purpose of considering
10 other load possibilities was not for purposes of reaching a
11 final judgment on the capability of the engines above 3300
12 qualified load, but rather to evaluate if the engines were
13 asked to support loads for brief periods of time in excess
14 of 3300 qualified load that they would in fact provide
15 reliable service. And that was the reason for it.

16 Q And one of the reasons that you asked them to do
17 that is to accommodate operator error, isn't that right?

18 A (Witness Berlinger) As well as other initiators
19 of load in excess of 3300.

20 Q And I'm correct that the times and the power
21 loads that they were asked to assume were stated in their
22 testimony?

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

24 A (Witness Hodges) May I add a little bit to that?

25 Q Yes, sir.

1 A (Witness Hodges) Although, yes, we say it's
2 there to accommodate possible operator errors, we don't rely
3 strictly upon that in that we did consider the fact that the
4 diesels, taken as a group, can accommodate a single
5 failure.

6 And so even if you don't have absolute assurance
7 that the operators could then remove the load from the
8 diesel within the 40 to 60 minutes that will be proposed by
9 our consultant in the next part of the hearing, then all you
10 really need is an assurance that having lost that one diesel
11 the procedures would not cause the operators to transfer the
12 loads to another diesel and then overload a second diesel.

13 Q Dr. Berlinger, I believe you stated in response
14 to Mr. Dynner's questions that RegGuide 1.9 was not the only
15 approach that could be used to satisfy the requirements of
16 GDC-17.

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

18 Q And it's true, isn't it, then, that the Staff
19 decided or concluded that the establishment of a qualified
20 load at the testing is an acceptable alternative method for
21 satisfying GDC-17?

22 MR. DYNNER: Asked and answered.

23 MR. ELLIS: I don't believe that's clear --

24 JUDGE BRENNER: I'm going to overrule the
25 objection.

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WITNESS BERLINGER: Yes, testing for

ten-to-the-seventh cycles was deemed an adequate basis for determining acceptability of the engines.

BY MR. ELLIS:

Q Dr. Berlinger and Mr. Knox, in your answers to Mr. -- or in your answers to earlier testimony, I think we have established that the maximum continuous emergency service load, as you have used the term, is synonymous with LILCO's definition and use of the maximum emergency service loads.

It is true, isn't it, that the maximum emergency service loads or maximum continuous emergency loads are in fact expected to last for only a relatively short period of time following a LOOP/LOCA?

A (Witness Knox) Can you define what you mean by "relatively short"?

1 Q An hour or less.

2 A (Witness Berlinger) The answer to your question
3 is yes, that we had been provided information which showed
4 that within about an hour the load would drop down to below
5 3,000 kilowatts.

6 Q So it is fair to say then that by the use of the
7 term "continuous" as you have used it in your testimony, you
8 do not mean to imply that the loads persist for periods of
9 time longer than an hour and are indeed continuous?

10 JUDGE BRENNER: Now who are you asking now?

11 MR. ELLIS: Dr. Berlinger and Mr. Knox.

12 JUDGE BRENNER: Well, you never got an answer
13 from Mr. Knox, which concerned me a little bit, but since
14 you were the questioner I didn't say anything. But now you
15 are asking as a follow-up to Mr. Knox's own written
16 testimony.

17 MR. ELLIS: I assumed that Mr. Knox would have
18 said something if he disagreed with Dr. Berlinger.

19 WITNESS KNOX: I don't have any basis to say one
20 way or the other whether the loads are going to be reduced
21 within an hour or a week or a month. I don't know what the
22 load requirements are on a systems basis.

23 I would have to go to my systems people to find
24 out an answer to that question.

25 BY MR. ELLIS:

1 Q Dr. Berlinger, then in your use of the term
2 "continuous," by using the term "continuous" and "maximum
3 continuous emergency service loads," you do not mean to
4 imply that the loads persist for a long period of time and
5 are indeed continuous, do you, at the maximum level?

6 MR. DYNNER: I am going to object because there
7 is nothing in the cross-examination or in this witness'
8 direct testimony or his testimony during cross-examination
9 in which he went into the details of the amount of time that
10 things last in loads during a LOOP/LOCA. I think it is
11 improper recross-examination.

12 MR. ELLIS: May I respond?

13 JUDGE BRENNER: No, we're going to overrule the
14 objection.

15 I don't think your characterization is correct
16 but even if it were, Mr. Dynner, it is inherent in some of
17 the issues that were asked about in terms of the particular
18 parts contended, so it would be at the cyclic loads or
19 operator error or possibly even some of the other subparts,
20 but at least those two subparts.

21 WITNESS BERLINGER: Mr. Ellis, can I answer the
22 question now?

23 JUDGE BRENNER: I didn't hear you.

24 WITNESS BERLINGER: Can I answer the question
25 now?

1 MR. ELLIS: Yes, sir.

2 WITNESS BERLINGER: When I referred to maximum
3 continuous emergency service load requirement I am talking
4 about the value that you calculate and present in your FSAR
5 as the maximum continuous emergency service load, your
6 MESL. In other words if you calculated and presented the
7 value as 3250 I would assume that that is the value even
8 though we postulate in our assessment a load profile which
9 would be reduced in time -- actually change in time in
10 response to assumed plant conditions.

11 BY MR. ELLIS:

12 Q Let me get at it this way:

13 Given that you have already testified that you
14 would not expect the maximum continuous emergency service
15 loads or MESLs to persist for long periods of time, would it
16 be fair to say that the use of the term "continuous" in the
17 phrase "maximum continuous emergency service load" is used
18 for the purpose of making a distinction between those loads
19 and the intermittent and cyclic loads that we have discussed
20 in this hearing?

21 A (Witness Berlinger) Yes.

22 Q A point of clarification, Dr. Berlinger and
23 Mr. Knox:

24 I believe you testified yesterday in response to
25 Mr. Dynner's questions that the design load at Shoreham,

1 which includes the intermittent and cyclic load, exceeds the
2 qualified load of 3300.

3 I am correct, am I not, that this is the case for
4 only one of the three engines, and that the qualified load
5 of 3300 for EDGs 102 and 103 does envelop the simple
6 summation of the MESLs and the cyclic and intermittent
7 loads?

8 (Witnesses Berlinger and Knox conferring.)

9 A (Witness Knox) It is my understanding, or the
10 basis of my review, I assumed all three diesel generators
11 would be subject to intermittent and cyclic loads.

12 A (Witness Berlinger) And to add to that--

13 JUDGE BRENNER: Well, wait. I don't think
14 Mr. Knox finished the thought.

15 Would be subject to intermittent and cyclic
16 loads?

17 WITNESS KNOX: All three diesel generators. The
18 intermittent and cyclic loads were considered to be present
19 and in existence on all three diesel generators.

20 JUDGE BRENNER: We know that. The question is at
21 what load level.

22 WITNESS KNOX: The cyclic and intermittent loads
23 would go above the 3300 qualified load on all three diesel
24 generators at some level.

25 JUDGE BRENNER: It sounded to me like he

1 answered the question, Dr. Berlinger, so unless you have a
2 varying answer I would like to--

3 WITNESS BERLINGER: I do have a different answer.

4 JUDGE BRENNER: All right.

5 WITNESS BERLINGER: Based on the testimony that
6 was presented here last week, LILCO had stated that only one
7 of the engines would have exceeded 3300, and I think the
8 number was 3331.4 kilowatts, and that the others would be
9 slightly under 3300 kilowatts.

10 JUDGE BRENNER: Now let me tell you why that was
11 not an answer to the question. We know all that, and we've
12 heard it I don't know how many times in the record.

13 The question was essentially what the Staff's
14 review assumed or, more particularly, what was intended in
15 Mr. Knox's testimony. And he stated what assumption he had.
16 And you see I don't need another witness to tell me what
17 LILCO already told me. And that is why we get the same
18 information too many times.

19 Mr. Ellis.

20 MR. ELLIS: Let me clarify with Mr. Knox.

21 BY MR. ELLIS:

22 Q In your answer if you exclude the concern or the
23 intermittent load that you have identified that you believe
24 exists on the basis of the PNL testimony relating to the
25 fuel rack, would you then agree with me that two of the

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1 three diesels' MESLs are adequately enveloped by -- the
2 qualified plus intermittent loads are adequately enveloped
3 by the qualified load at 3300?

4 A (Witness Knox) I would repeat the answer that I
5 had for the last question. I considered that all three
6 diesel generators needed to be qualified to this 3331 and
7 that that was the most limiting case and also included the
8 cyclic and intermittent loads -- the intermittent loads
9 that you referred to.

10 Q But isn't it true the 3331 is not reached on the
11 other two diesels?

12 JUDGE BRENNER: He said he didn't know,
13 Mr. Ellis. I'm just trying to cut it short. I'm sure that
14 is what he said when I put the question back to him.

15 MR. ELLIS: All right, sir. I thought that his
16 testimony was that--

17 JUDGE BRENNER: Let's not belabor it.

18 MR. ELLIS: Well, I'm concerned about a finding
19 based on what I understood his answer to be. That is what
20 concerns me.

21 JUDGE BRENNER: He evaluated it based on 3331.
22 You've got evidence in the record as to what LILCO believes
23 it would be. And I'm telling you he has not independently
24 assessed what the load is going to be on any of these
25 diesels.

1 MR. ELLIS: All right. Let me then pursue it
2 this way.

3 BY MR. ELLIS:

4 Q Mr. Knox, you will agree with me--

5 JUDGE BRENNER: If you-- I made that statement
6 because if you disagree with me and want to ask him that
7 again, I will give you leeway one more time. But all he did
8 was take numbers from LILCO. And the sooner you get that
9 straight I think the better off we're going to be.

10 Now if I'm wrong you can clarify it.

11 MR. ELLIS: I think I can clarify that.

12 BY MR. ELLIS:

13 Q Mr. Knox, it is true, isn't it, that in addition
14 to taking numbers from LILCO you reviewed portions of the
15 FSAR to consider whether those numbers were reasonable on
16 the basis of your experience?

17 A (Witness Knox) That's correct.

18 Q And have you also reviewed diesel generator
19 loading in other instances in your duties at the NRC?

20 A (Witness Knox) Yes, I have.

21 Q And for how long have you done that?

22 A (Witness Knox) For the past ten years.

23 Q Given that, would you agree with me that taking
24 the MESLs for each of the three diesel generators and adding
25 the cyclic and intermittent loads identified by LILCO which

1 excludes the fuel rack, one that you have listed, that in
2 that event you would find that the 3300 qualified load would
3 envelop the MESLs plus the intermittent and cyclic loads for
4 two of the engines, and the third would be at 3331.4?

5 A (Witness Knox) The objective of my testimony--
6 The answer that is given in my testimony is to "Define a
7 load level for which the diesel generators need to be
8 qualified or shown to be capable or to be able to perform
9 their function," were the-- The most limiting case was
10 identified to be 3331.4.

11 Q Well, the diesels do see different loads, though,
12 don't they?

13 A (Witness Knox) That's true.

14 Q All I'm asking you to do is to answer my question
15 on whether-- Let me put it to you this way:

16 Do you know whether if you add the intermittent
17 and cyclic loads identified by LILCO, with the exception --
18 and that doesn't include your fuel rack intermittent load,
19 to the MESLs, if you make that addition, then the qualified
20 load would adequately envelop that summation for two of the
21 three diesels.

22 A (Witness Knox) I don't know that for a fact.

23 MR. ELLIS: Judge Brenner, I am going to go on
24 but I do want to tell you I may look at the deposition becau
25 I think that question and answer is in the deposition.

1 MR. DYNNER: I object to that extraneous
2 statement. Either he wants to get the witness to testify or
3 not. It's improper for him to say what may or may not be in
4 the deposition. It is not part of the record.

5 JUDGE BRENNER: It wasn't necessary, and I don't
6 think in the context it rises to the level of impropriety.

7 Go ahead.

8 Mr. Ellis, as long as there is a pause, we've got
9 to make some decisions as to the scheduling, and maybe we
10 might as well talk about it now.

11 MR. ELLIS: Yes, sir.

12 JUDGE BRENNER: Are you going to finish in about
13 an hour, do you think? If you don't know, then tell me
14 that. I'm just asking to accurately know what the status
15 quo is for LILCO.

16 MR. ELLIS: I don't think so, but I don't know.

17 JUDGE BRENNER: We have Board questions. I don't
18 know how many of them will get asked. Some of them
19 certainly will but not all of them.

20 Mr. Dynner, do you have any follow-up so far?

21 MR. DYNNER: So far I don't.

22 JUDGE BRENNER: I was going to suggest that there
23 were not that many questions since yours from the Board or
24 the Staff at least, although you don't know what Mr. Ellis
25 will ask.

1 It is my view, but the parties can tell me
2 whether I am wrong, that it is important for us to have some
3 time to have the discussion of settlement matters and other
4 matters with Counsel and the Board, and I predict that that
5 will likely take about an hour.

6 MR. ELLIS: I think it is vital. I think it is
7 very important.

8 (The Board conferring.)

9 JUDGE BRENNER: All right. We are willing to go
10 this far and no further. We will go until six. But in
11 order to do that we are going to have to stop the
12 evidentiary hearing by five, and then we will take a short
13 break and allocate the remainder of the time until six to
14 have a conference of parties.

15 So if we don't finish the testimony here we will
16 have to pick up with this subject on March 5th. That's the
17 best we can do, but we would like to finish this panel
18 here. But if we can't, we won't.

19 Why don't you proceed, Mr. Ellis?

20 BY MR. ELLIS:

21 Q Dr. Berlinger, I believe you testified yesterday
22 that a possible interpretation of IEEE-387 might require
23 testing at an overload rating.

24 It is true, isn't it, that it is the Staff's
25 position that testing for 10 to the 7th cycles at an

1 overload rating is not required with respect to the Shoreham
2 engines?

3 A (Witness Berlinger) That is correct.

4 Q So by your testimony you certainly did not mean
5 to imply that a possible interpretation of IEEE-387 that you
6 gave was the interpretation that the Staff has adopted?

7 A (Witness Berlinger) That's true, keeping in mind
8 that we are evaluating these diesels on the basis of the
9 defined qualified load.

10 Q Mr. Knox, in response to Mr. Dynner's questions
11 concerning your opinion that the diesel generators at
12 Shoreham were qualified to the plant's design load, am I
13 correct that a basis for your conclusion is that the
14 intermittent and cyclic loads are of short duration and
15 would not be expected to be experienced simultaneously in
16 any event. Is that correct?

17 A (Witness Knox) I guess I don't understand the
18 question.

19 Q In response to Mr. Dynner's questions yesterday
20 you indicated that in your opinion the diesel engines were
21 qualified to the plant's design load, which you testified
22 include intermittent and cyclic loads.

23 Am I correct that one of the bases of your
24 opinion in that regard is your conclusion that the
25 intermittent and cyclic loads are of short duration?

1 MR. DYNNER: Objection. I think that is a
2 mischaracterization of his answer to my question. If he
3 wants to ask him "Is that what you said," and then follow on
4 that's fine, but I think it mischaracterizes his answer.

5 JUDGE BRENNER: All right.

6 Essentially that is what he's asking, is that
7 what you said?

8 MR. ELLIS: I would refer the Board and the
9 parties to page 12 of his testimony if there is any doubt or
10 concern about it.

11 But my notes also indicate that he said that in
12 response to Mr. Dynner's questions.

13 WITNESS KNOX: The answer I have here to your
14 specific question is No.

15 BY MR. ELLIS:

16 Q You do agree, however, that the intermittent and
17 cyclic loads are of short duration?

18 A (Witness Knox) Yes.

19 Q And you also would agree, do you not, that they
20 would not realistically be expected to occur simultaneously,
21 all of them, with the MESL?

22 A (Witness Knox) The basis for my review was that
23 they would occur simultaneously with the MESL.

24 JUDGE BRENNER: All right.

25 Off the record.

1 (Discussion off the record.)

2 JUDGE BRENNER: Back on the record.

3 BY MR. ELLIS:

4 Q So on page 6 then of your testimony where you say
5 that:

6 "The automatically actuated valves do
7 not operate simultaneously...."

8 that's an example of an intermittent load which you would
9 not expect to occur simultaneously in its full amount with
10 the MESL. Isn't that true?

11 I am just trying to understand if that is a
12 conservatism built into your analysis.

13 A (Witness Knox) That's a conservatism, yes, built
14 into it.

15 For the purpose of what I tried to do, I tried to
16 define the maximum possible load that the diesel generator
17 may see so we could assure ourselves that the diesel
18 generator had the capability to handle that particular load.

19 Q Gentlemen, look, it you still have it-- This
20 morning Mr. Dynner asked you some questions concerning
21 transcript page 27,956, and I will be directing my questions
22 to Mr. Hodges, Mr. Buzy, and Mr. Knox.

23 As you can see there, Mr. Dynner asked you
24 whether you knew of any other case in which the single worst
25 case operator error would have resulted in a power load that

1 exceeded the short-term rating of the emergency diesel
2 generators when added to the power level required in a
3 LOOP/LOCA event.

4 WITNESS HODGES: May I interrupt? You are asking
5 the question of us and we don't have those pages--

6 BY MR. ELLIS:

7 Q Oh, I'm sorry. I will give you the chance to
8 look at it. Let me finish my question, or the preface to
9 it.

10 In response, Mr. Clifford, Mr. Eckenrode and
11 Mr. Berlinger responded, including today, that they had no
12 basis either to know of such a case or not know of such a
13 case.

14 My question to-- And you gentlemen each
15 responded "No" to that question.

16 My question to you is: Have you made any
17 assessment or survey of the ratings, short-term ratings and
18 worst case operator errors and loads occasioned by those
19 applicable to EDGs licensed for operation by the NRC?

20 A (Witness Hodges) I have made no survey of the
21 overload you could get or the loading you would get from the
22 worst case operator error in general. I would assume for
23 this plant the worst case operator error, though, would put
24 it up to-- There's a range from about 4200 up to about 4500
25 for the various diesels, which is the peak load you can put

1 on those diesels and conceivably the worst case operator
2 error if they load them up to the maximum.

3 But we don't consider the worst case operator
4 error.

5 Q Well, let me repeat my question then.

6 Mr. Dynner clarified what he meant by "worst case
7 operator error." He meant "worst case single operator
8 error," the single load that an operator could put on.

9 I am correct, am I not, that none of you three
10 gentlemen, Mr. Knox, Mr. Buzy and Mr. Hodges, have made any
11 survey or assessment of what the loads would be for the
12 worst single case operator error for all the plants, and the
13 short-time ratings for those plants to know whether or not
14 there is another case in which an operator error would
15 result in a load that exceeded the short-term rating for the
16 single worst operator error?

17 A (Witness Hodges) My answer still stands. It is
18 I have not made a survey. That's the answer to the first
19 part of it.

20 But the worst case operator error, even
21 considering a single one, can be a cognitive error that
22 would -- the operator would maybe feel compelled to take an
23 action that would load up the diesel.

24 The problem I have is "worst case operator
25 error." We don't try to design against that.

1 Q I know, but the question is-- Is what you're
2 telling me then for every plant, the single worst case
3 operator error as you define it would exceed the short-term
4 ratings for all the plants because that would be the
5 connectable load? Is that what you are telling me?

6 A (Witness Hodges) I would think that you could
7 probably conjure up a worst case error that would do that.
8 And we're not talking about taking reasonable steps. We're
9 talking about trying to have procedures that would prevent
10 taking steps that would do that.

11 But if you took the worst case error, I would
12 suspect you could do that on every plant.

13 Q Mr. Buzy, did you want now to respond? Have you
14 made any such survey or assessment?

15 JUDGE BRENNER: Could I stay with Mr. Hodges for
16 a minute?

17 MR. ELLIS: Sure.

18 JUDGE BRENNER: I'm sorry, Mr. Ellis.

19 I know what you mean by a single worst case
20 operator error when, Mr. Hodges, you've described it as a
21 cognitive error, and I take that to mean that because of
22 some misapprehension or other problems in the operator's
23 head, he is going to take more than one action. It is not
24 just one action. Right? It is going to be several actions,
25 stemming from one cognitive problem?

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WITNESS HODGES: That's correct.

2

JUDGE BRENNER: All right.

3

Putting that aside, I'm trying to find the right term that would have us talk the same language.

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MR. DYNNER: If I can help, Judge, on page 27,957, Mr. Hodges answered the question following a clarification as to what I meant. It's in lines 7 through 15.

9

JUDGE BRENNER: What page?

10

MR. DYNNER: 27,957, the following page.

11

MR. ELLIS: Maybe I can simplify it.

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JUDGE BRENNER: Maybe you can.

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If you are going to ask the question so that it's going to help you, what you are going to have to ask him is the question you asked but instead of a single worst case operator error, ask him in the terms of considering the single worst case load that could be connected.

18

19

But we think it was asked and answered but go ahead, I will let you do it.

20

BY MR. ELLIS:

21

Q Let me try it this way, Mr. Hodges:

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You indicated that you did not know of another case in which a single worst case load added would result in a power load that exceeded the short-term rating of an emergency diesel generator when added to the power level

1 AGBeb 1 required in a LOOP/LOCA event.

2 Am I correct that you also do not know whether
3 there is not such a case? There may be cases out there that
4 you don't know of? Isn't that correct?

5 A (Witness Hodges) There may be cases I don't know
6 of.

7 Q And Mr. Buzy, it is fair to say that you don't
8 know whether there are or there are not such cases. Isn't
9 that true?

10 A (Witness Buzy) That's correct.

11 I think in my reviews, the reviews I've made,
12 they were limited to accident analysis reports in support of
13 design of plants and trying to develop scenarios for
14 licensing exams.

15 Q So am I correct, Mr. Buzy, that it wouldn't be
16 within your sphere of expertise to know, one way or the
17 other?

18 A (Witness Buzy) No, it's not. I've never-- I
19 haven't run across any cases like this.

20 Q Mr. Knox, am I also correct that you don't have
21 any basis for knowing whether there are such instances or
22 not?

23 A (Witness Knox) If I went back to the operating
24 plants I probably would find some cases where this would be
25 the case. However, I am not aware of any specific case.

1 Q Dr. Berlinger, in response to Mr. Dynner's
2 questions concerning the qualified load as an alternative
3 method, you indicated that that was pending review of the
4 DR/QR. Am I correct that the Staff in reviewing the DR/QR,
5 ultimately, when it's completed, the Staff may find that the
6 diesels are qualified at the 35 and 39 hundred load?

7 A (Witness Berlinger) Is that a question?

8 Q Yes, sir.

9 A (Witness Berlinger) If I understand what you're
10 asking, you're asking me as to whether or not I anticipate,
11 or was it a--

12 Q Let me ask it this way:

13 A (Witness Berlinger) Restate it.

14 Q I'll restate it.

15 The Staff's review of the DR/QR, in that review it
16 will be considering, will it not, whether the engines are
17 qualified at 3500 and 3900; isn't that correct?

18 A (Witness Berlinger) At the design rating, which
19 is 3500, we are considering that. But we may or may not
20 find them acceptable on the basis of that overall review.

21 Q Dr. Berlinger, on page 27787--

22 A (Witness Berlinger) What date is that?

23 Q That is Tuesday.

24 Mr. Dynner asked you a question about it this
25 morning as well. I asked the original question and

1 Mr. Dynner asked you another question, and I am about to
2 make it a three.

3 A (Witness Berlinger) I have the page.

4 Q Do you see the question and the answer,
5 Dr. Berlinger, starting at line 9 and ending at line 19, in
6 which I asked you whether it was true that it was the
7 Staff's position that testing at 3300 had established the
8 diesel generators' capability to support loads the diesels
9 are realistically expected to support following a LOOP or
10 a LOOP/LOCA.

11 Your response was that that was correct.

12 Mr. Dynner this morning asked you whether that
13 testing -- or whether in that statement you included
14 operator error or loads.

15 Isn't it true that in reaching the conclusion that
16 the diesels are qualified, as you have already indicated
17 today, that you did ask the consultants to take into account
18 loads that would accommodate operator error?

19 MR. DYNNER: Asked and answered over my objection.

20 JUDGE BRENNER: Sustained.

21 BY MR. ELLIS:

22 Q Well, in telling Mr. Dynner this morning that your
23 answer on page 27787 did not include operator error you did
24 not mean, did you, to say that the Staff has not taken
25 operator error into account in its conclusion that the

1 AGBwr

1 diesels are qualified for their service?

2 MR. DYNNER: Same objection. It's the same
3 question phrased more awkwardly.

4 MR. ELLIS: May I respond to that?

5 JUDGE BRENNER: I'm going to let you ask it. I'll
6 tell you why. I was too narrowly focussed on just the SER
7 conclusion, which is the way the question is phrased in the
8 transcript, and I think the way you also asked it. And I
9 think what you're really asking about is the Staff's present
10 overall conclusion; although we will get details later. And
11 there is at least an apparent inconsistency, and I think I
12 was too quick in sustaining the objection earlier if I had
13 in my own mind broadened my vision beyond just the SER,
14 which I am now doing.

15 The short of it is, I don't understand if
16 Dr. Berlinger could give the two answers he gave. There
17 could be some connection, and I don't know what the
18 connection is in his mind.

19 MR. ELLIS: Did you want my question read back?

20 JUDGE BRENNER: Why don't you ask it again, now
21 that I have diverted him.

22 BY MR. ELLIS:

23 Q Dr. Berlinger, Mr. Dynner asked you a question
24 concerning the question and answer that appears on page
25 27787 this morning concerning whether your answer involving

1 the testing at 3300 included loads attributable to operator
2 error, and you told him it did not.

3 My question to you is: You didn't mean to
4 suggest, did you, that the Staff has not taken into account
5 loads attributable to operator error in reaching its
6 conclusion that the diesels are adequate to perform their
7 intended function?

8 A (Witness Berlinger) That is correct.

9 Judge Brenner, would you like me to try to explain
10 how I could answer the question?

11 JUDGE BRENNER: Yes. I could make some guesses,
12 but I don't want to do that.

13 WITNESS BERLINGER: Would you like me to?

14 JUDGE BRENNER: Yes.

15 WITNESS BERLINGER: Testing of the engine at a
16 qualified load of 3300, if all the testing were done at one
17 level I could have concluded on the basis of that testing
18 that loads, excluding operator error, or operator error
19 induced loads, excluding those loads, would have been met;
20 in other words, that the engine would be qualified in
21 support of the loads included in the MESL.

22 But, in fact, on the basis of an overall
23 evaluation performed by the Staff, which included not only
24 looking at the hours operated at 3300 but those hours
25 operated above 3300, the overall conclusions of the Staff

1 AGBwrb 1 did address loads in excess of 3300.

2 Does that help?

3 JUDGE BRENNER: Mr. Ellis.

4 MR. ELLIS: Yes, sir.

5 BY MR. ELLIS:

6 Q Dr. Berlinger, I have a note that in one of your
7 answers to Mr. Dynner you indicated that-- Strike that.

8 Mr. Knox, this morning Mr. Dynner asked you a
9 question concerning pages 12 and 13 of the December 18th
10 SER. As part of your testimony you concluded, didn't you,
11 on page 12 of your testimony, that there was

12 "...reasonable assurance that the diesel
13 generators had sufficient capacity and capability
14 to perform their safety function and meet the
15 requirements of GDC-17."

16 When you told Mr. Dynner this morning that you did
17 not have a basis to agree or disagree with the statement
18 that appeared in the conclusions on pages 12 and 13 of the
19 December 18th SER, you are not retracting your testimony,
20 are you, that it is still your opinion that there is
21 reasonable assurance that the diesel generators have
22 sufficient capacity and capability to perform their safety
23 function and meet the requirements of Criterion 17, as you
24 have stated on page 12?

25 A (Witness Knox) That's correct.

1 Q So am I correct that what you were referring to
2 that you did not have a basis to agree or disagree with, is
3 whether or not an alarm would be necessary, or any of the
4 other three items that are listed on page 13?

5 A (Witness Knox) The capability for the
6 qualification of the diesel generator was done by PNL
7 consultants. I didn't participate in that review, and I did
8 not participate in the preparation of the SER you are
9 referring to.

10 So this is something I didn't review, and I didn't
11 review the conclusions reached. And that's the reason I
12 stated I didn't have a basis.

13 However, the conclusions reached here are that the
14 machine is qualified, and to that extent -- the fact that
15 it's qualified, that's given as an assumption in my
16 conclusion that the design meets GDC-17.

17 JUDGE MORRIS: Mr. Knox, maybe I'm missing
18 something.

19 Going to page 12 of your testimony, you were asked
20 whether there is reasonable assurance that GDC-17 is met,
21 and you say yes, because... And then you list there four
22 reasons.

23 Do you personally agree with each of those four
24 reasons?

25 WITNESS KNOX: I agree with each of those four

1 reasons. However, I wasn't the specific reviewer that
2 reviewed the qualification of the diesel generator. I
3 assume that the diesel generator is capable of -- and
4 qualified to provide power at the 3300 Kw level, as well as
5 it is qualified to provide power for intermittent and cyclic
6 loads.

7 Given that from Carl Berlinger's SER, and the PNL
8 consultants' SER that they wrote as far as the qualification
9 of the machine, I am depending upon their conclusion in my
10 conclusion in my testimony.

11 JUDGE MORRIS: Thank you.

12 BY MR. ELLIS:

13 Q Well, just to clarify, then: I take it, Mr. Knox,
14 that when you testified, though, that you had no basis to
15 agree or disagree with the conclusions on pages 12 and 13,
16 by that you meant only that you were not involved in the
17 consideration of the three actions that are contained on
18 page 13 as Nos. 1, 2 and 3?

19 A (Witness Knox) That's correct.

20 Q Dr. Berlinger, in your responses today I think you
21 indicated some uncertainty as to whether the LOOP or the
22 LOOP/LOCA was a limiting event. Am I correct in that
23 connection?

24 A (Witness Berlinger) I guess I was getting tired.
25 Yes.

1 Q Am I correct that it is in fact the LOOP/LOCA that
2 is the design basis accident, or limiting event for the
3 plant for the diesel generators?

4 A (Witness Berlinger) To be honest with you,
5 Mr. Ellis, I haven't gone back to determine that. I didn't
6 go back and review my notes.

7 Q Would it be fair, then, to say that as of today in
8 your testimony you're not sure which of the two it is?

9 A (Witness Berlinger) Correct, as I sit right
10 here. But I think it would be very easy to verify it, given
11 a few minutes.

12 Q Also, in response to one of Mr. Dynner's questions
13 to you concerning what you considered to determine whether
14 GDC-17 is met, you indicated that you considered actual
15 loads.

16 Wouldn't it be fairer to say that in this instance
17 what is being considered are conservatively predicted loads,
18 rather than actual loads?

19 Go ahead, Mr. Knox.

20 A (Witness Knox) I believe the answer is yes. The
21 conservatively estimated loads that were presented on Table
22 8.3.1-1 of the SER were used versus the actual loads that
23 would have been demonstrated by test, the IET test.

24 JUDGE BRENNER: Mr. Ellis, maybe I had better say
25 this for your benefit: I know you keep looking at your

1 watch and then you keep looking up here. No penalty will
2 befall you if you don't finish by five.

3 I fully recognize that questioners before you --
4 and, in fact, after your original questions -- took a lot of
5 time, and, in my opinion, more time than was necessary. And
6 I understand that's why we are at the point we are this
7 week, and that's only because you have asked some time
8 periods' worth of questions so far; in fact, only an hour or
9 so.

10 So I understand you might not finish. I just
11 thought that it might help considerations that might occur
12 between this hearing week and the future hearing weeks to
13 see if we could get some more information. And if we were
14 able to finish, that would be nice; but, if we weren't, I
15 understand.

16 If I had wanted to order you to finish I could
17 have done it much more directly.

18 MR. ELLIS: All right, sir. Thank you. I
19 appreciate that.

20 JUDGE BRENNER: People took a lot longer than you
21 have taken so far.

22 I mean you, Mr. Dynner, in case you're wondering.
23 (Laughter.)

24 MR. DYNNER: I was going to suggest we put a
25 stopwatch on everybody if we were going to make this into a

1 contest of that nature.

2 JUDGE BRENNER: No; but I think you appreciated
3 why I made the comment.

4 You know, it shouldn't befall on the last person
5 at the end of the week to think that the Board thinks that
6 whatever time problem there might be has fallen at the
7 doorstep of that last questioner.

8 MR. DYNNER: I'm certainly not pushing Mr. Ellis
9 at all.

10 BY MR. ELLIS:

11 Q Mr. Clifford, it's fair, isn't it, to say that in
12 order to make an assessment concerning the adequacy of
13 procedures, emergency operating procedures, it is important
14 to understand fully in detail how the plant operates and
15 responds, and it is for that reason that you rely and need
16 the applicant's answers to questions such as your February
17 5th letter?

18 A (Witness Clifford) That is correct.

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1 Q And would it also be fair to say that you don't
2 have that understanding now and you are relying on LILCO,
3 which has not given it to you yet, to give it to you in
4 response to that request for additional information?

5 A (Witness Clifford) We are waiting for LILCO's
6 response to our request, yes.

7 Q Well you would agree with me that it's possible
8 that some of the concerns you have discussed with Mr. Dynner
9 in his questions with you today may be resolved without any
10 changes in the procedure once you have an opportunity to put
11 to LILCO and to have LILCO respond to various questions and
12 concerns that you have? In other words, some of your
13 concerns might go away.

14 A (Witness Clifford) To answer your question
15 directly, yes, some of them might go away. In our past
16 experience, and that includes our interactions with LILCO on
17 previous reviews following this particular methodology, a
18 number of questions have been resolved based on evaluations
19 by the Licensee that they have already considered or have
20 already performed them. We have not had a chance to
21 consider, at the time we were given the set of procedures,
22 and we would expect that a number of our concerns would be
23 addressed by LILCO's response.

24 Q Mr. Buzy and Mr. Eckenrode, you would agree,
25 would you not, with Mr. Clifford's answers concerning the

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1 necessity to understand fully the way in which a particular
2 plant responds in order to make a complete assessment of the
3 procedures and that you rely on the Applicant to supply that
4 information?

5 A (Witness Eckenrode) Yes, I would. In
6 particular, my interest is in the displays and the
7 enunciator alarms and so forth. I want to hear in detail
8 what they are going to look like. Adding one enunciator to
9 the control room is probably, you know, just not a way of
10 satisfying the alarm problem, it may take three, it may only
11 be one. I'd like to know more about it, and that's what
12 really we're asking on the alarm problem.

13 Q Mr. Buzy?

14 A (Witness Buzy) I would agree with my
15 colleagues. I also would want to visit the site again so I
16 could get into the control room, because all I did was talk
17 to the training folks and I would like to talk to your
18 operators and see the extent that you people have gone into
19 the training program.

20 JUDGE BRENNER: Mr. Ellis, am I correct that you
21 are not going to finish in any event in the next 15 minutes?

22 MR. ELLIS: That's correct, Judge Brenner. But I
23 don't want to leave you with the impression that I have no
24 further questions in areas outside procedures -- although I
25 do want to leave you with the impression that the bulk of

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1 my remaining questions, the vast bulk of them, are
2 procedures.

3 JUDGE BRENNER: All right. I have a few
4 questions I would prefer to ask now, and perhaps we'll just
5 do that and then take a break at around 5:00 or whenever I'm
6 done, if that's before.

7 RECROSS-EXAMINATION BY BOARD

8 BY JUDGE BRENNER:

9 Q Mr. Knox, on page seven of your testimony
10 -- the question and answers are not numbered unfortunately
11 -- but the third one down, the question is a follow-up to
12 some previous ones but it says:

13 "Will the diesel generators' capability
14 to supply intermittent and cyclic loads be
15 verified as part of pre-operational and periodic
16 testing?"

17 And your answer is yes.

18 What's the basis for your answer?

19 Let me ask specifically: why do you think the
20 periodic testing would accomplish that?

21 A (Witness Knox) Okay, as far as the
22 pre-operational tests --

23 Q No, the periodic.

24 A -- or the periodic tests every 18 months, as a
25 requirement, would be a load acceptance test performed

1 where the actual plant design loads will be sequenced onto
2 the diesel generator. It's my understanding that this will
3 include all of the plant design loads or they will be
4 simulated.

5 Given this type of test I conclude that both the
6 cyclic and intermittent loads will be included as part of
7 those tests.

8 Q Is that an IET, an integrated electrical test?

9 A (Witness Knox) No, an IET is a specific test
10 done as part of the pre-operational tests to show the
11 electrical independence between redundant divisions.

12 A load acceptance test is one that's defined in
13 IEEE 387 where the actual design loads will be sequenced
14 onto the diesel generator and the diesel generator will be
15 subject to the actual transients and cyclic loads that you
16 would see under accident conditions.

17 Q Wasn't that performed during the IET, regardless
18 of whether or not there might have been some other purpose
19 for the IET?

20 MR. ELLIS: Again, Judge Brenner, I guess I have
21 a basis for objection now --

22 JUDGE BRENNER: He doesn't know.

23 MR. ELLIS: -- because I don't think knows.

24 BY JUDGE BRENNER:

25 Q -- If you know.

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1 Mr. Ellis is right to emphasize that.

2 A (Witness Knox) I don't know if they have
3 completed their load acceptance test or not or if it was
4 part of the IET.

5 Q All right.

6 In that question and answer on page seven to
7 which we were referring, when you said "periodic testing"
8 then you did not mean the monthly test?

9 A (Witness Knox) That's correct.

10 Q At the top of page six of your testimony you
11 discuss your view that the automatic actuated valves do not
12 operate simultaneously and therefore the loading should be
13 less than the aggregate value of the MESL plus the load
14 attributable to the automatic actuated valves and I guess
15 it's plus the air compressors also for the diesel, given
16 your total. And you say "...it should be less
17 than the aggregate value of 3331.4 Kw but
18 may be greater than 3300 Kw for one to three
19 minutes."

20 What's your basis for saying it may be greater
21 than 3300?

22 A (Witness Knox) I was just being conservative.
23 When you add up all the loads there is a possibility that
24 the loads actually could go over 3300 if all the valves
25 cycle at the same time.

1 Q I think it was you, Mr. Eckenrode, and perhaps
2 Mr. Clifford participated in the answer also, you were
3 discussing your concern about the number of loads that would
4 be controlled -- number of electrical loads that would be
5 controlled outside of the control room, and I think you said
6 there were approximately 70 such loads.

7 A (Witness Eckenrode) No, your Honor, there is
8 approximately 70 loads total, of which I believe 36, roughly
9 half, were outside the control room.

10 Q Okay. Thank you.

11 A (Witness Eckenrode) By the way that's not half
12 by any means in Kw, it's in numbers.

13 Q That's my question -- was going to be my
14 question.

15 Do you know approximately what the load value in
16 Kw would be of all those loads?

17 A (Witness Eckenrode) Between those in the control
18 room and those out, no, I haven't calculated that.

19 Q Does anybody know whether those loads would be
20 approximately equal or whether one would be much greater
21 than the other? I'm talking about the aggregate inside
22 versus out.

23 A (Witness Eckenrode) They are definitely not
24 equal. The loads inside the control room are quite a bit
25 higher than those outside.

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1 Q Can anybody supply a more specific quantification
2 of the aggregate?

3 A (Witness Clifford) Not without going back to the
4 tables, Judge Brenner.

5 Q Mr. Clifford, am I correct that you are concerned
6 with respect to the operators adding loads as called for by
7 the procedures as opposed to them just going ahead and
8 adding loads on their own?

9 A (Witness Clifford) That is our concern. We have
10 not looked at the operators and do not consider it necessary
11 to look at operators adding loads on their own outside the
12 scope of the procedures. We believe that the operators will
13 operate within the general context of the procedures they
14 have.

15 Q Have you, in your analysis, been able to conclude
16 that there is a certain relatively short-term timeframe from
17 the beginning in the course of the LOOP/LOCA during which
18 the operators would not be called upon to add loads, given
19 the course of events and what the procedures would require?

20 A (Witness Clifford) I don't believe it's a
21 question of whether they are called upon. The operators,
22 from the outset of an event, start a process of taking
23 actions, whether it is verification of actions -- that is an
24 action in itself --

25 Q I'm sorry, I probably wasn't sufficiently clear.

1 The actions I had in mind were the actions to
2 actively add loads. I'm not talking about verifying
3 immediate actions.

4 A (Witness Clifford) There currently exists some
5 concern in the containment control procedure whether some of
6 the loads would be necessary or called for if they follow
7 the procedure as written very early in the event.

8 Q Have you, or do you plan to perform an analysis
9 that would not just look at whether there might be problems
10 with operator actions because of the procedures or the
11 normal approach of operators, just in the abstract, or would
12 you compare that to the point in time at which they would be
13 expected to take such actions -- I shouldn't say "point in
14 time," point in the LOOP/LOCA accident at which they would
15 be called upon to take such actions relative to what the
16 realistic postulated load situation would be at that point
17 in the accident?

18 A (Witness Clifford) We intend to investigate that
19 with the Licensee. We also intend to have some verification
20 of that through either simulator exercise or some analysis
21 by the Licensee; we would hope by simulator exercise.

22 Q Have you taken that approach into consideration
23 so far in the course of your testimony and the request for
24 additional information?

25 A (Witness Clifford) The approach that we are

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1 going to look at an evaluation by the Licensee?

2 I'm not sure of your question.

3 Q And you shouldn't be, given the way I asked it.

4 A (Witness Clifford) I'm not that tired then.

5 Q I am.

6 The consideration of when, relative in the
7 accident, the steps will have to be acted upon, steps to add
8 loads will have to be acted upon by an operator to determine
9 whether it is a real or reasonably postulated concern that
10 the load situation at that point on the diesels could be so
11 high as to cause problems for the operator in making
12 decisions to add further loads.

13 A (Witness Clifford) I believe we have evaluated
14 so far whether it is likely that the operator would be
15 called upon to take such action.

16 Part of the problem is we don't have enough
17 information about the specific plant response and I believe
18 we need that information to complete our evaluation.

19 Q One of you gentlemen, I think it might have been
20 Mr. Eckenrode but I'm not sure, mentioned the control room
21 computer in terms -- as a possible way of monitoring loads.

22 Am I right, Mr. Eckenrode?

23 A (Witness Eckenrode) Yes.

24 Q As Judge Morris says, I should call it the
25 control room process computer. That doesn't mean a lot to

1 AGBagb 1 me but if it helps you I will add that.

2 Is that the computer you had in mind?

3 A (Witness Eckenrode) That's correct.

4 Q Do you know if that computer is automatically
5 connected to the diesels in the event of loss of off-site
6 power?

7 A (Witness Eckenrode) No, I don't believe it is.

8 Q It would be difficult to monitor loads with it
9 then if it went to loss of off-site power as it currently
10 exists?

11 A (Witness Eckenrode) I did not suggest that it
12 was easy to do right now, I suggested that was a possibility
13 for load management.

14 JUDGE BRENNER: I have nothing further at this
15 time.

16 Judge Morris at this point in time has additional
17 questions which we will not ask today. Whether or not I
18 have additional questions or not, I don't know yet. We are
19 going to excuse the witnesses then.

20 And I had hoped to say hail and fare well to you
21 by this time in the week but I have learned by now that
22 these procedures, that is, hearing procedures, always take
23 longer than one would estimate usually for good reason
24 because the process is such that many people here have
25 things that are important to them and different things are

1 important to different people and that becomes a cumulative
2 process.

3 We appreciate your patience this week with that
4 process, I know some of you have not been feeling as well as
5 you'd like to and I hope you have a chance to recover before
6 I see you again at beautiful downtown Hauppauge on March
7 5th.

8 I might as well give the precise time now while
9 the witnesses are here: we will start at 1:30 p.m., in the
10 State Court of Claims -- it's the same complex we've always
11 been in, I'm not quite sure which courtroom of the two -- on
12 March 5th.

13 WITNESS BERLINGER: Could you repeat the time?

14 JUDGE BRENNER: Your lawyer will give it to you
15 again.

16 1:30, Tuesday, March 5th and you're all invited.

17 (Laughter.)

18 And thank you again and you can -- there's no
19 reason for you to stay for the rest of this.

20 (Witness panel temporarily excused.)

21 JUDGE BRENNER: We'll take a 15-minute break and
22 come back at 5:15. When we come back we're going to rule on
23 the pending motion to strike and we'll give you that ruling
24 and then we'd like to hear of the reports from the parties
25 and then we'll see what else can be accomplished.

(Recess.)

1
2 JUDGE BRENNER: All right. If you have not
3 settled the case during the 15-minute break, we are prepared
4 to proceed.

5 We would like to give you the ruling on the
6 motions to strike the Staff's testimony that we previously
7 had not ruled on so that you have that and as far in advance
8 as possible.

9 We are denying in their entirety the County's two
10 motions to strike portions of the Staff's testimony. We
11 find that the testimony is relevant to the acceptability and
12 the sensitivity of evaluating the qualified load that LILCO
13 proposes at 3300 Kw under the concept of a continuous
14 qualified load and to evaluate short-term operation.

15 Moreover, pertinent to that, I would like to
16 point out to the parties that we were very careful in our
17 order of December 4th which confirmed the granting of
18 LILCO's motion to re-open the diesel engine hearing,
19 particularly at page five, in not setting a particular
20 qualified load.

21 And what we said at that point in the context of
22 the crankshafts was the following phrase: "...including
23 consideration of any uncertainties in the
24 load levels or load demands which have the
25 potential for approval."

1 And you may recall that was consistent with the
2 discussion we had at some length at the November 16th, 1984
3 hearing session, among other places, in the vicinity of
4 26,925 to 925.1 and 26,927 to 928 where we said we were
5 interested in the testimony that would cover any
6 uncertainties in the loads as a check of what the
7 sensitivity would be and that still remains our view.

8 That reasoning applies also to the County's
9 separate motion with respect to the portion of Dr. Bush's
10 testimony in which he references the FaAA three-dimensional
11 finite element analyses. And although it was a separate,
12 although timely, motion from the County, they, too, put it
13 in that same category.

14 With respect to LILCO's motion, we are granting
15 LILCO's motion to strike question and answer 12 which
16 appears at page 21 of the Staff's testimony -- it is
17 actually Professor Sarsten's testimony.

18 It is, at least, somewhat curious for the Staff's
19 answer to that motion to strike -- the Staff's answer
20 properly pointed out that we had previously ruled on this
21 same exact question when it came up at the earlier hearing.

22 The Staff's motion does not go further and point
23 out what also transpired, namely, I had a dialogue with
24 Staff Counsel at the time -- there were objections to the
25 testimony of Professor Sarsten about Det Norske Veritas,

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1 that it was certainly not part of the contention which
2 specifically set forth part of those classification
3 societies or other institutions named in that part of the
4 contention.

5 And I said if there was an important issue then
6 the Staff was obliged to raise it as an issue and, if it be
7 late, to support the lateness and we didn't want to miss
8 anything that was of safety significance but proper
9 procedure required advance notice to parties of what would
10 be litigated. And the Staff did nothing at that time and
11 nothing since then and we have had this long break in the
12 hearing and then, suddenly, to see a reference to Det Norske
13 Veritas again.

14 And that is not proper procedure, we do not
15 litigate this case by surprise. If it was occurring for the
16 first time this would be our ruling and our ruling is all
17 the more emphatic because we had that previous exchange.

18 We did evaluate the County's point, as we
19 understand it, that in its view Professor Sarsten was
20 somehow not using Det Norske Veritas in the sense of their
21 calculations but was rather taking some calculations --
22 taking some information from Det Norske Veritas and using it
23 for its own calculations.

24 It's not clear to us that that's the case and in
25 fact we believe probably that's not the case. It looks

1 rather as if Professor Sarsten had had calculations
2 performed by Det Norske Veritas and he is reporting it. But
3 that is not material to our ruling.

4 In either event it is still irrelevant to the
5 contention, as that sub-part of the contention had been
6 specified. But I did want you to know that we did consider
7 that somewhat different approach in the County's view and
8 came to the conclusion we have come to in any event.

9 That's all I have on the motions to strike. Let
10 me say a word about the findings schedule and then we'll go
11 to the parties because we are interested to hear from the
12 parties.

13 Consistent with what I had suggested a reasonable
14 way to proceed -- and I will ask for your comments in a
15 moment about whether the parties think it is reasonable --
16 we will not set a particular date at this time for findings
17 on the load contention.

18 In part I recognize there are still witnesses up
19 there but we have essentially completed the litigation of
20 that sub-part of the hearing, and rather than set a specific
21 date, we will tell you that the findings would be due
22 approximately -- from LILCO, the first set of findings,
23 approximately a month from now, which would be near the end
24 of March around -- I don't want to set a particular day --
25 but somewhere around March 20th to March 25th.

1 And the schedule thereafter would be the normal
2 schedule of 10 days for the County, 10 days for the Staff
3 and five days for LILCO's reply, allowing for non-business
4 days, of course.

5 When we complete the remainder of this hearing we
6 will then set a particular day, which day -- for all the
7 findings coming together which day, as things look now,
8 would likely end up, indeed, approximately a month from now.
9 If we have an accelerated findings schedule for the
10 remaining part of LILCO filing its findings approximately
11 two weeks or 15 days after the close of this later phase and
12 then keeping the normal intervals for the other parties from
13 that point. And we'll take a look at what the exact days
14 are and pick particular days. But that would be the time
15 frame.

16 And I'm telling you that now for the obvious
17 reason that proposed findings need to be put into
18 preparation now. They need to be worked on now.

19 Do the parties have any objection to that
20 approach or have I been sufficiently unclear that you don't
21 even know what I'm talking about?

22 LILCO, I'll ask you first. You had been in
23 favor, as I recall, of the accelerated findings schedule and
24 the initial burden is going to fall on you for that second
25 phase.

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Now if you tell me you want a full month after

2 that second phase, I'll move all the findings back. But
3 given the overlap, we think it would be unproductive to have
4 separate findings based on these last two subphases of the
5 case which do not always exist as clearly delineated
6 separated phases.

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1 MR. ELLIS: Judge Brenner, a lot of my
2 enthusiasm for accelerated findings schedules has been
3 dampened by experience.

4 May I ask the Board to indulge me in the
5 opportunity to consult with my client on this? Surely I
6 think we can meet this. I need an opportunity to reflect
7 with LILCO on whether-- There are considerations that may
8 make that not the most appropriate thing.

9 JUDGE BRENNER: All right. Why don't I leave it
10 like that for all the parties, then? The parties should
11 discuss it. But I don't know what else is going on. You
12 surprised me just now.

13 MR. ELLIS: It may be just totally personal, but I
14 do need the chance--

15 JUDGE BRENNER: Let me say for the record that we
16 consider findings very important, and if the timeframe we
17 are setting is not adequate, we want to hear about it from
18 any of the parties.

19 But, as I said, for the other parties I was going
20 to keep the same intervals; it's only LILCO's that would be
21 shortened.

22 MR. ELLIS: I think it will be adequate. I just
23 need an opportunity to reflect on it, if I may, and consult
24 with LILCO.

25 JUDGE BRENNER: All right. Mr. Dynner, did you

1 want to comment now in any event?

2 MR. DYNNER: I'll comment now in any event.

3 With the accelerated schedule on the load
4 contention, we would have the same--

5 JUDGE BRENNER: I'm not going to accelerate the
6 schedule on the load contention, I don't believe.

7 MR. DYNNER: Okay.

8 JUDGE BRENNER: Other than I'm starting it from
9 today; other than the fact that they have some short period
10 of time to testify.

11 MR. DYNNER: I will address myself to--

12 JUDGE BRENNER: I'm not going to make any
13 announcements, I am going to say that unless there's some
14 particular need, we would prefer, I think, without any great
15 reflection on our part, not to have the accelerated schedule
16 because of the people that we have involved in this being
17 involved on a continuing basis.

18 I'm not going to make a big issue of it. It's
19 the same issue that I raised last time around. And unless
20 there is some countervailing reason to accelerate, I would
21 prefer that we follow the findings that are generally
22 found in the regulations.

23 All right; I'm going to let the parties discuss
24 it. And the parties are going to have to work out some
25 procedure to bring it before me next week. And if there is

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1 agreement just file the agreement, and if there is
2 disagreement file some short report that you can all agree
3 on, and have one report filed on behalf of everybody saying
4 what the disagreement is, and whether or not you think a
5 short conference call would be useful.

6 But as I envision it, if we go with the approach
7 as I state it, I don't see it as much of a shortening other
8 than for LILCO. It is a departure. But we also had put
9 parties on notice, I think, to properly prepare for their
10 approach to the case, that we would consider something of
11 that nature.

12 But you would still have an opportunity to make
13 your point again, Mr. Dynner, if you wanted to.

14 All right; did the Staff have anything they wanted
15 to say with respect to the findings schedule?

16 MR. REIS: Not particularly. We are considering
17 the manpower needs for all phases of the Shoreham
18 proceeding. We will attempt to meet the schedule set by the
19 Board.

20 We wonder whether some activities in other phases
21 of the hearing other than the diesel hearing affect the need
22 for alacrity, but we haven't had time to reflect on it.

23 JUDGE BRENNER: I'm not inclined to take that into
24 account, as I've stated -- it must be more than a year or
25 two ago -- in this case.

1 MR. REIS: Events may have overtaken you.

2 JUDGE BRENNER: I tell you, when I think that--

3 Well, that may be the wrong phrase, but of the original
4 three Board chairmen, to be the last one here to turn the
5 lights out, I'm wondering what am I doing wrong, and what
6 are they doing right?

7 . But the problem was-- We'll consider any
8 particular problems in the present context. But in general,
9 we let all the parties know long ago in this case that it
10 just would not do to consider the fact that emergency
11 planning hearings or other hearings were being scheduled
12 with these hearings; and for reasons even more important
13 than that, the parties have been able to separate the case
14 out.

15 MR. REIS: Yes.

16 JUDGE BRENNER: And you've got a lot of Staff
17 lawyers.

18 But we will consider any particular problems in
19 the present context, if we don't get agreement in a joint
20 report.

21 But until we rule, if there is disagreement among
22 you you're going to have to assume that it might be the
23 schedule I preliminarily announced.

24 So let's see if we can resolve it rather quickly
25 next week.

1 All right.

2 That's all we had at this point. We have other
3 things to get to, but I think it's more appropriate that we
4 hear from the parties.

5 Mr. Ellis, did you want to lead off?

6 MR. ELLIS: Yes, sir.

7 Are you referring now to the suggestion that you
8 addressed to the parties early on this week, that I should
9 -- that we should... I guess it was addressed to all
10 parties, that they should consult -- or at least to the
11 County and to LILCO -- that they should consult with their
12 clients in connection with settlement; is that what...

13 JUDGE BRENNER: Yes. And there were a few
14 subjects: the one on meetings with respect to procedures, I
15 thought I would turn to the Staff first, since we left with
16 a question of the Staff.

17 But right now, Mr. Ellis, I did want to hear from
18 you on the larger picture, including some of the other
19 suggestions. We'll stay with you, Mr. Ellis.

20 MR. ELLIS: All right.

21 Judge Brenner, in response to your suggestion, we
22 did consult with the highest levels of authority at the Long
23 Island Lighting Company in connection with the possibility
24 of devising a proposal for the settlement of the entire
25 diesel generator contention and litigation. A proposal has

1 AGBwrb 1 been developed.

2 I don't know what stage the proposal is in,
3 perhaps Mr. Dynner has information. But I think that a
4 propoosal for settlement will be available, and it will
5 involve, among other things, a proposal for testing some
6 additional period of time at 3500 Kw. Procedures will be
7 addressed, we think, through the process of sitting down
8 with the Staff, and of course the County will be invited to
9 any particular meetings, but to try to understand the
10 Staff's concerns, and then explaining to the Staff why we
11 think their concerns are not valid -- or why, if they are
12 valid, they can be remedied by something we suggest. And
13 through that process we not only expect, but we're
14 determined to resolve that issue, unless it comes down to
15 some particular narrow scope issue that cannot be resolved.

16 I frankly had in mind, because there was so much
17 misunderstanding about what a job task analysis was, what
18 they thought was involved, what we thought was involved,
19 that that might end up to be that kind of a problem.

20 But that's what we have in mind for the overall
21 proposal; namely, additional testing at 3500 for some
22 additional period of time, to be followed, of course, by
23 looking at the crankshafts to ensure -- as we did after the
24 qualified load tes

25 JUDGE BRENNER: When you said that you didn't

1 know what the-- I'm sorry; were you not finished?

2 MR. ELLIS: No, sir; that's the gist of it.

3 JUDGE BRENNER: When you said that you weren't
4 sure what the status of the proposal is, you mean this is
5 some written proposal that is being exchanged and discussed
6 among the parties at this point?

7 MR. ELLIS: I do not, of my own knowledge, know
8 that, of course. Whether that has occurred yet or not I
9 simply do not know.

10 I do know that a proposal has been developed.
11 Whether it has been finally approved and is finally in the
12 process of negotiation, I personally do not know.

13 I think there is some basis for saying yes, but I
14 truly don't know.

15 JUDGE BRENNER: All right.

16 MR. DYNNER: Let me set the record straight.

17 This is the first, right now, that I've heard that
18 there was any proposal that was going to be made. I know
19 nothing about it, none of the details. It's all the first
20 time that I'm hearing any of this.

21 JUDGE BRENNER: All right.

22 MR. ELLIS: I did indicate to Mr. Dynner several
23 times that I was sure we were going to have a proposal for
24 him.

25 I do not know what stage it's in. I have seen

1 some portions of it, though.

2 JUDGE BRENNER: You obviously don't want to tell
3 us very much about it, given the circumstances.

4 MR. ELLIS: I will be glad to tell you what I know
5 about it, which is-- I haven't seen-- I was hoping that it
6 would be done and delivered and everything else, and I'd be
7 able to report it to you.

8 It involves additional testing at 3500 Kw to
9 accumulate, so that there's a total of 3 times 10 to the 6
10 cycles at 3500. And the reason, I think, that that is--

11 JUDGE BRENNER: On a machine other than the 103
12 diesel?

13 MR. ELLIS: That is not indicated in the material
14 that I have.

15 I think that-- I'm not sure whether there isn't
16 already another-- There may be another one of the machines
17 that already has that. There is basis in the Staff
18 testimony to establish that that number of loading cycles
19 establishes the fatigue limit. And given what the machines
20 have already done, our consultants believe that that's --
21 well, they believe that's more than adequate. But there is
22 a technical basis for concluding that that is an appropriate
23 amount of additional testing to resolve any concerns.

24 JUDGE BRENNER: All right. I think we've probably
25 discussed it as much as we can today. We're always pleased

1 to know that efforts are continuing toward settlement;
2 whether or not the efforts are reasonable or will reach
3 fruition, we of course can't comment on at this time from
4 what we know.

5 Obviously the sooner something can be worked out,
6 if something ultimately is worked out, the better that will
7 be in terms of the hearing schedule. And I'll have to leave
8 it at that.

9 Turning more particularly-- Did you want to add
10 something, Mr. Ellis?

11 MR. ELLIS: Yes, Judge Brenner.

12 I have not seen any final draft, so I am unable to
13 tell you with any precision whether there are any additional
14 aspects to it. But I do know that that's the major thrust
15 of it.

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1 JUDGE BRENNER: All right. Thank you.

2 And nothing I said should imply that we need to
3 see it while it's in early stage discussion among the
4 parties. And in fact, probably we shouldn't be unless the
5 parties mutually think some involvement by us prior to a
6 final stage would be helpful.

7 We are not expecting to get status reports on
8 what the nature of the settlement -- latest settlement
9 proposal might be as the parties discussion it or continue
10 discussions. But if we do not hear anything before March
11 5th, at that point we'll probably ask you for some status
12 report on the record.

13 Mr. Reis, we had asked the Staff with respect to
14 a meeting schedule on procedures.

15 MR. REIS: We are going -- the Staff is going up
16 and meeting with their counterparts at LILCO on Monday to
17 work on procedures.

18 As was developed in some of the testimony, you
19 can see there is some difference in philosophy and some
20 difference in what documents have to be reviewed in order to
21 evaluate procedures and what documents are necessary. We
22 are going to try and resolve that in order to get to a
23 resolution of the procedures.

24 JUDGE BRENNER: Has the County been informed of
25 this, and the schedule and so on?

1 MR. REIS: The County invited us to meet them.

2 We have been talking here in the hearing room as
3 to the schedule of meetings. And -- Oh, you mean the
4 County?

5 JUDGE BRENNER: Yes.

6 MR. REIS: No, I don't think the County has
7 been.

8 JUDGE BRENNER: All right. Well, let me make it
9 very clear:

10 This is not normal procedure in terms of the
11 Staff sets a meeting and then sends out some written meeting
12 notice.

13 MR. REIS: No.

14 JUDGE BRENNER: You've got to keep everybody
15 timely abreast, and timely means instant forms of modern
16 communication.

17 MR. REIS: I'm informed that things haven't been
18 firmed up yet. And we were talking originally of meeting
19 even tomorrow here in Washington.

20 And we will inform the County; we know the County
21 has to be there. We think in these proceedings we have been
22 particularly diligent in informing the County of these
23 meetings.

24 JUDGE BRENNER: All right. Well, they may need
25 more than overnight notice. But I'll let you work it out.

1 MR. REIS: They will get more than overnight
2 notice --

3 JUDGE BRENNER: Mr. Dynner, I take it --

4 MR. REIS: -- if we have it.

5 JUDGE BRENNER: Mr. Dynner, I take it, assuming
6 no schedule conflicts and timely notice and so on, that the
7 County is willing -- even eager -- to participate in these
8 meetings.

9 MR. DYNNER: I don't -- You know, this is the
10 first I've heard of this.

11 The last conversation, and the only conversation
12 I was involved with with the parties about this was one in
13 which the Staff was talking about -- saying that they wanted
14 to have a response to their February 5th letter and have a
15 few days to look at that response before they even got
16 together with LILCO and met. So this is the first I've
17 heard of this, and I will have to check with my consultants
18 to see what their availability is.

19 JUDGE BRENNER: All right.

20 Staff is going to have to do better on
21 communication. And when I say "better," even if you had
22 told them during the break what you were going to tell us on
23 the record, that those types of things are important.

24 MR. REIS: I have just been informed that Staff
25 talked to LILCO about the time of the meeting.

1 JUDGE BRENNER: I'm talking about the County.

2 MR. REIS: We talked preliminarily with LILCO
3 about the time of the meeting after five o'clock today,
4 after the break today.

5 JUDGE BRENNER: Right. What I'm saying is it may
6 be difficult to schedule a meeting for eight-thirty tomorrow
7 morning that you're going to tell the County about at six
8 o'clock the night before.

9 MR. REIS: Right.

10 JUDGE BRENNER: And you'll have to factor these
11 things in.

12 MR. ELLIS: So that --

13 JUDGE BRENNER: Mr. Dynner, but I want to
14 understand that the County, putting aside scheduling
15 problems and notice problems, is willing to participate in
16 that type of process. I thought that's what you said last
17 week.

18 MR. DYNNER: We said that we would participate in
19 the process and want to participate in the process.
20 Mr. Bridenbaugh has left to go back to California just now,
21 or at three o'clock this afternoon. He is our consultant on
22 the procedures.

23 I don't know what Mr. Bridenbaugh's schedule is
24 for next week. I don't expect that the inability of our
25 consultant to be at those meetings should preclude those

1 meetings taking place.

2 JUDGE BRENNER: No.

3 MR. DYNNER: And in fact, since we share many of
4 the concerns that were noted by the Staff in their February
5 5th letter, I believe that those meetings ought to take
6 place.

7 We would like to know what's going on and get
8 full reports so that we are not blind-sided with agreements
9 or proposals to resolve concerns that we haven't had a
10 chance to review on some kind of a reasonable basis. So I'm
11 trying to take a -- You say -- Certainly we want to be
12 involved in the process.

13 If we can't be involved as intimately as we'd
14 like in the process because of the scheduling conflicts and
15 the way the other parties are moving, it would not be our
16 intention to insist that the other parties wait until we
17 could be involved.

18 JUDGE BRENNER: All right.

19 I think that's a reasonable framework. And the
20 object is to make sure everyone's informed so a party can
21 make a reasoned decision as to whether to have somebody at a
22 meeting and, if so, who that somebody should be; and in the
23 event the County is not present, to work out other means of
24 communication in terms of what the status is after such a
25 meeting and so on.

1 And we'll try to make sure you're not
2 blind-sided, and if you end up with people disagreeing with
3 you they'll have to tackle you head-on from the front.

4 MR. DYNNER: It's a lot tougher that way.

5 (Board conferring.)

6 JUDGE BRENNER: All right. Was there anything
7 else the parties wanted to raise?

8 (No response.)

9 JUDGE BRENNER: All right.

10 As we had stated, we have some matters. This is
11 in regard to the status of the inspections and/or
12 investigations being conducted by the Office of
13 Investigations and/or having been conducted -- I don't know
14 what the status is -- of other elements of the Staff.

15 And just as a predicate, so we all remember, on
16 April 9th, 1984, Mr. Bordenick enclosed to the Board and the
17 parties a memorandum dated March 12th, 1984, to
18 Mr. Cunningham, the Executive Legal Director, from
19 Mr. Hayes, the Director of the Commission's Office of
20 Investigations.

21 And, among other things in that short memorandum
22 from Mr. Hayes he states -- quote:

23 "The Office of Investigations has opened
24 an investigation concerning Trans-American Delaval
25 Incorporated and the Commissioners have been

1 apprised of this investigation being
2 initiated. However, due to limited
3 resources and other priority commitments,
4 actual field work has not commenced and
5 a realistic estimated completion date
6 cannot be ascertained at this juncture."

7 In addition he goes on to say that while they --
8 and I'm paraphrasing now -- while they are unable to reveal
9 the particulars, the matters appear to be generic rather
10 than site specific, and if safety significant information is
11 developed which impacts on Shoreham or any other facility --
12 and we're interested only in Shoreham as a Board -- OI will
13 make appropriate notifications to cognizant NRC Staff
14 members.

15 And also stemming from our same initial request
16 which we -- the background is we made an initial request and
17 then we received some information and then renewed the
18 request. And Mr. Goddard, Staff counsel, under cover of a
19 letter dated May 2nd, 1984, to the Board with copies to the
20 parties sent us a copy of a memorandum, again for
21 Mr. Cunningham, from Mr. Denton, the director of the Office
22 of Nuclear Reactor Regulation, and it's dated April 20th,
23 1984. And the subject of that memorandum, as accurately
24 characterized in the first paragraph of it, is that this is
25 in response to the Board's request for additional

1 information. And now I quote:

2 "The thrust of the Board's request
3 related to, one, Staff efforts to determine
4 whether there are any other potential defects
5 in the Shoreham diesels as evidenced by
6 product improvements or other operational
7 experience which had not been reported to
8 LILCO by TDI, and, two, what the Staff is
9 doing to ensure that potential defects are
10 properly reported in the future."

11 And Mr. Denton went on to describe what was being
12 done and what had been done and what would be done. And the
13 next to the last paragraph says:

14 "In general, the Staff intends to
15 continue to inform the Board promptly of
16 all material and relevant information
17 regarding the TDI diesels."

18 Some time has passed since those last reports to
19 us, as indicated by the dates. There has been no default,
20 there has been no promise that there would necessarily be
21 further reports, and we had not asked prior to now; so that
22 is not our point at all. However at this point in the case
23 we would have thought that by this time in the natural
24 course of events there would have been some further update
25 in the Office of Investigation matter at least. And that's
26 the one where the report was very preliminary.

1 In addition -- so a general request is to get a
2 status report of is there still an Office of Investigations
3 investigation and, if so, what is its status and whether or
4 not -- we want to know expressly whether or not there has
5 been any information developed that would affect any
6 information of safety significance for the Shoreham diesels,
7 the three diesels at Shoreham.

8 In other words, we don't want a reply -- we don't
9 want to rely on silence and make assumptions. And, as
10 reflected in the parts I quoted and paraphrase, the focus of
11 our inquiry was concern with whether or not defects and/or
12 product improvements and/or any other lables of processes
13 through which it was learned that there might be problems
14 with TDI diesels, how those problems would be promptly
15 communicated -- and in case we're interested -- to LILCO so
16 that the Shoreham diesels could be evaluated with those
17 considerations in mind, with considerations of any
18 particular problems.

19 Our concern in part has been renewed by
20 information on the record of this proceeding, including the
21 following: it appears to us from the record developed
22 before us that LILCO professes not to have known that there
23 were shrinkage cracks in the cam gallery that were welded by
24 TDI and painted.

25 And as late as the time the prefilled testimony

1 came in from LILCO and from TDI witnesses in this case which
2 was, as I recall, August 1984, there was no information that
3 that was the case, notwithstanding the fact indeed the cam
4 gallery was discussed, at least in LILCO's testimony -- I
5 don't want to rely on my memory right now as to whether the
6 subject was discussed in the TDI witnesses testimony.

7 It's true that the TDI witnesses ultimately were
8 not put on the stand to testify and, although we were given
9 some reasons for the decision, which reasons made sense in
10 the sense that the testimony was repetitive, I don't know of
11 those were the only reasons.

12 And obviously if that testimony had been put on
13 and if that testimony did not disclose certain things
14 pertinent to subjects discussed in the testimony there would
15 absolutely be a big problem.

16 But putting the technicalities aside, questions
17 of statements on the record of proceedings, the problem
18 still potentially exists given the IE inspections and
19 inquiries and promised -- not follow-up so much as on-going
20 ways of proceeding with respect to reporting requirements --
21 that here was yet another defect that was not reported long
22 after we received these reports.

23 And again I want to emphasize we're not
24 interested in whether it strictly falls within a category of
25 product improvement or not -- and, as I said, Mr. Denton's

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1 memo, the first paragraph characterized it essentially
2 correct but our inquiry is maybe even broader than that
3 description in terms of problems not being disclosed,
4 problems and/or improvements which should be evaluated to
5 see if the existing situation in the diesel should be
6 modified.

7 In addition, another instance which came to light
8 on the record here which falls in that general category -- I
9 am giving you these as illustrations so you can understand
10 our concern as to how the report and investigations that are
11 supposedly taking place are taking place when you give us
12 the status and just what is being done to close the loop, so
13 to speak, so that other information here that is being
14 pursued and whether it's constantly a catch-up situation to
15 look back and see what was not reported in the past is now
16 reported without regard to whether the continuing processes
17 are supposedly working.

18 The other instance is the fact that we had the
19 testimony in this proceeding that the 103 block, the
20 original 103 block, did not have the appropriate structural
21 integrity due to the Widmanstaetten graphite problem, that
22 this was not known by LILCO prior to the time the block
23 developed problems during the test in approximately April of
24 1984 -- I'm going from memory so the time frame might be
25 slightly different, but approximately that time frame.

1 And that it further developed apparently that, as
2 professed by LILCO and, more particularly, witnesses put on
3 on behalf of LILCO, that the so-called B-bar test results
4 as reported by TDI did not reflect any problem with respect
5 to that block.

6 And furthermore, that apparently, to the extent
7 of the professed knowledge, at least, of LILCO and its
8 witnesses under oath in this proceeding, that B-bar is not
9 presently available from TDI.

10 And we would put that in the broader category of
11 a defect that was not known. And our question is whether
12 that is being factored into the investigations and inquiries
13 in terms of what was known when by whom and what safety
14 significance any problems in that overall process might have
15 for the Shoreham diesels.

16 And I don't want to take up any more time, I have
17 only given you two examples. Let me emphasize, I have no
18 idea what the subject of the Office of Investigation
19 investigation is, I don't know if it's with respect to
20 reporting requirements or other things, and we'd like to get
21 some information without, of course, adversely affecting the
22 integrity of the investigation if there is one. We are
23 sensitive to that problem but we'd like to know, to the
24 maximum extent possible given the present status of this
25 case, information with respect to it -- at this time

1 information that can be given to all concerned. And then if
2 there's further information that the Staff thinks is
3 pertinent for us to know, after making the inquiries on our
4 behalf -- which we appreciate, we recognize the Office of
5 Investigations is another office -- to at least give us some
6 indication of what it is and then we can determine how to
7 proceed from there.

8 There have been some other things in terms of the
9 voluminous record that we have been reading in terms of
10 Board notifications and inspection reports and this should
11 be factored in.

12 I don't know offhand if it was subsequent to the
13 Staff report sent to us by Messrs. Bordenick and Goddard
14 which I referenced at the outset, but for example, after the
15 list of so-called product improvements was obtained from TDI
16 -- I don't know if it was obtained by the Staff but the
17 Staff ended up with that, I think it was sent to the Staff
18 from TDI or perhaps through LILCO or the Owners' Group -- in
19 any event after that time some other problems developed with
20 respect to certain diesel, TDI diesel components and then
21 the Staff inspection report had to go back and, at least as
22 the question, why weren't these included in the original
23 list because it then appeared that indeed there were some
24 further changes made in the particular product line.

25 Now all this -- there may be no problem at all,

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1 we're just concerned that it's been looked at. And we have
2 a concern that the status as of the time of these letters to
3 us needs to be updated both for our benefit and plus to make
4 sure that the communication from all persons who are
5 cognizant with some of these things that are going on our
6 record and not on our record is getting back to those that
7 are supposedly making decisions as to these inspections and
8 investigations. And of course, our ultimate concern is
9 whether there is anything we should know, be it process-wise
10 or component-wise, that might adversely bear on the safety
11 significance with respect to the Shoreham TDI diesels.

12 MR. REIS: Are you suggesting that the Staff --
13 Are you suggesting that we should communicate concerns of
14 yours that OI should be investigating --

15 JUDGE BRENNER: No, I didn't go that far, to
16 consider it.

17 MR. REIS: Can we tell OI that the Board wishes
18 them to investigate these matters, is that what you're
19 asking?

20 JUDGE BRENNER: No, I want you to tell them what
21 I've said and find out what they're doing and tell them I
22 want to know what they're doing and they should know what we
23 said and to make sure they're considering this. And in the
24 status report that we get, maybe I can get some further
25 insight into what they're doing.

1 I know a little more about what IE looked at
2 because we were provided with more details -- I should say
3 the Staff in general, it was IE and NRR and a combined
4 effort -- and that memo from Mr. Denton was helpful to us
5 and now we're concerned that not all the information is
6 being factored into one place by people who should be
7 concerned with those matters.

8 MR. REIS: Let me say this: we will make our
9 best efforts to get this information. As the Board is
10 probably aware, the Staff -- as you recognize, the Staff has
11 no control over OI and sometimes it is quite difficult, to
12 put it mildly, to get information from them.

13 JUDGE BRENNER: They had some recent problems
14 with the Appeal Board -- maybe "problems" is the wrong word
15 -- and I think they have learned a little better that we
16 have legitimate concerns that they have to be aware of and
17 we, on our part, will certainly try to be sensitive to their
18 legitimate concerns.

19 But we're going to have to know something more at
20 this point than something to the effect there is still an
21 open investigation, we are going to have to know something
22 more than that.

23 But I'm just concerned about communication at
24 this point and consideration and if possible get some sort
25 of, at least interim status report that we could receive

1 by next Thursday.

2 MR. REIS: Having dealt with OI in the past --

3 JUDGE BRENNER: You'd better tell them though --

4 MR. REIS: I'll tell them that's the Board's
5 suggestion and direction.

6 JUDGE BRENNER: No, it's not a direction. I'm
7 not even --

8 MR. REIS: Okay. That's the Board's suggestion.

9 JUDGE BRENNER: I'm not even directing the Staff
10 with respect to its part of the question. But at least one
11 thing you can do is you can give us the interim report from
12 counsel as to what is occurring. But you'll have to tell me,
13 something more than you asked and you're waiting for an
14 answer.

15 MR. REIS: All right.

16 JUDGE BRENNER: But they've got to be made aware
17 that there is an active proceeding going on -- I'll leave it
18 at that.

19 MR. REIS: I'm just judging by past --

20 JUDGE BRENNER: I know.

21 MR. REIS: -- actions in the Waterford matter.

22 JUDGE BRENNER: You're right to raise a caution
23 about the time frame. It would be helpful and maybe, at
24 least with respect to the Staff's end of it, because the
25 Staff, too, through IE looked at these types of concerns --

1 and better than I, the Staff should be in a position to be
2 able to quickly know which portions of its inspection
3 reports, of which there have been several dealing with this
4 subject, fell into the category of some of what I discussed.

5 MR. REIS: Right.

6 JUDGE BRENNER: Let me say one other thing --
7 this has been a little rambling, more rambling than I
8 intended -- and when you are going to communicate to them,
9 you put the question in precise terms, don't just send them
10 the transcript and say Here it is because they won't have
11 the insight you'll have in terms of understanding what our
12 concern is in the context of the proceeding.

13 And last time it was done just by sending the
14 transcript and I fear that they have -- while they still had
15 the words in the transcript, I don't think they had an
16 appreciation of the context of the concern by that method of
17 transmission.

18 Sit down and talk to them and tell them what's up
19 in addition --

20 MR. REIS: If they'll talk.

21 JUDGE BRENNER: They'll talk to you.

22 (Pause.)

23 All right. We want to give you some of our
24 preliminary views of the matters in controversy based on the
25 record to date. And when I say "based on the record to

1 date," I mean that very strictly. None of these views
2 include consideration of testimony, proposed testimony which
3 we have received on a prefiled basis but which has not yet
4 been presented. We are only talking about matters that have
5 been presented in evidence.

6 We further recognize very clearly that evidence
7 that we will be hearing in the future may significantly
8 affect these preliminary conclusions. So they are indeed
9 preliminary. However, on the other hand, they do reflect
10 our present view of the record to date.

11 We are doing this for several purposes --
12 Mr. Ellis, did you want to say something?

13 MR. ELLIS: Judge Brenner, I guess I'm always
14 usually eager to know what the Board is thinking so we can
15 address those concerns. I just have a concern about if
16 settlement negotiations are going to proceed whether certain
17 things are going to be cast in stone -- that it will appear
18 to the parties, in other words. So all I can do is mention
19 the concern I have.

20 (The Board conferring.)

21 JUDGE BRENNER: Well you have presented a
22 problem, Mr. Ellis, and I will lay it out as candidly as I
23 can:

24 What you have said gives us pause for some
25 concern, concern to the point where Judge Morris is inclined

1 that we do not go ahead with this. I, on the other hand, am
2 inclined to go ahead, although I recognize and agree with
3 your concern. There are countervailing aspects such that it
4 might actually help spur settlement but, more importantly --
5 although we recognize that settlement negotiations are going
6 on, in fact, have pretty much insisted that they go on -- we
7 thought it would help focus the findings in terms of the
8 parties who disagree with our preliminary views could be
9 better equipped to focus on why they think we are wrong and
10 the parties who agree with it could understand why some
11 matters on a priority basis might become more important on
12 findings than others. Maybe that's a foolish hope on my
13 part in the sense that the parties tend to put everything
14 they can fit into findings anyway.

15 But if you feel strongly about it -- well we're
16 not going to go ahead; as long as Judge Morris and I have a
17 different approach to it, I won't do it.

18 (The Board conferring.)

19 JUDGE BRENNER: All right. Although we, of
20 course, have the authority to go ahead notwithstanding your
21 concern, that's not important. We are going to respect that
22 concern and not go ahead. And in fact, on second thought, I
23 am now inclined to agree with Judge Morris and with your
24 concern, Mr. Ellis. Particularly since there is the
25 following fact:

1 If we don't go ahead now there is always time
2 later to change the situation and let you know what is on
3 our mind anyway on a preliminary basis. So for that reason,
4 among all the other good reasons, we will hold off.

5 One reason for doing it now was to give the
6 advantage of the next week or so to react as you prepare
7 your findings and engage in settlement negotiations, but
8 that's not reason enough to override this concern.

9 We will hear from the parties on March 5th or
10 earlier if there is something important for the parties to
11 let us know about what the status of settlement is in the
12 case and any other pertinent matters and, if the parties at
13 that time mutually want to know what's on our mind, we will
14 decide if we still want to tell you.

15 But if any party still objects, we will then
16 consider whether we should go ahead in light of that
17 objection and then we'll leave it at that.

18 I guess we have nothing further. I don't know if
19 the parties do....

20 MR. ELLIS: Judge Brenner, you mentioned earlier,
21 in connection with settlement negotiations, if the parties
22 feel the Board might be helpful, I take it we can be in
23 touch with the Board?

24 JUDGE BRENNER: Yes.

25 All right. We'll adjourn for the day. When we

1 go off the record I'll tell you something about my schedule
2 in terms of if there's any need to be in touch.

3 All right. And we thank you for your time and
4 hard efforts this week and last week and we'll reconvene at
5 1:30 p.m. on March 5th in the Haupage State Court of
6 Claims.

7 (Whereupon, the hearing in the above-entitled
8 matter was recessed, to reconvene at 1:30 p.m., Tuesday,
9 March 5th, 1985.)

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CERTIFICATE OF OFFICIAL REPORTER

This is to certify that the attached proceedings before the UNITED STATES NUCLEAR REGULATORY COMMISSION in the matter of:

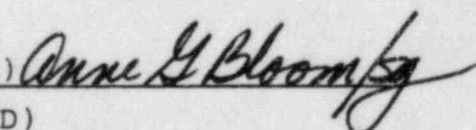
NAME OF PROCEEDING: LONG ISLAND LIGHTING COMPANY
(Shoreham Nuclear Power Station,
Unit No. 1)

DOCKET NO.: 50-322-OL

PLACE: BETHESDA, MARYLAND

DATE: THURSDAY, FEBRUARY 21, 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) 

(TYPED)

ANNE G. BLOOM

Official Reporter

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