

ORIGINAL

OFFICIAL TRANSCRIPT PROCEEDINGS BEFORE

NUCLEAR REGULATORY COMMISSION
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

DKT/CASE NO. 50-322-OL
TITLE LONG ISLAND LIGHTING COMPANY
(Shoreham Nuclear Power Station)
PLACE Bethesda, Maryland
DATE December 17, 1982
PAGES 16,822 - 17,006

*Return orig (stapled) & 3 copies (stapled)
to Anita McJannet 439 EPW +
send to copies to Mr. Hars P320C.*

8212210302 821217
PDR ADOCK 05000322
T PDR

Tax 1



ALDERSON REPORTING

(202) 628-9300
440 FIRST STREET, N.W.
WASHINGTON, D.C. 20001

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

- - - - -x

In the Matter of :
LONG ISLAND LIGHTING COMPANY : Docket No. 50-322-OL
(Shorham Nuclear Power Station) :

- - - - -x

Bethesda, Maryland
Friday, December 17, 1982

The hearing in the above-entitled matter
convened, pursuant to notice, at 8:30 a.m.

BEFORE:

LAWRENCE BRENNER, Chairman
Administrative Judge

JAMES CARPENTER, Member
Administrative Judge

PETER A. MORRIS, Member
Administrative Judge

1 APPEARANCES:

2 On behalf of Applicant:

3 T. S. ELLIS III, Esq.
4 Hunton & Williams
5 707 East Main Street
6 Richmond, Va. 232127 On behalf of the Regulatory Staff:
8 BERNARD BORDENICK, Esq.
9 Washington, D.C.10 On behalf of Suffolk County:
11 LAWRENCE COE LANPHER, Esq.
12 Kirkpatrick, Lockhart, Hill,
13 Christopher & Phillips
14 1900 M Street, N.W.
15 Washington, D.C. 20036
16
17
18
19
20
21
22
23
24
25

C O N T E N T S

<u>WITNESSES:</u>	<u>DIRECT</u>	<u>CROSS</u>	<u>REDIRECT</u>	<u>RECROSS</u>	<u>BOARD</u>
Lewis Narrow, Robert Gallo, and James Higgins (Resumed)					
By Mr. Lanpher		16,827			
By Judge Carpenter					16,851
By Judge Morris					16,857
By Mr. Lanpher		16,858			
By Judge Carpenter					16,907
By Mr. Lanpher		16,912			

(Afternoon Session..16,938)

Lewis Narrow, Robert Gallo, and James Higgins (Resumed)					
By Judge Carpenter					16,939
By Judge Morris					16,946
By Judge Brenner					16,948
By Judge Carpenter					16,950
By Mr. Lanpher		16,952			

E X H I B I T S

<u>NUMBER</u>	<u>IDENTIFIED</u>	<u>RECEIVED</u>
Suffolk County 107	16,892	16,981
Suffolk County 108	16,931	16,981
Suffolk County 109	16,966	16,981
Suffolk County 104		16,980

RECESSES:

Morning - 16,-883
Noon - 16,937
Afternoon - 16,974

P R O C E E D I N G S

1
2 JUDGE BRENNER: Good morning. First,
3 logistical arrangements, since Mr. Ellis is anxious to
4 know where to send his bags, and as are the rest of us
5 actually. We will be in Happaugue, using one of those
6 two courtrooms at the Court of Claims, the State Court
7 of Claims, which we had previously used. And we will be
8 there. We have that courtroom as far as the proposed
9 schedule takes us; that is, into the latter part of
10 February.

11 MR. LANPHER: Beginning January 4, if that
12 were necessary?

13 JUDGE BRENNER: Well, we will decide that next
14 week, if it is necessary. We are hoping we won't have
15 to decide that. Yes, we can have the courtroom for that
16 week, to answer your question, whether or not we want to
17 be there. Even given that fact depends on where we are
18 on this issue.

19 And the schedule will change slightly, though,
20 and I hope it won't inconvenience parties, but we cannot
21 get the courtroom Tuesday through Friday. Instead, we
22 have it Monday through Thursday. So our schedule will
23 shift accordingly, and we will be in heari ; in January
24 on a Monday-through-Thursday schedule.

25 We will start at 10:30 on Monday, so parties

1 can fly up in the morning. And we will adjourn early on
2 Thursday, as we had previously on Fridays. So it will
3 be the same hearing time, but shifted one day.

4 MR. LANPHER: Off the top of my head, I guess
5 we should all take a look at that schedule which Mr.
6 Ellis' people put together. I know we have a lot of
7 cross plans due and filings due on Mondays during
8 January.

9 JUDGE BRENNER: I know. I will let you all
10 take a look at it and let you know the beginning of next
11 week. But the courtroom dictated our adjustment.

12 One possible suggestion is we might be willing
13 to take the cross plans first thing Monday morning at
14 the hearing site; that is, keep the Monday date, but it
15 would have to be by 9:30 or so, between 9:30 to 10:00
16 o'clock, so we could take a quick look at it before we
17 go on the record at 10:30.

18 But the summary responses to the motions might
19 have to be received at the end of the day Friday, in
20 which case we might have to back up the motions
21 somehow. Take a look and see if you can adjust it, and
22 we will be willing to take some time off our lead time
23 in terms of the cross plans, as we just indicated, to
24 assist you in seeing how you can adjust things.

25 It may be there are no motions, given the

1 extensive discussions of the party on these issues.
2 That really is our contemplation. And in that case,
3 that will solve the problem, but nevertheless, we will
4 have to provide for it.

5 (Discussion off the record.)

6 JUDGE BRENNER: All right, we are prepared for
7 the County to continue its cross examination.

8 Whereupon,

9 LEWIS NARROW,

10 ROBERT GALLO,

11 and JAMES HIGGINS

12 the witnesses on the stand at the time of recess, having
13 been previously duly sworn, resumed the stand and were
14 further examined and testified as follows:

15 CROSS EXAMINATION -- Resumed

16 BY MR. LANPHER:

17 Q Good morning, gentlemen. Yesterday when we
18 adjourned, we were talking about the items in your
19 testimony in the storage-related areas which had been
20 recurrent, and those were items 4, 5, 9, 10, and 11, as
21 listed on pages 15 and 16.

22 Just to give you context, you confirmed
23 yesterday that these were items all in the same basic
24 area. Now, we talked about Items 4, 5, 9, and 10. And
25 briefly, I would like to talk about Item 11 also. We

1 have covered that to an extent already in some other
2 areas of the examination.

3 And Item 11 is from I&E Report 79-16, and that
4 is attached to your testimony. Would it be fair to
5 state that 97-16 really covered diverse storage-related
6 problems?

7 A (WITNESS HIGGINS) Yes.

8 Q And those problems included the failure to
9 keep Category 1 components stored in a clean condition;
10 and some of the examples of problems were dust, dirt,
11 grease, trash, broken glass around Category 1 components?

12 A (WITNESS HIGGINS) Yes.

13 Q And it also involved equipment openings not
14 being covered?

15 A (WITNESS HIGGINS) Yes.

16 Q And it also involved two panels where the
17 space heaters had been deenergized?

18 A (WITNESS HIGGINS) That is correct.

19 Q Gentlemen, I am correct, am I not, that you
20 believe that all of these items involved protection or
21 covering of installed equipment?

22 A (WITNESS HIGGINS) The majority did. Some
23 involved equipment stored in the warehouse.

24 Q Well, at page 16 the fourth line of the first
25 full paragraph of your testimony you state the other

1 items, and those were Items 4, 5, 9, 10, and 11 involve
2 protection or covering of installed equipment. Are you
3 amending that testimony? Do you see where I am
4 referring, Mr. Higgins?

5 A (WITNESS HIGGINS) The items in 79-16 do
6 involve principally installed equipment. There were a
7 few cases where there were coverings in the warehouse
8 that were not covered.

9 Q Mr. Higgins, you misunderstood my question,
10 and I apologize. I am not focusing just on 79-16 here.
11 I am focusing on items 4, 5, 9, 10, and 11. And you
12 have described those as all involving the protection or
13 covering of installed equipment. That is a fair
14 characterization; correct?

15 A (WITNESS HIGGINS) Yes, it is. And going back
16 and looking at 4, 5, 9, and 10, those are all installed
17 equipment. And looking at number 11, which is from
18 79-16, the great majority of those are also installed
19 equipment, although there are a couple of instances in
20 there that are items in the warehouse.

21 Q And after conducting the investigation or
22 inspection in 79-16 I&E decided that additional
23 management attention by LILCO was required in the area
24 of storage of installed equipment; correct?

25 A (WITNESS HIGGINS) Yes.

1 Q You subsequently closed out that violation in
2 May 1980; correct?

3 A (WITNESS HIGGINS) The inspection was done in
4 April and May, and the inspection report was issued in
5 June.

6 Q Okay. Thank you. Now, at page 18 of your
7 prepared testimony, line 4, you refer to the corrective
8 action in subsequent to I&E Report 79-16 as having been
9 effective. Do you see that testimony?

10 A (WITNESS HIGGINS) Yes.

11 Q Now, at the time you prepared that testimony,
12 had you reviewed any of the LILCO quarterly audit
13 program reports to management for the time period May
14 30, 1980, through December 3, 1981, which are included
15 as part of Suffolk County Exhibit 63?

16 A (WITNESS HIGGINS) No.

17 Q Had you reviewed any of the -- in these
18 questions, Mr. Higgins, I am only referring to those
19 portions of the quarterly report dealing with protection
20 of installed equipment. All right?

21 A (WITNESS HIGGINS) I had not reviewed any of
22 the quarterly reports.

23 Q At the time you prepared the testimony, had
24 you reviewed any of the underlying field audits in the
25 storage area which are referred to in these quarterly

1 reports?

2 A (WITNESS HIGGINS) No.

3 Q Mr. Higgins, have you had an opportunity
4 subsequent to preparation of your testimony to review
5 those quarterly reports?

6 WITNESS HIGGINS: Yes.

7 Q And did you also review the underlying field
8 audits?

9 A (WITNESS HIGGINS) Yes.

10 Q All of them?

11 A (WITNESS HIGGINS) Not all of the field
12 audits, no.

13 Q I mean all of the ones that are referred to in
14 the quarterly reports?

15 (Witnesses conferred.)

16 A (WITNESS GALLO) Mr. Lanpher, I tried to do a
17 little bean counting last night, and I am not a bean
18 counter, but I did so.

19 Q Is that bean counting or audits?

20 A (WITNESS GALLO) Audits. And it appeared from
21 the quarterly reports there were two, four, six, eight
22 field audits that were mentioned in the quarterly
23 reports that we did not have copies of. We had four of
24 the ones that were mentioned specifically in those
25 quarterly reports plus several others we had available.

1 A (WITNESS HIGGINS) And we did review those
2 four and the quarterly reports, those four field audits
3 that we had available.

4 Q Did you review the field audits that were part
5 of Suffolk County Exhibits 66 -- and that is entitled --
6 the front page is "Field Audits Related to Storage
7 Problems."

8 A (WITNESS HIGGINS) We reviewed the ones that
9 were in that exhibit and that were referenced in the
10 quarterly reports.

11 Q Thank you. Now, gentlemen is it fair to state
12 that in the period covered by the May 30, 1980,
13 quarterly report through the period covered by the
14 December 1981 quarterly report there were repeated
15 instances of failure to provide adequate environmental
16 protection to installed equipment?

17 A (WITNESS HIGGINS) Yes.

18 Q In fact, in the May 30, 1980, quarterly
19 report, LILCO reported -- noted that three field audits
20 during the prior quarter had reported failures to
21 provide the proper environmental protection; correct?

22 A (WITNESS HIGGINS) That's correct.

23 Q And the July 22, 1980, report, one field audit
24 report was noted, and it noted three failures to provide
25 the adequate environmental protection; correct?

1 A (WITNESS HIGGINS) That is correct.

2 Q And those failures involved the failure to
3 provide covers and failure to provide space heaters;
4 correct?

5 A (WITNESS HIGGINS) Yes.

6 Q And the November 1980 quarterly report to
7 management two field audits were noted involving two
8 failures to provide proper environmental protection for
9 installed equipment; correct?

10 A (WITNESS HIGGINS) Yes.

11 Q And the February 1981 report, LILCO reported
12 that there were two field audits during that previous
13 quarter that had identified further failures to provide
14 environmental protection for installed equipment;
15 correct?

16 A (WITNESS HIGGINS) Correct.

17 Q And this involved failure to provide caps;
18 isn't that correct?

19 MR. ELLIS: Judge Brenner, I have to register
20 an objection to this line because it appears that all
21 that is being done is reading from a document which
22 these witnesses did not prepare and did not engage in
23 the inspection or audit that led to its preparation.
24 And it does not seem to me to be an appropriate line of
25 examination.

1 JUDGE BRENNER: He is leading up to something,
2 and we understand the limits of the questions and
3 answers so far. But he is leading up to something.

4 WITNESS GALLO: That February '81 quarterly
5 report is not specific as to what type of -- to what
6 degree adequate environmental protection had not been
7 provided.

8 BY MR. LANPHER: (Resuming)

9 Q Mr. Gallo, would you look at Suffolk County
10 66, Field Audit 1180?

11 A (WITNESS GALLO) I have 1180.

12 Q And specifically, look at Findings 4.1 and
13 4.3. First, can you tell me is this one of the field
14 audits that you did review over the last several days?

15 A (WITNESS GALLO) Yes, this is one of the
16 audits I reviewed.

17 Q And am I correct that this field audit noted
18 instances of failure to provide the proper caps?

19 A (WITNESS GALLO) Violation 4.1 has two
20 references to valve, valves with uncapped openings.

21 Q And doesn't --

22 A (WITNESS GALLO) It has to do with the valve
23 operator, apparently.

24 Q And doesn't Item 4.3 also involve openings
25 that were uncapped?

1 A (WITNESS GALLO) It is uncapped openings,
2 apparently, on a panel.

3 Q Yes. Now, gentlemen, the quarterly report for
4 August 1981, am I correct that that involved three field
5 audits which reported further failures to provide
6 adequate environmental protection for installed
7 equipment?

8 A (WITNESS GALLO) Yes.

9 Q And that involved problems related to covers
10 and heaters?

11 A (WITNESS GALLO) Yes. That is what the
12 quarterly report indicates.

13 Q Gentlemen, the December 1981 quarterly report,
14 am I correct, references one field audit which had three
15 failures to provide the adequate environmental
16 protection for installed equipment?

17 A (WITNESS GALLO) The December '81 discusses
18 instances of equipment not being properly covered.

19 Q Now, gentlemen, in view of this, of these
20 quarterly reports and the underlying audits, field
21 audits, do you still believe that the corrective action
22 after I&E Report 79-16 was effective?

23 MR. ELLIS: I object to the question unless
24 they are given all of the information, including the
25 corrective action that was taken with respect to all of

1 these incidents and unless they are given the full
2 information about these findings that they have just
3 been directed to by Mr. Lanpher.

4 JUDGE BRENNER: No. They have got enough
5 where they can answer the question. And I have in mind
6 their prior testimony yesterday where I had this proble
7 when they talked about what they generally took into
8 account in the normal inspections, and those were the
9 field-type reports. And I am going to let them give us
10 their view.

11 And we have the state of the knowledge here,
12 and you are welcome to come back and probe the limits of
13 that knowledge. And it is not as if we don't ourselves
14 have an extensive record on what is in these audits. We
15 do.

16 MR. LANPHER: I thought Judge Carpenter wanted
17 me to ask that question anyway from yesterday.

18 JUDGE BRENNER: So we will allow the question.
19 (Witnesses conferred.)

20 WITNESS HIGGINS: Mr. Lanpher, I would like to
21 provide an answer first for myself and the basis for the
22 closure, and then Mr. Gallo would like to provide some
23 further comments on the quarterly reports and the field
24 audits and the storage program in general.

25 BY MR. LANPHER: (Resuming)

1 Q However you want to answer it, Mr. Higgins.

2 A (WITNESS HIGGINS) When the violation 79-16
3 was written, it was written as an overall storage
4 violation and addressed a number of problems in the
5 storage area. And at the time that that inspection was
6 conducted, NRC felt that LILCO was not giving the
7 storage and maintenance area adequate attention. And in
8 routine inspections and plant tours that I have
9 performed and that other inspectors performed, we had
10 found a number of instances of cases where equipment was
11 not being adequately protected.

12 One of the things that we do in these types of
13 tours or inspections is we would take a look at a piece
14 of equipment on a tour and determine that, say there was
15 a tarp off or an opening or this type of thing. And we
16 wouldn't immediately note that as a violation, realizing
17 that there may be, for installed equipment there may be
18 people working on it, they may be just away from the
19 area for a moment and so forth.

20 So these types of things happen on a generally
21 daily basis. So therefore, what we would do is we would
22 perhaps note it down and come back later on in the day
23 or the next day and see if the condition was corrected
24 by the construction personnel or by the quality control
25 personnel. And we noted at this time frame that that

1 sort of thing was not happening, that things were being
2 left in an improper state for a fair period of time.

3 At that time we conducted the in-depth review
4 that was done in 79-16 found not only hardware problems
5 with things being in improper storage but found some
6 programmatic deficiencies also and wrote it up in the
7 violation and got the additional commitments from the
8 licensee to provide the corrective actions.

9 As the follow-up on this i' , we looked at
10 the programmatic changes that they made, which included
11 upgrading the quality control surveillances that were
12 performed in the storage and control area, which
13 involved, among other things, the assignment of one
14 quality control inspector full-time to review of storage
15 and maintenance of installed equipment.

16 Over the next several months I conducted
17 additional reviews in the area which included almost
18 daily tours of the plant areas. And during this time
19 frame again, because of the number of pieces of
20 equipment, the number of construction workers and the
21 amount of activity involved with installed equipment --
22 namely, almost a daily basis you have people working in
23 the various panels and on various equipments for
24 construction reasons and startup and testing reasons.

25 Things were disturbed from their proper

1 storage conditions. And I noted that there was a
2 gradual improvement over this time frame in the way that
3 things were being maintained. Part of the reason for
4 this was the continual quality control oversight that
5 was being provided during this time frame. I also,
6 whenever quality control inspector identified
7 discrepancies of this sort, these were written up on
8 surveillance inspection reports and deficiency
9 correction orders.

10 And over the next several months I reviewed
11 with quality control organization the records of
12 deficiencies that were identified and noted that during
13 this time frame over the first several months of 1980
14 the number of discrepancies identified by quality
15 control organization continued to trend downward; and
16 that there appeared to be a continuing improvement and
17 that in my own inspections I noted that over this time
18 frame the instances where I would find equipment that
19 was uncovered and then go back the next day, I was in
20 general finding that when I would go back the next day
21 that although it had been deficient or discrepant at one
22 time, that it was being corrected by either the
23 construction workers or the quality control workers; and
24 that together with the programmatic changes and together
25 with continuing down trend of the quality control

1 surveillances and discrepancies that were being
2 identified was the basis for closing the violation 79-16
3 and concluding that the corrective actions were a factor.

4 As I said, it doesn't mean that in the storage
5 area you are going to find zero deficiencies. And I
6 think Mr. Gallo has a couple of comments on that.

7 In general, I am not surprised by the findings
8 that as field quality assurance went out and performed
9 periodic audits of the program as a whole and of the
10 field quality control QC inspectors and surveillance
11 work, that they would also at any given time go out and
12 be able to find a couple of deficiencies, which is what
13 we are seeing in the field audit reports.

14 So the results of the field audit reports
15 don't surprise me and don't cause me to change my
16 conclusion that overall the results had improved
17 significantly and were in general effective.

18 Mr. Gallo.

19 A (WITNESS GALLO) What I tried to do is look at
20 -- last night I did try to look at the audits and the
21 audit findings, I guess, from my standpoint and from a
22 management standpoint a little bit. And I did several
23 things with them.

24 And the end result of my conclusion was that
25 it appears that -- I would like to give credit where

1 credit was due -- it appears that the NRC and
2 particularly Mr. Higgins did have some noticeable effect
3 on the storage programs at the Shoreham site.

4 And again, 79-16 I think was fairly shortly
5 after Mr. Higgins was assigned to the site. I don't
6 know the exact date he started work there. But it
7 appears that this was brought up by Mr. Higgins in
8 October or November 1979, and I think it again reflects
9 something we alluded to yesterday, that we have -- we
10 get into a pre-op mode, we start to look more carefully
11 and more detailed at things, at particularly installed
12 equipment and the cleanliness and the readiness for
13 operation of the equipment.

14 Now, looking at the audits, it also appears
15 that -- it may be a coincidence, I don't have all of the
16 information, obviously, to tell why -- but the field
17 audits regarding storage problems were given to us
18 dating all the way back to 1975, and they started to
19 appear in the quarterly reports in May of 1980, which
20 was shortly after I guess it was the next quarter after
21 Mr. Higgins had identified his concern.

22 One of the other things I did -- and I may be
23 in the realm of bean counting again -- is looking at
24 violations that went all the way back to 1975 where the
25 audits were provided to us. And I am not sure this

1 provides any reliable data, but it appeared that the
2 number of -- appeared to me the number of violations
3 decreased steadily from 1975 through the end of 1981.

4 And when they start showing up again in the
5 quarterly reports, I counted the number of violations --
6 I wasn't trying to count the open items because I really
7 didn't understand what their definition was -- but that
8 when they got down to sometime in early 1980, late '79,
9 they were talking about one or two violations per audit,
10 whereas the ones previous to that had three, four, and
11 five violations per audit.

12 And I don't really know what significance to
13 attach to that, except that it appears to me that the
14 NRC did have some effect in late 1979, early 1980, along
15 with, I would have to give credit to, the utility, that
16 at that time they were again apparently -- and I guess I
17 am making a little bit of an assumption -- that they
18 were getting up on a pre-op test curve where most of the
19 equipment now was installed and the cleanliness
20 requirements were becoming more important.

21 These things weren't just installed; they were
22 getting ready to operate, and they were getting ready to
23 close out systems.

24 Q Does that complete your answer?

25 A (WITNESS GALLO) One other thing I did want to

1 add, that just taking an independent look at the field
2 audits done by LILCO at the time, that I felt that they
3 were quite good audits in that they addressed hardware
4 problems and they rarely get into paperwork problems.

5 It appears that the auditors were going out
6 and looking at equipment that was in place or storage in
7 place. Sometimes they looked at -- they varied, their
8 audits varied across the board. You look in 1979 -- or
9 '75, I am sorry -- they were looking at basically
10 off-site programs, then some electric motors. Then
11 finally in '76 they started looking at mechanical
12 equipment stored in place. And in '76-77 there was more
13 indoor-outdoor type inspections. In '78, more
14 mechanical equipment stored in place. In '79,
15 instrumentation started to be picked up in the field
16 audits.

17 In 1979 also electrical equipment stored in
18 place was a specific audit that was provided to us. The
19 instrumentation again was picked up in 1980 and '81,
20 along with outdoor mechanical and electrical equipment
21 in place.

22 And what I am saying is the audits followed
23 quite closely with the trend as the plant was
24 constructed. They were looking at the right things, and
25 they identified findings that had to do with hardware.

1 And it appeared to me that they were looking for the
2 right things.

3 Q Mr. Gallo, you are aware, are you not, that
4 the listing of field audits related to storage in
5 Suffolk County 56 is not a complete compilation of all
6 the field audits relating to storage problems? Correct?

7 A (WITNESS GALLO) That is all that were
8 provided to me. That is all that I have to go on.

9 Q But you know that is not a complete list;
10 correct?

11 A (WITNESS GALLO) I was not aware of that. I
12 was not aware one way or the other whether it was
13 complete or incomplete.

14 Q Well, you reviewed the quarterly reports to
15 management last night or earlier; correct?

16 A (WITNESS GALLO) That is correct.

17 Q And some of the field audits referenced in
18 those quarterly reports to management relating to
19 protection of installed equipment are not included in
20 this compilation of field audits; correct?

21 A (WITNESS GALLO) I believe that is correct,
22 yes.

23 Q So you did know that this was not a complete
24 compilation?

25 A (WITNESS GALLO) Yes, I believe I testified

1 previously that I had found eight that were in the
2 quarterly reports that we do not have available. But I
3 did not know they weren't on this list, I don't think.
4 I double checked the ones I had, but not double checked
5 against this list.

6 Q Mr. Higgins, if I understand correctly, in the
7 testimony where you talk about the corrective action
8 being effective -- and that is at page 18 of your
9 prefiled testimony -- you were talking about the
10 corrective action and the time period up to the
11 close-out of that. That is what you were focusing on
12 when you prepared the testimony?

13 A (WITNESS HIGGINS) No. We referred to from
14 the time period that the violation until the time we
15 wrote our testimony.

16 Q Then you reached that conclusion at the time
17 you prepared your prefiled testimony without review,
18 however, of any of these materials that we have been
19 discussing this morning?

20 A (WITNESS HIGGINS) Without reviewing the
21 quarterly reports or the field audit reports. But it
22 was based on in-plant observations during the time frame
23 of 1979 to 1982 by myself and other inspectors, and also
24 by reviewing not the field audits but the lower tier of
25 QC documentation below the field audits, which would be

1 the quality control inspections and surveillances, which
2 are being done by quality control inspectors as opposed
3 to quality assurance auditors.

4 Q Mr. Higgins, would you agree that during the
5 period subsequent to the close-out in May or June of
6 1980, the close-out of I&E 79-16, that there were
7 continuing instances of the same kinds of problems which
8 had been identified in 79-16?

9 A (WITNESS HIGGINS) I don't really consider
10 them the same kinds of problems. Back before 79-16 I
11 considered that it was much more programmatic in nature
12 and many more problems, and I felt that back at that
13 time the problems were, the storage problems, were
14 occurring and were not getting corrected on any
15 reasonable basis, reasonably prompt basis.

16 For example, back at that time, you may have a
17 construction worker take some coverings or caps off and
18 then not put them back on. And the next quality control
19 review would have been quarterly or semi-annually, which
20 was a considerable period of time.

21 What they did after 79-16, and placed the
22 quality control inspector full-time on it, was that they
23 had pretty nearly a daily review of these areas, and
24 things were getting corrected on a much more of a
25 real-time basis.

1 And therefore, I admit that there are
2 certainly continued instances where you would find dirt
3 in a particular area or an uncovered opening that should
4 be covered, this type of thing. But instances of that
5 being found, I would not consider that to be an overall
6 ineffective program.

7 Q Well, Mr. Higgins, you are talking about a
8 daily effort by a quality control inspector performing
9 surveillances in the post 79-16 period. Is that right?

10 (Witnesses conferred.)

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

1 A (WITNESS HIGGINS) Could you repeat the
2 question, please?

3 Mr. Narrow just asked me to clarify one thing
4 I made in my last answer about the quality, the previous
5 quality control inspections being perhaps quarterly or
6 semiannually. I wasn't referring to the overall
7 inspections, but rather to inspections for a given piece
8 of equipment.

9 Now, if you could repeat your question,
10 please.

11 Q You were describing some of the corrective
12 action which LILCO had taken. I believe it was that
13 they assigned a full-time quality control inspector who
14 would walk through the plant in various areas on almost
15 a daily basis. Is that correct?

16 A (WITNESS HIGGINS) That was one of the things
17 that they did. There was also increased emphasis to the
18 craft personnel that were involved with actually doing
19 the work and keeping things in the condition that they
20 should be, and also to the union personnel who were
21 involved with the actual storage and maintenance program
22 itself.

23 Q Now, these, the daily inspections that you
24 referred to were written up in surveillance reports,
25 correct, and not in field audit reports?

1 A (WITNESS HIGGINS) I don't recall the exact
2 document, but I believe it was surveillance reports.

3 Q Then is it fair to state that the field audits
4 which are referenced in Suffolk County Exhibit 63 and in
5 Suffolk County Exhibit 66 are instances where
6 notwithstanding those surveillance inspections, problems
7 still occurred that the auditors found?

8 A (WITNESS HIGGINS) That is correct.

9 Q Now, in response to an earlier question I had
10 asked, weren't these problems that were identified in
11 the quarterly reports, May, 1980, and onward, weren't
12 they the same kind of problems as in 79-16, and you
13 disagreed, I believe, because you didn't believe that
14 they were programmatic deficiencies. Is that a fair
15 characterization?

16 A (WITNESS HIGGINS) To a certain extent. There
17 is also a difference in the timing, in that I feel in
18 the earlier time frame deficiencies would be created and
19 then exist for a fairly long period of time, where after
20 that things were being corrected much more promptly.

21 Q But the same kinds of problems were
22 recurring. Isn't that right, Mr. Higgins? Lack of
23 covers. Lack of space heaters. Lack of caps.

24 A (WITNESS HIGGINS) There were still instances
25 after 1980 where perhaps a heater would burn out and

1 wouldn't get replaced that same day, or a cap would be
2 taken off and not replaced promptly, and yes, there were
3 some that were being found by QC. There were some that
4 were being found by the auditors when they went out to
5 do it, and there were a few instances also where they
6 were identified by the NRC both -- a few by myself and a
7 few by -- I think we had one example in the CAT
8 inspection also.

9 Q Mr. Higgins, in addition, if you could turn
10 your attention to field audit 1180, and that is part of
11 Suffolk County Exhibit 66, looking at the first page,
12 the audit indicates, does it not, that the audit was
13 performed on October 9, 1980, and on subsequent days?

14 A (WITNESS GALLO) That is correct, Mr. Lanpher.

15 Q And looking at finding 4.3, there is an
16 indication that an uncapped opening had been identified
17 in late August, 1980, correct?

18 A (WITNESS GALLO) That is correct, Mr. Lanpher.

19 Q And the audit indicates that as of the October
20 9 period when the audit took place, that opening still
21 wasn't capped, doesn't it?

22 A (WITNESS HIGGINS) Yes, it does.

23 Q Mr. Higgins or any member of the panel, do you
24 know what the purpose of the quarterly reports to
25 management are within the LILCO organization?

1 of less than perfect environmental protection, and what
2 I am struggling with is trying to understand whether the
3 program of remedial action was inadequate or whether the
4 evaluation was inaccurate. It is one or the other, and
5 I still haven't been able to get through this, and this
6 is where I would like your help, because you were
7 actually there looking at what was going on. You are
8 the golden opportunity for me to get some help.

9 A while ago I wrote a note. Apparently as a
10 result of your inspection in '79, why no LILCO
11 inspector --

12 A (WITNESS HIGGINS) A Stone and Webster person
13 who was actually an FQC inspector.

14 Q If you look at any one individual instance of
15 missing cover, missing cap, et cetera, and they are
16 always explainable away, in your opinion, could a more
17 effective program have been put in place? Could the
18 frequency of these occurrences been reasonably reduced?

19 A (WITNESS HIGGINS) Yes.

20 MR. ELLIS: Can we have a time period on that
21 question?

22 JUDGE CARPENTER: Yes, from May 30, 1980,
23 through December 3rd, 1981, the period covered by the
24 quarterly reports to management.

25 MR. ELLIS: Well, I think that it would be

1 appropriate then -- I am not sure that that is the time
2 period that Mr. Higgins had in mind in light of his
3 earlier testimony.

4 BY JUDGE CARPENTER: (Resuming)

5 Q Did you understand, Mr. Higgins, that I was
6 referring to this period, from May 30, 1980, to December
7 3rd, 1981?

8 A (WITNESS HIGGINS) Yes, I did, Judge, and I
9 guess I feel that, yes, from the way you phrased your
10 question, they could have expended a greater effort.
11 They could have had a more effective program than they
12 did. I feel that the program that they did come up with
13 was adequate for the needs, but it could have been done
14 better, certainly.

15 Q In that time period, in the course of your
16 inspections, did you observe any damage to equipment
17 from failure to protect equipment?

18 A (WITNESS HIGGINS) I did not know.

19 Q So your response still conforms to your
20 testimony that you felt the program was effective, but
21 that it is your opinion that it could have been more
22 effective?

23 A (WITNESS HIGGINS) Yes, Judge.

24 A (WITNESS NARROW) Judge Carpenter, could I
25 perhaps add something else to this general question, and

1 not specifically to the period to which you were
2 referring?

3 Q Mr. Narrow, if you would wait just a few
4 minutes, I would like to stay focused on this, in the
5 context of the manager of the quality assurance
6 department reporting to upper level management quarter
7 after quarter after quarter that there was some problem
8 with respect to environmental protection in his opinion,
9 Mr. Higgins, is why I am trying to balance why
10 management either was inattentive to this or was unable
11 to devise the remedial action to their own satisfaction,
12 and that is not a question. I am just trying to give
13 you that background.

14 MR. ELLIS: Excuse me, Judge Carpenter. I am
15 reluctant to do this, but I really do think that that is
16 not a full characterization of Mr. Gerecke's testimony.
17 My recollection is that while he was highlighting these
18 matters to management, that it was in the scheme, in the
19 overall scheme of things. He wasn't saying these things
20 were an in an absolute vein significant, but rather that
21 they were -- on a relative scale, they were significant,
22 which is not a measure of the absolute significance of
23 them, but rather that in the overall scheme of things
24 this was what they were coming up with as significant,
25 and I think that is an important perspective factor that

1 Mr. Gerecke testified to.

2 JUDGE CARPENTER: Well, since I was just
3 testifying, it is tolerable for you to testify also, I
4 guess, but I was trying to explain the question I am
5 trying to resolve, which I had not formulated very
6 clearly in this series of questions.

7 BY JUDGE CARPENTER: (Resuming)

8 Q I think we have gotten thus far, Mr. Higgins,
9 that you felt a more effective program could have been
10 devised. Do you feel that a more effective program was
11 needed?

12 A (WITNESS HIGGINS) I guess to answer that
13 question I have to give you some personal opinions,
14 Judge, because it appears that that is what you are
15 looking for.

16 Q Well, in the professional QA sense.

17 A (WITNESS HIGGINS) Let me give it to you both
18 ways. Personally, I would have liked to have seen them
19 do more. I would have liked to have seen a more
20 effective job done, and have it done better. I think
21 what they did, however, was adequate and served the
22 needs from an equipment protection standpoint, and from
23 a regulatory and a QA standpoint. I think that what
24 they did was adequate.

25 I guess, to help you perhaps a little bit with

1 the understanding of what Mr. Gerecke was doing in the
2 quarterly reports, and I wasn't familiar with them at
3 the time, but it appears to me that from when the NRC
4 showed the concern with the equipment storage area in
5 late '79, early 1980, that was in turn reflected by a
6 heightened concern by LILCO within their own
7 organization, and therefore we do start to see that it
8 gets more attention and starts to appear in the
9 quarterly reports.

10 So, in my view, that is a good thing, in that
11 it is getting the management attention that we wanted it
12 to get, and they do continue to give it attention both
13 from a maintenance standpoint and a QC standpoint and a
14 QA standpoint.

15 Q So your reaction to the repetitive reference
16 to this area is more the sense that this indicates that
17 the QA manager was very conscious of this area.

18 A (WITNESS HIGGINS) That is the way I read them
19 now.

20 Q In contrast to his feeling that something more
21 needed to be done.

22 A (WITNESS HIGGINS) Well, perhaps something
23 more of a continuing nature needed to be done. That
24 really is the nature of these equipment storage and
25 housekeeping areas. It is something that needs

1 continuing attention.

2 Q Normally one would think of deficiencies
3 addressed with a proper program of remedial action. The
4 occurrence of those deficiencies would, if not decreased
5 to zero, become very, very small. Is it your testimony
6 that for this area of environmental protection of the
7 many, many pieces of equipment that are being installed
8 and worked on, that zero is not a reasonable goal?

9 A (WITNESS HIGGINS) That is correct, when you
10 consider two to 4,000 workers on site every day working
11 on those many thousands of pieces of equipment, yes.

12 JUDGE CARPENTER: I may want to come back to
13 this, Mr. Lanpher. I am going to have to think about
14 this. There are many judgmental aspects of this.

15 BY JUDGE MORRIS:

16 Q While we are on this subject, one of the
17 things that I have a problem with anyway is trying to
18 determine what was done in response to these quarterly
19 reports from Mr. Gerecke. They went to the operating
20 organization at a fairly high level. I guess most
21 recently to the vice president, nuclear. And we have
22 had testimony from operations people or construction
23 people but not at that level, so it is a little
24 difficult for us to determine, as Judge Carpenter
25 expressed it, what the attitude of management was in

1 response to these recurring reports from a quality
2 assurance manager, the manager of the quality assurance
3 department, that there was this area and this problem in
4 environmental protection, and from your on-site
5 activities, can you shed any light on that, Mr. Higgins?

6 A (WITNESS HIGGINS) No, Judge. I am sorry, I
7 can't.

8 JUDGE BRENNER: Mr. Lanpher?

9 CONTINUED CROSS EXAMINATION

10 BY MR. LANPHER: (Resuming)

11 Q Mr. Higgins, in response to one of the Board's
12 questions, you referred to the storage housekeeping
13 area. Is it fair to state that you view the storage and
14 housekeeping problems as really an inert related concern?

15 A (WITNESS HIGGINS) They are similar. There
16 certainly are differences, but in the area of both being
17 affected by the large areas involved and being affected
18 by the number of workers and a lot of the dirt producing
19 activities, they are similar.

20 Q In looking at 79-16, the citation relating to
21 cleanliness, the discrepancies were noted to be
22 accumulations of dust, dirt, and grease, trash, and
23 broken glass that affected a number of components,
24 including the entire battery room. It appears correct,
25 and I am looking at Attachment 2B to your testimony, the

1 bottom of Page 5 and the top of Page 6.

2 MR. ELLIS: Was that 2B or 2D?

3 MR. LANPHER: B.

4 WITNESS HIGGINS: I have that.

5 BY MR. LANPHER: (Resuming)

6 Q That is both a storage related problem and a
7 housekeeping problem, isn't it?

8 A (WITNESS HIGGINS) It was written up as a
9 storage problem with the dirt and debris on the
10 batteries themselves.

11 Q But it is similar to -- Isn't this similar to
12 the kind of housekeeping problems that are described in
13 the CAT inspection?

14 A (WITNESS HIGGINS) There is a similarity in
15 that the dirt producing activities probably come from
16 the same areas. This was not written up as a
17 housekeeping violation. It was an equipment storage
18 problem, with the actual -- well, that's all I have.

19 Q It is also similar to the housekeeping kinds
20 of problems that were described in 82-27, is it not,
21 which was previously marked for identification as
22 Suffolk County Exhibit 93?

23 A (WITNESS HIGGINS) With the same qualifiers
24 that I gave you.

25 Q So it is the same kind of activity that is

1 causing these problems, correct, the dust, dirt, and
2 debris?

3 A (WITNESS HIGGINS) I would agree with that.

4 Q In the CAT inspection where you had dirt and
5 debris in battery rooms and other places, that affects
6 installed equipment as well as affecting the entire
7 room, correct?

8 A (WITNESS HIGGINS) Could you ask that question
9 again, please.

10 Q Well, in the CAT inspection you cite it has a
11 housekeeping deficiency or violation. You describe dust
12 and dirt and debris. Isn't the concern that that dust,
13 dirt, and debris could affect installed equipment that
14 is there?

15 A (WITNESS HIGGINS) That is why we have
16 housekeeping regulations, yes.

17 JUDGE BRENNER: Excuse me a minute. Mr.
18 Higgins, I take it when you are looking at the
19 housekeeping area, and obviously as you have just
20 expressly stated, keeping in mind the possible
21 escalation of the problem to be adverse effect on the
22 environment of equipment, either installed or in
23 storage, do you distinguish, and you are affirmatively
24 confirming the obvious connection between those two
25 areas, do you distinguish between housekeeping findings

1 that relate to things like lunch, litter, and paper
2 bags, and that type of thing, and on the other hand
3 dust, dirt, debris, heavier construction type problems?

4 We have gone through a lot of findings that
5 talk about papers and litter and that type of thing, and
6 I don't know what to do with them, so I am seeking your
7 help in terms of their importance.

8 WITNESS HIGGINS: Yes, Judge, there certainly
9 is a difference, and I guess the underlying concern is
10 the same, that you don't want it eventually to get to
11 the point where it is going to cause equipment
12 degradation, and by having an overall control of
13 housekeeping, it is the sort of defense in depth concept
14 again that you lessen the chance and the probabilities
15 that things are going to work their way to where the
16 equipment is.

17 The way it is controlled on the site, I think
18 as I mentioned once earlier, is through two different
19 programs, two different unions, and so forth, and in
20 actuality for the equipment storage what they do is,
21 they go and they maintain each piece of equipment
22 individually with a storage history card. That is
23 documented. The various checks, maintenance checks and
24 cleanliness checks also, and when the people go to
25 inspect it also they would inspect it at the particular

1 piece of equipment to see that it is clean, it doesn't
2 have dust, dirt, debris, that type of thing in it, and
3 certainly if you have a lot of dirt and debris around
4 the general area, it is very easy to work to the
5 particular equipment, so they are connected.

6 But the way the utility structures its program
7 is different. The maintenance program goes directly to
8 the particular equipment and ensures that it is kept
9 clean and maintained properly, whereas the housekeeping
10 one is more of a general cleanup done by laborers.

11 I am not sure I answered your question.

12 JUDGE BRENNER: Well, I think you did, or at
13 least it helped me with some further insight.

14 Mr. Lanpher?

15 BY MR. LANPHER: (Resuming)

16 Q Gentlemen, turning to Page 16 of your
17 testimony, the bullets at the bottom of the page, you
18 talk about construction activity can disturb protective
19 coverings. Am I correct that it is your opinion that,
20 one, that activity does disturb those coverings, they
21 should promptly be put back in place?

22 A (WITNESS HIGGINS) Yes. When they are done
23 with the construction activity that is involved, for
24 example, if you are working with an electrical panel,
25 and you are going to be in and out of there all day, you

1 would leave it off during the day, and when the day is
2 done, then it should be covered up.

3 Q That really goes to the second bullet on that
4 page at the bottom of the page, correct, where
5 surveillance or preventive maintenance is going on and
6 requires the removal of protective covers, when you have
7 completed that work, you are supposed to put the cover
8 back, right?

9 A (WITNESS HIGGINS) Yes.

10 Q The third bullet at the bottom of that page is
11 equipment is gradually transferred from the warehouses
12 to installed locations. Even while it is in transit or
13 being transferred, it is supposed to be protected,
14 correct?

15 (Whereupon, the witnesses conferred.)

16 A (WITNESS HIGGINS) To a certain extent, yes.
17 There is some judgment involved there.

18 Q Well, there is judgment involved in all of
19 these areas, correct?

20 A (WITNESS HIGGINS) Yes.

21 Q Now, gentlemen, on Page 18 you talk about the
22 defense in depth concept. You agree, do you not, that
23 the test and other activities that you describe on Page
24 18 do not necessarily find all deficiencies that might
25 arise relating to proper storage?

1 A (WITNESS HIGGINS) I think in general they
2 would.

3 Q Well, will these tests, for instance, find
4 problems with aging if there had been improper storage?
5 Premature aging is what I have in mind.

6 (Whereupon, the witnesses conferred.)

7 A (WITNESS HIGGINS) I can't answer that
8 question.

9 MR. LANPHER: Judge Brenner, I am going to go
10 to another area at this time.

11 BY MR. LANPHER: (Resuming)

12 Q Gentlemen, I would like to direct some
13 questions to your testimony which begins at Page 19
14 relating to welding problems. You have testified that
15 welding was looked at in 38 inspections and two
16 investigations, correct?

17 A (WITNESS NARROW) That is correct.

18 Q And looking at your list of welding violations
19 on Pages 19 through 21, it appears on only one instance
20 that was Inspection Report 78-12, were two welding
21 violations reported during one inspection, correct?

22 A (WITNESS NARROW) That is correct, yes.

23 Q So would it be fair to state that in 15 of the
24 inspections or investigations you identified
25 violations?

1 A (WITNESS NARROW) I am sorry? I either missed
2 the question or didn't understand it.

3 Q Well, you have 16 violations, two of which
4 were identified during one inspection. Thus 15
5 inspections, and I include the two investigations they
6 are in, 15 of the inspections or investigations resulted
7 in violations being cited. Correct?

8 A (WITNESS NARROW) That is correct.

9 Q So over 35 percent of the time that you looked
10 at welding, that you conducted an inspection or
11 investigation into the welding area, you reported
12 violations?

13 A (WITNESS NARROW) That appears to be correct.

14 MR. ELLIS: That 35 percent, does that appear
15 anywhere, or is that some computation that Mr. Lanpher
16 has done?

17 JUDGE BRENNER: I guess he is asking him if 15
18 out of 38 is about 35 percent.

19 WITNESS NARROW: May I elaborate on that some,
20 Mr. Lanpher?

21 BY MR. LANPHER: (Resuming)

22 Q Certainly, Mr. Narrow.

23 JUDGE BRENNER: Well, let's see.

24 WITNESS NARROW: I am sorry.

25 JUDGE BRENNER: Does that answer your

1 question, Mr. Ellis?

2 MR. ELLIS: Yes, sir. I just wasn't sure
3 whether he was reading from something or whether that
4 was the figure.

5 JUDGE BRENNER: I think he asked the witness
6 that question and got the affirmative answer.

7 All right. Go ahead, Mr. Narrow.

8 WITNESS NARROW: In the 38 inspections and two
9 investigations, approximately 40 times during which we
10 looked at welding, we found, as you say, 16 violations
11 during 15 inspections. However, while that is correct,
12 during those inspections and investigations, we looked
13 at a large number of welds. For instance, during one of
14 these investigations, I believe we looked at all of the
15 welding in this case that happened to be a problem with
16 weld rod material, and we looked at all of the weld rod
17 material issues of that type on site up until that date
18 in order to determine whether there had been a problem
19 in the issue of this type of material.

20 BY MR. LANPHER: (Resuming)

21 Q Mr. Narrow, could you identify which
22 inspection you are referring to?

23 A (WITNESS NARROW) Yes.

24 Q Thank you.

25 A (WITNESS NARROW) That was during 79-24, and

1 it was during an investigation that concerned a
2 requisition for -- well, it was a type 309 material, and
3 the allegation was that type 308 material had been
4 requisitioned or had been issued where the requisition
5 required type 309 material, and in order to determine
6 this, we went through the records of their issue as well
7 as the welding records, and determined that at one time
8 since the start of construction, they had improperly
9 used -- they had used 308 material when 309 was
10 specified.

11 Thereupon, we turned it back to -- we cited
12 them for a violation, and we requested that the licensee
13 investigate all records for the issue of this type of
14 material, and I believe they found one additional issue
15 of the wrong type of material. Now, if you look at the
16 amount of material that is issued, and I don't know the
17 exact number of times that they had issued or
18 requisitioned type 309 material, you find that on two
19 occasions they had issued type 308 for one reason or
20 another, and the reason apparently was that the type of
21 material had similar numbers, and therefore they had
22 issued on those two occasions type 308. This is not a
23 very large percentage.

24 Now, admittedly, in this case we looked at a
25 larger sample than we normally do. However, during each

1 of the inspections, the inspector would look at a
2 relatively large number of welds, and perhaps, depending
3 somewhat on the number of things that he looked at, the
4 number of aspects of the weld he looked at, so he might
5 look at a half a dozen welds, and this might include
6 looking at cleanliness, looking at weld preparation,
7 looking at weld cleanup, looking at operation of the
8 welding equipment, looking at the non-destructive
9 examination, observing the welding in progress, making a
10 visual inspection perhaps of the weld at various stages,
11 and finally of the final stage of the weld, so that for
12 each weld you looked at there may have been as much as
13 ten or twelve varying operations that he might have
14 looked at.

15 While I don't know the number of welds he
16 would have looked at in an inspection, and this could
17 vary, it could vary from three or four to perhaps ten or
18 fifteen during an inspection.

19 Q Mr. Narrow, your point is that when we talk
20 about a violation in the welding area, out of the 40
21 looks that you reference in your testimony, each of
22 those looks involved looking at multiple attributes,
23 correct?

24 A (WITNESS NARROW) Correct. And I wouldn't
25 refer to them as looks. I would refer to them as an

1 inspection, and the inspection could look at, as you
2 say, multiple attributes. It could also look at records
3 as well as the welding in progress.

4 (Whereupon, the witnesses conferred.)

5 Q Now, gentlemen, at Page 23 of your testimony,
6 numbered paragraph number 1, you talk about the period
7 of almost eight years when welding was actively in
8 progress at the site. Now, what eight years are you
9 referring to?

10 A (WITNESS NARROW) That would have been 1974 to
11 1981.

12 Q All right. Gentlemen, from your previous
13 list, starting on Page 19, you identified one violation
14 in 1975. How many inspections or investigations on
15 welding were carried out in 1975?

16 A (WITNESS NARROW) In 1975, we conducted five
17 inspections of welding.

18 Q How many in 1974, Mr. Narrow?

19 A (WITNESS NARROW) Three.

20 Q It sounds as if you may have a list there.
21 Could you go right on down, '76 through '81?

22 A (WITNESS NARROW) I will be happy to, and I
23 must say before reading the list that on the two years I
24 have two different numbers. I am not sure which is the
25 correct one. This list was prepared in May. In 1976

1 there were six inspections. In 1977, there were either
2 eight or nine. In 1978 there were either ten or eight.
3 In 1979 there were five or six. In 1980 there were
4 two. In 1981, I have no inspections listed. However,
5 in addition to these, and I believe we mentioned this
6 earlier, approximately 20 percent of the inspectors'
7 time is spent on non-specific inspections, and during
8 all of these inspections, and particularly when a
9 specialist in the welding area was inspecting on-site
10 during his site tour, he would obviously observe the
11 condition of welding in progress or of welds which for
12 one reason or another took his attention.

13

14

15

16

17

18

19

20

21

22

23

24

25

1 If he observed no problem with the welding
2 activities which he looked at, this would not be
3 mentioned in the report. Now, if he did find some
4 problem during this tour of the site, it would show up
5 in the report. And I know there was one at least --
6 excuse me.

7 (Panel of witnesses conferring.)

8 A (WITNESS NARROW:) Actually, there were two,
9 from my recollection, which were identified during the
10 site tour. One was number four, the contour of a
11 transition weld between components of unequal diameter,
12 and the other was number 13, thermal cutting of RHR heat
13 exchanger pressure caps.

14 Now, that is based upon my memory of these
15 events. I would have to go back to the inspection
16 record to determine whether it's actually correct.

17 In addition to this welding program, we have a
18 van which performs non-destructive examinations
19 independently of the licensee's work, as a check on the
20 thoroughness and correctness of the licensee's
21 non-destructive examinations. And that van performed an
22 inspection of Shoreham recently, inspection 82-19. That
23 was performed in July and August of 1982 and is not
24 discussed in our testimony.

25 Q Gentlemen, would you agree that there was a

1 sharp increase in the number of violations,
2 welding-related violations that is, between 1977 and
3 1978? In fact, from two in 1977 to an identification of
4 seven, I believe, in 1978?

5 A (WITNESS NARROW) As we said in our testimony,
6 there was an increase in the number of welding
7 violations since early 1978, and that continued into
8 July 1979, or into 1979.

9 Q Now in July 1979, you asked -- I&E asked LILCO
10 to review its welding activities; correct?

11 A (WITNESS NARROW) That is correct.

12 Q And that was in light of the increase in
13 violations which you had noted?

14 A (WITNESS NARROW) The inspector at that time
15 felt that in view of the increase in number of
16 violations, he wanted some additional information. He
17 did not feel it was of enough significance to warrant
18 calling a management meeting; however, he felt he did
19 want to have additional information to determine just
20 what the cause of the problem was and if it was of such
21 significance that further management action would be
22 required.

23 Q Why did I&E wait until July 1979 to ask for
24 this additional information? Hadn't he known earlier,
25 considerably earlier, of a sudden increase in the

1 welding violations?

2 (Panel of witnesses conferring.)

3 A (WITNESS NARROW) I am not speaking from
4 personal knowledge at this time, but I did discuss it
5 with the people involved. It was not a sudden increase;
6 it was an increase in the number of welding violations.
7 And he felt in reviewing the results of our inspections,
8 he felt that this increase warranted some additional
9 information.

10 Now, if it had been a sudden increase perhaps
11 it would have been done earlier, but at this point in
12 time he was also reviewing records and doing some review
13 on his own, and decided that he wanted a complete review
14 of the licensee's welding records to be performed.

15 Q Mr. Narrow, you said this wasn't a sudden
16 increase. You testified that there were either eight or
17 nine inspections or investigations by I&E in 1977, and
18 that, by my calculation, resulted in two violations.
19 Correct? In 1977?

20 A (WITNESS NARROW) The eight or nine is
21 correct. The number of violations I will have to check.

22 (Pause.)

23 That is correct.

24 Q But in eight to ten inspections in 1978, you
25 identified more than a threefold increase in the number

1 of violations. You went from two in 1977 to seven in
2 1978; correct?

3 A (WITNESS NARROW) In the first place, although
4 the percentage might be large, the number of violations
5 was not that large. And in addition, these were
6 reported -- you're taking a period of one year -- these
7 were reported from inspection 78-02 through inspection
8 78-16, which would have been probably through nine
9 months or so.

10 Q So the seven violations -- well first of all,
11 can you confirm in 1978 there were seven violations?

12 A (WITNESS NARROW) Yes, sir, there were.

13 Q But it is your testimony that those seven
14 violations were identified during a nine-month period?
15 Is that correct?

16 A (WITNESS NARROW) Well, I will have to check
17 the dates on the inspection report.

18 Q Well, I thought that was your earlier
19 testimony.

20 A (WITNESS NARROW) I said that was probably
21 during a period of eight or nine months, but I would
22 have to check the inspection to determine what the
23 actual date was. 78-16, the last violation, was
24 identified during October 24 to 27 of 1978, and 78-02
25 was conducted during February 15 to 17 of 1978. So

1 apparently, that nine months was not too bad.

2 Q You don't consider that a sudden increase in
3 the number of violations?

4 A (WITNESS NARROW) No, sir, I don't consider
5 that a sudden increase. I consider that an increase --
6 I consider it a gradual increase, but it certainly is
7 not a sharp jump in the number of violations.

8 Q What would be a sharp jump? This was two the
9 previous year and seven in nine months of the next
10 year. What magnitude would it take to be a sharp or a
11 sudden jump?

12 A (WITNESS NARROW) I don't think I can give you
13 a magic number, Mr. Lanpher, that would say this is
14 sudden. I think it is a matter of judgment. If we
15 begin to find two or three violations during, say, two
16 or three successive inspections, yes, I would consider
17 that sudden. If we find one during an inspection, say,
18 in one case, two during an inspection and the next time
19 one, I don't think that is a sudden increase.

20 Q Mr. Narrow, you indicated that the I&E
21 personnel involved in this around July 1979 asked LILCO
22 to take a further look at the welding area to answer
23 questions I&E had. Do you know why? You then indicate
24 that LILCO replied to this request for information in
25 May 1980; is that correct? And I'm referring to the

1 bottom of page 22 of your testimony.

2 (Panel of witnesses conferring.)

3 A (WITNESS NARROW) Mr. Lanpher, I don't have the
4 exact words the way you phrased it. However, we felt
5 that there was a problem. We had looked into it -- the
6 people at that time had looked into it and in their mind
7 there was a problem. And they therefore asked the
8 licensee to review all of his QC and audit records.
9 They did not ask him to take a look at it to see what he
10 thought. They asked him to review all of his records
11 and determine whether they were identifying problems as
12 well and whether the problems were coming through to us
13 and we were unaware of it, and to report back to us.

14 Now, they informed us and I am not clear on
15 the date, but I was back on that site in August of 79.
16 At that time, they said they expected to be ready to
17 report to us within the next inspection. During the
18 turnover inspection when I replaced the other inspector
19 they said they expected to be ready within some short
20 period of time.

21 On thinking back, I believe that was a
22 mis-statement. I believe they had informed the
23 inspector previously that they were about ready to make
24 this presentation; if he would set up the date, they
25 would make the presentation. At the time he turned it

1 over, he said he had attempted to set up a meeting with
2 management personnel in our office, and they had agreed
3 to come and make that presentation. But he had not yet
4 established that.

5 Following that, we agreed that it was not
6 necessary to have a management meeting. We would prefer
7 to meet with them onsite and it would be more convenient
8 to look at additional records during this additional
9 discussion if it became necessary, and therefore, we
10 began making arrangements to meet with them onsite.

11 Following this conclusion that we would meet
12 onsite, I attempted to set up a meeting onsite. Now in
13 the interim, we had been informed of their conclusion of
14 their review, and for one reason or another and the fact
15 that their review appeared to coincide with my opinion
16 of what had happened, I did not press this very
17 strongly, and it was not until May that I was able to
18 have management come out and meet with them to have them
19 present their findings and to review those findings.

20 Q So LILCO was prepared to meet at an earlier
21 date but the meeting just couldn't be pulled off until
22 May 1980?

23 A (WITNESS NARROW) That is correct.

24 Q Gentlemen, at page 23 of your pre-filed
25 testimony you indicate the number of violations up to

1 mid-1979 increased in rough parallel to the number of
2 welders onsite or the amount of welding going on. Is
3 that a fair characterization of your testimony?

4 A (WITNESS NARROW) Would you repeat that, please?

5 Q Well, reading your testimony at page 23, is it
6 a fair characterization of your testimony to state that
7 you believed that the number of welding-related
8 violations up to mid-1979 increased in rough parallel to
9 the amount of welding that was going on, or the number
10 of welders present onsite?

11 A (WITNESS NARROW) Well, the conclusion was that
12 it increased through 1978, and then levelled off in 1979.

13 Q But the increase was in rough parallel to the
14 amount of welding going on, is that correct?

15 A (WITNESS NARROW) That is correct.

16 Q Would you agree that LILCO could have foreseen
17 in 1977 that there would be an increase in the amount of
18 welding?

19 A (WITNESS NARROW) I believe they could, yes.

20 Q Wouldn't you expect LILCO to put on extra QC
21 personnel and to conduct extra training to avoid an
22 increase in the amount of welding-related problems?

23 A (WITNESS NARROW) I question whether they could
24 have avoided an increase in the amount of welding
25 problems. They possibly could have reduced it somewhat

1 by additional training, although starting or bringing a
2 large number of people onsite, some of whom I'm sure had
3 not previously welded under these stringent conditions
4 or under their own specifications, probably very few had
5 welded under the Stone & Webster specifications. I
6 think you could anticipate an increase in the number of
7 violations, and yes, additional training may have
8 reduced it somewhat.

9 I think that it is similar to any other
10 learning curve. Regardless of what you do, you are
11 going to have a learning curve in starting up a new
12 process or a new program.

13 Q When you say starting up a new program, you
14 testified that welding went on for eight years at the
15 site, beginning in 1974, correct?

16 A (WITNESS NARROW) It had, and then it had
17 dropped off and they may have changed supervision. And
18 I believe in reading the transcript that this was
19 discussed in the earlier discussion. But I do not have
20 the information on exactly what the drop-off was, but I
21 know that for a while they had done very little welding.

22 I think at one time there was a strike on the
23 site and I don't know what effect that had, and I don't
24 know the exact date. If you would like this type of
25 data, I would be happy to go back to whatever records I

1 could find and obtain it. But I can say that there had
2 been a fairly rapid increase in the number of welders
3 and the amount of welding performed starting in 1977.

4 Q Well, would you agree that the learning curve
5 -- that was the term you used, and I think I understand
6 that -- that the learning curve did not become evident
7 until 1979?

8 (Panel of witnesses conferring.)

9 A (WITNESS NARROW) Would you repeat the
10 question, please?

11 Q You, in an earlier answer, referred to a
12 learning curve. What did you mean by that, Mr. Narrow?

13 A (WITNESS NARROW) Well, I meant that in
14 starting any new employees on a process, there was a
15 period of time in which they are not as efficient as
16 they become after they have been working under the
17 conditions and on the work which they are performing.

18 Q And, Mr. Narrow, when did these new employees
19 that you referred to in the welding area come onto the
20 job? Was that sometime in 1977?

21 A (WITNESS NARROW) Well, they increased late in
22 1977.

23 Q And when did the necessary training or
24 learning curve take place such that a decrease in the
25 number of violations appeared?

1 A (WITNESS NARROW) Well, I think you have to
2 combine that -- there was an increase. I don't recall
3 the rate of increase. In addition to the learning curve
4 there was an increase in the amount of welding
5 performed, so that you had a combination of the welders
6 in the learning curve as long as they were increasing
7 the number of welders. And that happened all through
8 1978, according to the curve which they presented to
9 us. There would be additional new welders coming on and
10 going through this learning curve.

11 There also would be an increase in the number
12 of welders and the amount of welding, and, therefore,
13 presuming you're going to have a certain amount of
14 non-conforming welding, it would basically, after
15 disregarding the learning curve it would be
16 proportionate to the amount of welding being performed.
17 So you had really two items affecting the number of
18 violations being identified.

19 Q Those two items being the amount of welding
20 and the relative experience of the welders?

21 A (WITNESS NARROW) Correct.

22 Q I believe it was your earlier testimony that
23 one of those factors could have been addressed; that is,
24 the experience of the welders, with additional
25 training. Is that correct?

1 A (WITNESS NARROW) No, I wouldn't agree with
2 that. I would say that additional training might have
3 improved the speed with which they went through the
4 learning curve, but I do not believe that it would have
5 been addressed solely by additional training.

6 Q I didn't say solely, but additional training
7 would have affected the experience issue and sped up the
8 learning curve; correct?

9 A (WITNESS NARROW) It would have affected the
10 slope of the learning curve, if you will.

11 A (WITNESS GALLO) Could we take a break?

12 JUDGE BRENNER: Yes. I was hoping to finish
13 welding, but you came close. I think you might finish,
14 today, incidentally. Maybe I'm overly optimistic, but
15 looking at what is left you have gone a little faster
16 than I thought you would.

17 MR. LANPHER: I think you may be overly
18 optimistic. I think my prediction of yesterday, that I
19 will certainly finish on Monday, is right. And maybe
20 early on Monday.

21 JUDGE BRENNER: The earlier the better on
22 Monday, given the rest of the week.

23 Let's take a 15-minute break and come back at
24 10:20.

25 (A short recess was taken.)

1 JUDGE BRENNER: Let's go back on the record.
2 Having discussed many important things off the record,
3 we are now prepared to go back and resume the
4 questioning.

5 I guess I should state for the record that was
6 sarcastic and what we were discussing were unimportant
7 things. But go ahead.

8 MR. LANPHER: Judge Brenner, during the break
9 Mr. Bordenick provided me with a copy of the resolution
10 of two of the items which have been referred to NRR
11 relating to the CAT inspection, and I just want to state
12 that I am going to -- even if I am able to finish other
13 items today, -- and I do intend to get into some aspects
14 of the CAT inspection -- these areas for the resolutions
15 are just coming in and I am going to have to defer my
16 examination until I can consult with some people.

17 JUDGE BRENNER: That is understandable and
18 consistent with our prediction.

19 MR. LANPHER: So I'm sure by early next week I
20 can be ready. I don't even know if I'm going to have
21 questions on them.

22 JUDGE BRENNER: I understand that, and you're
23 entitled to take a look at it and let us know what the
24 situation is on Monday.

25 MR. LANPHER: I will do so. My understanding

1 is that the third item we may get at 3:00 o'clock this
2 afternoon or something.

3 MR. BORDENICK: As I think I mentioned
4 yesterday, the third item was resolved at a meeting
5 yesterday afternoon, and the write-up is in process. It
6 is possible that it will be over here as early as by
7 3:00 o'clock this afternoon. If not by then, certainly
8 Monday morning.

9 JUDGE BRENNER: It is our strong suggestion
10 that if at all possible -- and I'm not talking about
11 practical; the word is possible -- that Mr. Lanpher and
12 preferably the other parties but at a minimum, Mr.
13 Lanpher get a copy of that, even if it is late today or
14 tomorrow. There is a difference between that and
15 Monday. That is our strong suggestion.

16 MR. BORDENICK: I have made the same
17 suggestion, Judge Brenner, and I have my usual
18 problems. I've told people it needs to be done, and the
19 task of getting it done is their responsibility.

20 MR. LANPHER: Thank you, Judge Brenner,
21 because I would like to put this in Federal Express,
22 this and the other one if possible, for a Saturday
23 delivery. So it would be immensely helpful.

24 JUDGE BRENNER: Yes, and it could redound to
25 the advantage of the staff because if -- and this is a

1 big if -- other people are needed, it would presumably
2 be to their advantage to be needed while we are in
3 Bethesda, as opposed to some weeks from now in Long
4 Island. And that is my last message on this subject,
5 for now.

6 MR. BORDENICK: Judge Brenner, in that light,
7 could I have maybe 10 seconds to talk to Suffolk
8 County? I wanted Mr. Cook to contact him --

9 JUDGE BRENNER: Let's go off the record.
10 (Discussion off the record.)

11 JUDGE BRENNER: Let's go back on the record
12 now.

13 BY MR. LANPHER (Resuming):

14 Q Gentlemen, turning your attention to page 24
15 of your pre-filed testimony, still on the welding
16 matter, up at the top of the page you state that it was
17 your conclusion as of the time you prepared this
18 testimony that no unacceptable welds exist at Shoreham.

19 Gentlemen, isn't that a bit of an
20 overstatement? Don't you really mean that you don't
21 know of any?

22 A (WITNESS NARROW) Well, it is true we don't
23 know of any, and it is our conclusion that no
24 unacceptable welds exist. If we concluded that there
25 were, we would certainly require some additional action

1 to determine whether there actually are or are not any
2 unacceptable welds.

3 Q You haven't looked at all of the welds at
4 Shoreham?

5 A (WITNESS NARROW) No, sir.

6 Q Now, gentlemen, going back a couple of pages
7 now to your listing of weld-related problems, -- well,
8 you state at page 22 that items 9 and 10 were similar
9 violations which were identified in August and September
10 1978. Am I correct that in each instance, the procedure
11 was not pre-qualified?

12 A (WITNESS NARROW) Could I take a minute to look
13 at that?

14 Q Sure.

15 (Pause.)

16 A (WITNESS NARROW) I wouldn't say that the
17 procedure was not qualified. They had a qualified
18 procedure. However, the qualified procedure had been
19 qualified for conditions different than the ones to
20 which they were welding.

21 Q So they did not have a qualified procedure for
22 -- well, in 78-12, they did not have a qualified
23 procedure for the 30 degree welding; correct?

24 A (WITNESS NARROW) In that case, they were using
25 -- this is under AWS welding, and they were using a

1 pre-qualified procedure which is a code pre-qualified
2 procedure that is limited to weld joint angle of 45
3 degrees. They were actually welding on a 30 degree
4 angle.

5 Q And in item 10, which is 78-15, am I correct
6 that the weld procedure there was not pre-qualified?

7 MR. ELLIS: What was the number?

8 BY MR. LANPHER (Resuming):

9 Q That is item 10 on page 20 of the testimony.

10 A (WITNESS NARROW) In this case, it was not a
11 pre-qualified procedure. It was a procedure which they
12 had qualified onsite, but it was not a code
13 pre-qualified procedure. And it appeared from reading
14 this report that it was somewhat more complicated. The
15 weld in progress was a 54 degree skewed T-joint, and the
16 drawing didn't specify which weld procedure was
17 applicable. And when asked, the welder stated to the
18 inspector that the procedure to be used was determined
19 by the foreman and was documented on the filler material
20 withdrawal slip, and the weld technique sheet which was
21 number W70G showed applicability to skewed joints of 60
22 to 90 degrees with a plus 10 and minus 0 angular
23 tolerance.

24 And since the procedure was not applicable to
25 the 54 degree joint and actually, there was a second

1 joint there that was a 45 degree joint, this was
2 considered a violation.

3 Q Mr. Narrow, it's fair to state that both items
4 9 and 10 on page 20 involved a combination of
5 circumstances that led to the violation; correct? For
6 instance, it was not that there was just a pre-qualified
7 procedure.

8 A (WITNESS NARROW) No, it was not quite that
9 simple. I was trying to understand what the combination
10 of circumstances indicated. No, it was not merely a
11 pre-qualified procedure.

12 Q But in each instance, activities were taking
13 place without the pre-qualified procedure for the work
14 that was being done?

15 A (WITNESS NARROW) Well, in each instance they
16 were performing the work and did not have a qualified
17 procedure; in one case pre-qualified and in the other
18 case a qualified procedure, available to the welder.

19 Q Okay, thank you for that clarification.

20 I would like you to turn your attention to
21 item 13 on page 20, which is from Inspection Report
22 79-04. Do you have that inspection report available,
23 sir?

24 A (WITNESS NARROW) Yes, I have it.

25 Q And your description is that thermal cutting

1 of PHR heat exchanger pressure caps or nozzles without
2 preheat. Isn't it true, sir, that this violation also
3 included these actions being performed without a
4 qualified and approved procedure, or without qualified,
5 approved procedures, plural? And I direct your
6 attention to the last paragraph of the Notice of
7 Violation.

8 A (WITNESS NARROW) Mr. Lanphe, in this case,
9 they were performing the work without procedures under
10 the direction of their supervisor. And they had no
11 procedures, and they didn't think they needed any
12 procedures in order to perform this work. Or that is
13 the obvious impression which one gets.

14 And incidentally, I would like to correct
15 something I said earlier. This item is not one that was
16 observed during the walk-through inspection. I thought
17 that it was.

18 Q Thank you. So to clarify, here not only were
19 the procedures not qualified or approved; there were no
20 procedures being used for the particular activity. So
21 it's clear -- I'm referring to item 79-04.

22 A (WITNESS NARROW) That is correct. They were
23 not following a procedure and they didn't think that a
24 procedure was required. Incorrectly, as it turned out.

25 A (WITNESS GALLO) In the other two instances,

1 Mr. Lanpher, to aid, there were procedures available,
2 but there is a welding procedure required in general
3 anyway -- pre-qualification of procedure. Thermal
4 cutting procedures, as far as I know, do not require
5 pre-qualification. They did not have a procedure for
6 their cutting activity.

7 A (WITNESS NARROW) I believe that the problem
8 here really was that they just were not following the
9 code requirement. This was a temporary attachment, and
10 apparently, the workers or the foreman considered that
11 they didn't have to have a procedure of any type in
12 order to remove a temporary attachment; whereas, it
13 turns out the code requires that they do, or they should
14 have had a procedure addressed to this particular type
15 of attachment for its removal.

16 Q Gentlemen, if we could go back now to item 3
17 in your list of welding problems, 77-01, and, Judge
18 Brenner, I do have copies of 77-01, and Mr. Cook will
19 hand them out. And I guess, to be consistent, Judge
20 Brenner, since I'm handing it out, I should have it
21 marked for identification.

22 JUDGE BRENNER: There are so many different
23 ways you have done things, you'll be consistent no
24 matter what you do. It would be consistent with what
25 you just said, but inconsistent with the treatment of

1 BY MR. LANPHER: (Resuming)

2 Q Gentlemen, my question is, would you agree
3 that this violation involved the use or the improper use
4 of a not qualified or unqualified weld procedure?

5 A (WITNESS NARROW) No, sir. In this case, they
6 had, the engineering officer had issued to him a
7 procedure which was an incorrect procedure for the work
8 they were doing, it is true, but nevertheless, they had
9 been informed, and this had been issued in order to
10 perform the specific work which they were in the process
11 of performing, and therefore, although it relates to
12 procedure, it is not really the welding or QC
13 organizations which was responsible for this error.

14 Engineering had issued it to them, and they
15 had every reason to expect that it was the correct
16 procedure.

17 Q In fact, it was not the correct procedure?

18 A (WITNESS NARROW) That is true.

19 Q And it had not been qualified, correct? And I
20 am looking at the middle of the notice of violation,
21 where it says, on or about August 31, your engineering
22 field extension office reviewed, approved, and issued a
23 repair welding procedure, and then they give the title,
24 which was not qualified as issued to the applicable code
25 and specification. Do you see that portion of the

1 notice of violation, sir?

2 A (WITNESS NARROW) Yes, sir, I do. I am trying
3 to get some additional information concerning this.

4 (Pause.)

5 A (WITNESS NARROW) That is correct. The
6 procedure issued to them was not qualified. However, as
7 I said before, in our review to determine whether these
8 were similar type errors, now, every weld or practically
9 every weld is performed to a procedure, and therefore if
10 there is a violation, it frequently might be a violation
11 of the procedure, but in this case, the problem was that
12 engineering had issued this procedure, and it was not
13 the proper procedure. In the other cases, the proper
14 procedures were available, and QA should have known that
15 they had not issued the correct procedures, and they
16 were using the wrong procedures, so it was the
17 responsibility of a different organization.

18 Q Just so I understand which organization was at
19 fault in this instance, was it the site engineering
20 office?

21 A (WITNESS NARROW) In this instance, it was the
22 site engineering office.

23 Q But it is similar to items 9 and 10 in your
24 list and item 13 in your list, is it not, to the extent
25 that involved the use of an unqualified procedure?

1 A (WITNESS NARROW) To that extent, it is
2 similar. However -- I'm sorry. Would you repeat the
3 numbers?

4 Q Nine, 10, and 13, sir.

5 A (WITNESS NARROW) Well, in all cases they are
6 concerned with procedures. Perhaps I haven't made the
7 distinction clear. In 9 and 10, they used the procedure
8 which was not qualified for the work, and QA should have
9 known this. The welding supervisor should have been
10 aware that this was the incorrect procedure, but
11 nevertheless, they used it, and it was a violation to
12 that extent.

13 In the case we are speaking of now --

14 Q Mr. Narrow, could I interrupt you for just a
15 minute? You said in each case that --

16 A (WITNESS NARROW) In those two cases.

17 Q You mean 9 and 10?

18 A (WITNESS NARROW) Nine and 10.

19 Q Thank you.

20 A (WITNESS NARROW) And the one we are
21 discussing here I think was item 3. Item 3, they were
22 issued a procedure by a field engineering office which
23 ostensibly was the correct procedure. It was an
24 engineering error. So the responsibility for it was in
25 a different direction. In the thermal cutting, there

1 was no procedure required. There was no qualified
2 procedure required. They should have a procedure for
3 doing any work, but there is not a case of having a weld
4 procedure.

5 Q When you are talking about thermal cutting,
6 you are back to 79-04 again, correct?

7 A (WITNESS NARROW) Correct.

8 Q Well, the auditor or the I&E inspector
9 referred to the lack of a qualified and approved
10 procedure. Was that incorrect on his part?

11 A (WITNESS GALLO) Where are you reading that
12 from, Mr. Lanpher?

13 Q The last paragraph in the notice of violation
14 in 79-04.

15 A (WITNESS NARROW) The details of that
16 inspection report concerning that violation says,
17 documentation was not available during this inspection
18 to verify that removal operations and post-removal
19 examinations were performed in accordance with
20 applicable code requirements, and then it goes on to say
21 certain paragraph of the ASME code establishes certain
22 requirements relative to temporary attachment welds and
23 their removals, and this was at that time written as an
24 unresolved item, but it is an explanation of the reason,
25 the basic reason for that finding. It was later

1 converted to the non-compliance, and I do not have the
2 information concerning the reason that it was not
3 identified as a non-compliance initially and then
4 converted.

5 A (WITNESS HIGGINS) Mr. Lanpher, yesterday when
6 we were talking about some unresolved items and
7 information being needed, I think this provides one
8 example that I didn't have readily available yesterday
9 as to how we might when we don't have enough information
10 at a given time write something up that maybe appears to
11 be a violation as an unresolved item, and then when
12 additional information becomes available, it could go
13 either way, depending upon what that additional
14 information is. In this case it became a violation. In
15 other cases, it may become resolved.

16 Q Mr. Narrow --

17 A (WITNESS NARROW) Excuse me. Could I add some
18 additional information? I was reading on into this, and
19 apparently the --

20 Q Could you identify what page or pages you are
21 reading from, and from what?

22 A (WITNESS NARROW) This is Page 5 of Inspection
23 Report 79-04.

24 MR. ELLIS: Was that Page 9 or 5?

25 WITNESS NARROW: Five.

1 MR. ELLIS: Thank you.

2 WITNESS NARROW: And at the top, in the
3 opening paragraph of that page, on Line 5, it discusses
4 the preheat requirements of the code, and the problem
5 with performance of this cutting was that they performed
6 no preheat prior to doing the cutting. And so really it
7 was not, although it was called a procedure, it was not
8 a procedure, and I think in this case we are somewhat
9 confused because of the fact that we use the word
10 "procedure" to cover any type of an organized method of
11 performing work as when we talk about QA procedures and
12 work procedures throughout this thing, whereas when we
13 are talking of a weld procedure qualification with
14 reference to a weld, we are talking of either a specific
15 document which qualifies that particular weld for the
16 type of service it will have, or in some cases where it
17 is pre-qualified the requirement that the code
18 establishes performance of that particular type of
19 weld.

20 BY MR. LANPHER: (Resuming)

21 Q So your testimony, Mr. Narrow, I just want to
22 understand it, is that the Appendix A notice of
23 violation in 79-04, where it talks about the lack of
24 qualified and approved procedures, well, let me read
25 that paragraph, since some people don't have it, and

1 then we can get it clarified once and for all, I think.

2 It says, "Contrary to the above," and that
3 talks about specifications, "in October, 1976, the
4 Courter and Company crafts under direction of Stone and
5 Webster performed thermal cutting of attachment welds to
6 remove pressure caps from nozzles N3 and N4 of residual
7 heat removal heat exchangers," and then the numbers are
8 given, "without qualified and approved procedures, and
9 apparently without performing preheat required by the
10 applicable specifications."

11 Now, Mr. Narrow, I thought there was a double
12 problem here that the notice of violation clearly
13 highlights the preheat problem which you were just
14 describing from Page 5 for the details, but I thought
15 that the auditor or inspector thought that there was
16 also supposed to be a procedure for how to do the
17 preheat which was also lacking. Are you telling me that
18 that is not the case?

19 A (WITNESS NARROW) Well, it is my reading of
20 this that the inspector was referring to a procedure for
21 performance of the work, and it was not for a qualified
22 weld procedure, and while you could refer to preheat
23 requirements as a preheat procedure, generally the
24 preheat requirements are established by the code, and in
25 the specifications, so it is my reading of this that we

1 are talking of a normal work procedure, whereas in the
2 other case we are talking of a qualified weld
3 procedure.

4 Q Are you relying on any knowledge other than
5 what you have read from this report, any personal
6 knowledge on what the inspector thought in this case?

7 A (WITNESS NARROW) I am referring to what I
8 read here plus my understanding of the welding
9 generally.

10 Q Okay. Mr. Narrow --

11 A (WITNESS GALLO) Could you wait a second?
12 (Whereupon, the witnesses conferred.)

13 A (WITNESS GALLO) Mr. Lanpher, as far as I can
14 read this, from what I can tell from the notice of
15 violation, from the details, the inspector was quoting
16 the words "qualified and approved procedures" from the
17 FSAR commitment that was made in the FSAR, and as far as
18 I know, they did not cite that as a requirement of the
19 ASME code, to have a qualified thermal cutting
20 procedure.

21 It does appear to me that there were two
22 problems, I guess you would call it. If there was no
23 procedure, there were two aspects that he was concerned
24 with. There were no records for the preheat, which was
25 apparently required, as I read it, by the ASME code, and

1 there was no procedure to perform the thermal cutting.
2 That could have been -- both those aspects could have
3 been covered in one procedure. The words "qualified and
4 approved" appear to come out of the FSAR commitment,
5 whereas in the other items, 9 and 10, it was my
6 understanding that the ASME code or the AWS code, if
7 that was the case, requires a qualified procedure.

8 Q Gentlemen, I have just one other question on
9 77-01, which we were talking about. That is Suffolk
10 County Exhibit 107. You indicated, I believe, Mr.
11 Narrow, that you felt this was a problem with the site
12 engineering office in this instance. Well, shouldn't
13 the quality assurance organization have found this
14 problem?

15 A (WITNESS NARROW) I wouldn't believe so. When
16 the site engineering office issues a weld procedure, I
17 would not expect the quality organization to go back and
18 review that procedure and determine, yes, this fits our
19 work. Apparently it was issued specifically for this
20 work, as I read this.

21 Q And is it your testimony that there is no
22 quality assurance applied to this kind of procedural
23 issuance?

24 (Whereupon, the witnesses conferred.)

25 MR. ELLIS: May I have that last question read

1 back, please?

2 MR. LANPHER: Let me repeat it for you.

3 BY MR. LANPHER: (Resuming)

4 Q Is it your testimony then, Mr. Narrow, that
5 there is no quality assurance applied in connection with
6 the issuance of the kind of procedure described in
7 Suffolk County Exhibit 107?

8 (Whereupon, the witnesses conferred.)

9 A (WITNESS NARROW) I am sorry about the time we
10 have been discussing this, but it is not a very simple
11 situation. Apparently they were working to a weld
12 repair procedure, RP38.

13 Q Who is they?

14 A (WITNESS NARROW) The people doing the work,
15 which happened to be a subcontractor. Reactor Controls
16 were performing this work to a weld repair procedure,
17 and this procedure says that they will be -- the work
18 will be performed in accordance with weld procedure
19 specification 70-17. Now, weld procedure 70-17
20 specifies that it may be used for welding on metal in
21 the thickness range of one-sixteenth to three-eighths
22 inch.

23 I am reading from the top of Page 4 of
24 Inspection Report 77-01. Now, in welding according to a
25 certain weld procedure specification, and these weld

1 procedure specifications are provided by engineering,
2 but they have to be supported by a procedure
3 qualification record, and the procedure qualification is
4 performed for certain specific conditions, and you can
5 have a number of procedure qualifications under the same
6 procedure specification, so that you might have as a
7 certain thickness specified that the procedure can be
8 used for this thickness of material as well as for
9 certain classes of material.

10 However, you can then qualify that procedure
11 for varying thicknesses. You can qualify it for varying
12 types of metal. You can qualify it for dissimilar
13 metals. Each one of those would be a separate procedure
14 qualification record, and they are obtained by
15 performing a weld under conditions of the procedure
16 qualification record, commonly referred to as the PQR,
17 and then testing that weld for its mechanical
18 properties, and now in this case the procedure
19 qualification record they were using is qualified for a
20 thickness range of three-sixteenths to two and a quarter
21 inch.

22 The weld procedure was suitable for a
23 thickness of one-sixteenth to three-eighths. The
24 material that they were actually welding on was
25 three-thirty-seconds. Therefore, it was within the

1 range of the procedure specification. It was not within
2 the range of the PQR, and later, in determining more of
3 the basics of this problem, I found, and I don't believe
4 it is in this inspection report -- I cannot give you the
5 inspection report, although I could look it up for you
6 -- that the organization doing the welding determined
7 that there had been a PQR which was qualified for the
8 thickness range within which they were welding, and the
9 problem then became a matter of having on site and
10 available a PQR which was not proper for the weld
11 thickness. It was proper for the specification.

12 I don't know if I have confused you or
13 explained it.

14 A (WITNESS HIGGINS) I would like to just add
15 something to that. To go to the original question about
16 the QA organization that had oversight of this, Reactor
17 Controls, Incorporated, which is the group involved, had
18 a quality control organization on-site when they were
19 on-site, and they could have provided surveillance and
20 oversight of welding or procedures and this type of
21 thing.

22 Also, LILCO field quality assurance provides
23 overall quality assurance auditing for activities of
24 this type on-site, and they would have had an
25 opportunity to review and provide oversight for it

1 also. In this case, obviously, neither one caught the
2 error.

3 Q Thank you.

4 Gentlemen, looking at Page 19 of your prefiled
5 testimony, at the bottom of the page, Item Number 5,
6 that involved an instance reported in 78-02 of the
7 failure to control the return of used and unused weld
8 materials. Is that correct?

9 A (WITNESS NARROW) Excuse me. Would you give
10 us that number again, please?

11 Q It is at the bottom of Page 19. It is Item
12 Number 5 from 78-02. And that involved, did it not, the
13 failure to control the return of used and unused weld
14 material?

15 A (WITNESS NARROW) Yes, sir.

16 Q And isn't it true that with Item Number 1 on
17 that page from 75-11 also involved weld filler metal
18 which was not returned to the control area as required
19 by the specification? Item Number 1, 75-11.

20 A (WITNESS NARROW) I will have to look that up,
21 sir.

22 (Pause.)

23 Q I would refer you to the notice of violation
24 in which -- and I don't have copies for the rest of the
25 parties, but the first sentence or clause says "weld

1 filler metal was not returned to the control area at the
2 end of the work shift as required by specification
3 SH1-258." Do you have that, Mr. Narrow?

4 A (WITNESS NARROW) Yes, sir, I have.

5 Q That is what 75-11 states, isn't it?

6 A (WITNESS NARROW) 75-11 includes the failure
7 to return weld material to the issuing station, or
8 unused weld material to the issuing station. And that
9 also includes additional items. It also was -- It was
10 an operation that was performed by a subcontractor, so
11 that it was a different organization than the people
12 responsible for Item 5, the failure to return used and
13 unused weld filler metal, and for that reason we didn't
14 group them as a similar item.

15 Q To the extent that they both involved the
16 failure to control weld material or return it as
17 required, they are similar, correct?

18 A (WITNESS NARROW) To that extent, they are
19 similar, and as I said earlier, in many of these things
20 you will find certain similarities between various
21 violations. However, we had certain criteria for
22 grouping them as being for similarity.

23 MR. LANPHER: Judge Brenner, I am going to
24 move on to another area of examination, unless the Board
25 has any questions in the welding area.

1 BOARD EXAMINATION

2 BY JUDGE CARPENTER:

3 Q Mr. Gallo, for the past hour or so you have
4 been talking about the 16 violations in the welding
5 area. I would like to ask, concerning those 16
6 violations, if those violations had not been discovered
7 by NRC, would an unacceptable weld have been produced?

8 (Whereupon, the witnesses conferred.)

9 MR. LANPHER: Judge Carpenter, I hate to
10 interrupt your question, but do you mean produced or
11 allowed to remain?

12 JUDGE CARPENTER: Allowed to remain, yes.
13 That exists today.

14 MR. ELLIS: Well, that would include all,
15 wouldn't it?

16 JUDGE BRENNER: Okay, hold it, because the
17 witnesses will forget the question.

18 MR. ELLIS: Well, for the record, Judge
19 Brenner, I had no objection at all to the original
20 question. I do have an objection to the amendment by
21 Mr. Lanpher.

22 JUDGE BRENNER: I think the question is
23 understandable, even without the amendment, and I think
24 it is still understandable, and if the witnesses have
25 trouble with it, we will hear about it from them. And

1 you can ask all the questions you want about it after.

2 WITNESS GALLO: About each individual one,
3 Judge Carpenter, I think I would have to review it. As
4 I understand your question, if the NRC had not
5 identified it, whether there would be a defective weld
6 yet today?

7 BY JUDGE CARPENTER: (Resuming)

8 Q Well, I didn't ask that. I think Mr.
9 Lanpher's supplementation did go to that. I was first
10 of all just going to, just as I say, would -- an
11 unacceptable weld would have been produced, and
12 obviously a corrolary to that is, would it persist?

13 MR. LANPHER: Judge Carpenter, I don't think
14 your mike is on.

15 JUDGE CARPENTER: Well, I think I was looking
16 down instead of speaking into the mike.

17 MR. LANPHER: Thank you.

18 WITNESS GALLO: Mr. Narrow is probably more
19 familiar with the individual details than I am.

20 BY JUDGE CARPENTER: (Resuming)

21 Q Well, I am asking in the sense that you come
22 to the conclusion that no unacceptable welds exist at
23 Shoreham, and I am simply trying to confirm that the 16
24 violations, how the 16 violations relate to that
25 conclusion. Is it that the violations in your mind

1 would not have produced an unacceptable weld, or is it
2 that you think other undetected violations did not
3 occur?

4 (Whereupon, the witnesses conferred.)

5 A (WITNESS GALLO) Judge Carpenter, I believe
6 what our conclusion is based on is not just the 16 items
7 that we identified, but our review of the welding
8 program at Shoreham, including those meetings that were
9 held in late 1979 and May of 1980, and the
10 non-destructive testing and examinations that were done
11 independently by the NRC during 1982.

12 Q Well, do you want to think about my question a
13 little bit, and then come back to it? I asked
14 specifically of the 16 violations, if those violations
15 had not been discovered, would an unacceptable weld have
16 been produced?

17 (Whereupon, the witnesses conferred.)

18 A (WITNESS GALLO) Judge Carpenter, to give you
19 a complete answer, I think I would have to go in and
20 look at each individual weld and get back to you.

21 Q Each violation?

22 A (WITNESS GALLO) Each violation.

23 Q In some cases, these are record-keeping and
24 procedures, et cetera.

25 A (WITNESS GALLO) Yes, sir, that is correct.

1 Q There are a lot of things that -- well, you
2 had to group them in some way to present them in your
3 testimony. I don't know if going beyond that is
4 anything more for convenience in the testimony. There
5 are still 16 violations listed.

6 A (WITNESS GALLO) Yes, sir. There are some, as
7 I think the last one we discussed, the weld repair
8 procedure in 77-01, that is, Item Number 3 on Page 19 --
9 I was going to mention specifically in that case that as
10 I understand it, looking quickly at the report, that the
11 repair procedure called out a weld procedure spec which
12 did not have a supporting qualification record for it
13 for the appropriate thickness as documented.

14 However, there actually was a procedure
15 qualification report that covered that thickness, so in
16 that case it appears that that was, as we were
17 discussing, a record-keeping problem or a documentation
18 problem, so that the weld, the weld actually being
19 produced was using a qualified welding procedure
20 specification which was not in question, but also the
21 fact that the procedure qualification record actually
22 pre-existed before the work was done.

23 It was not correctly referenced in the repair
24 procedure. So that the weld in that case would not
25 appear -- would not have been affected by our

1 violation. It appears that from reading the report,
2 too, that that weld was acceptable, and there was no
3 requirement for further rework on that weld. There was
4 a correction in the repair procedure.

5 Q Well, let's let you perhaps take a chance at
6 lunchtime to look at this. I would still like to leave
7 that question there. The county's position is that
8 these are 16 violations, and they don't see how you can
9 conclude that there were no unacceptable welds, so I
10 asked the question, given these 16 factual situations,
11 would unacceptable welds have been produced in the
12 absence of NRC identifying the situation?

13 A (WITNESS GALLO) Yes. We will get back to you
14 after lunch, Judge, if that is acceptable.

15 JUDGE CARPENTER: Thank you.

16 MR. LANPHER: Judge Carpenter, if you don't
17 mind, I would like to follow up on that, and maybe I can
18 focus it a bit with a specific example or two, and if
19 they can't answer --

20 JUDGE BRENNER: Why don't you follow up after
21 they get back, and look at it? I think it will be much
22 more efficient. I really do. Because you are likely to
23 have some followup anyway. So let's move on to where
24 you were going to move on to in the design area, and
25 when they come back, we will give you whatever

1 opportunity you want.

2 MR. LANPHER: Just a moment.

3 (Whereupon, counsel for Suffolk County
4 conferred.)

5 JUDGE BRENNER: The reason for my statement
6 is, I am afraid we will just get it too piecemeal, and
7 you will have to go back around again otherwise.

8 MR. LANPHER: I just want to make a note of
9 where I was going to go. All right.

10 (Whereupon, counsel for Suffolk County
11 conferred.)

12 CONTINUED CROSS EXAMINATION

13 BY MR. LANPHER: (Resuming)

14 Q Gentlemen, I would like to turn your attention
15 to Page 24 of your prefiled testimony, the issue you
16 described as design control. The first deficiency or
17 violation in the design control area which you identify
18 is described from 76-06 as QA review of design changes.
19 Am I correct that this involves some E&DCB's that had
20 not received QA review as required by the LILCO
21 procedure?

22 MR. ELLIS: What number were you referring
23 to?

24 MR. LANPHER: One.

25 (Pause.)

1 MR. LANPHER: Judge Brenner, I note that this
2 I&E report has previously been marked as Suffolk County
3 Exhibit 106 for identification.

4 BY MR. LANPHER: (Resuming)

5 Q I believe the area you cite from is Page 2 of
6 the notice of violation, and it is violation B, as in
7 boy.

8 A (WITNESS NARROW) Would you repeat your
9 question, please?

10 Q This involved, did it not, an instance where
11 some E&DCR's had been issued, but had not been reviewed
12 by the quality assurance organization as required by the
13 LILCO procedure?

14 A (WITNESS NARROW) That is correct.

15 Q Accordingly, the reason you include this in
16 your design control area is that a necessary part of the
17 design approval process was lacking?

18 A (WITNESS NARROW) That is correct.

19 Q Gentlemen, I meant to do something first.
20 There is a typographical error on Page 24, isn't there,
21 under Item 2? That should be I&E report 80-10, not 14.
22 Isn't that correct?

23 A (WITNESS NARROW) Item 2?

24 Q Yes. Just so the record is clear.

25 A (WITNESS NARROW) I am afraid I will have to

1 look at that.

2 Q Well, why don't you do that over lunch? I
3 don't have a specific question on that. But I had
4 trouble finding that, and I think I did subsequently.

5 Now, gentlemen, turning your attention to Item
6 Number 3 on Page 24, it is described as vent lines and
7 valves installed without a specific authorizing design
8 change. Am I correct that this was --

9 (Whereupon, the witnesses conferred.)

10 Q Gentlemen, am I correct that this was an
11 instance where the necessary E&DCR had not been issued
12 to permit the installation in these three locations?

13 A (WITNESS HIGGINS) A specific authorizing
14 E&DCR had not been issued in this case for the
15 particular valves. What it was was, there was basically
16 a generic E&DCR that had been issued covering this
17 particular activity, but there were not specific ones
18 issued. That is correct.

19 Q And so would it be fair to state that a
20 necessary process of the design change, the issuance of
21 this E&DCR, had not taken place?

22 A (WITNESS HIGGINS) Yes.

23 Q And accordingly, since that E&DCR had not been
24 issued, it of course had not been approved by or
25 reviewed and approved by the quality assurance

1 organization also? I mean, the specific authorizing
2 E&DCR.

3 MR. ELLIS: I must object to that. I am not
4 sure I listened carefully enough, so my objection -- I
5 am not sure whether he is talking about E&DCR's that
6 were issued or not issued, because there is testimony
7 that there was a generic E&DCR issued.

8 JUDGE BRENNER: I am just not keyed in to
9 understand your point, Mr. Ellis, and that may be my
10 problem.

11 MR. LANPHER: Do you want me to repeat the
12 question?

13 MR. ELLIS: I think it is basically my problem
14 that I didn't listen or hear clearly enough the
15 question, because there was more than one E&DCR
16 involved, and I wasn't sure whether the question was
17 clear about that.

18 JUDGE BRENNER: All right. Why don't you
19 reask the question, and if you can, make clear within it
20 what E&DCR's --

21 MR. LANPHER: I don't have it written down.
22 Let me just restate it.

23 BY MR. LANPHER: (Resuming)

24 Q Gentlemen, are you ready?

25 A (WITNESS GALLO) I still don't have 80-14.

1 JUDGE BRENNER: Ask the question again so we
2 can make sure that is what they need.

3 MR. LANPHER: They indicated they needed
4 80-14. I will give them my copy.

5 (Whereupon, counsel handed the document to the
6 witnesses.)

7 BY MR. LANPHER: (Resuming)

8 Q Gentlemen, you stated that there was a general
9 E&DCR authorizing some actions, correct?

10 A (WITNESS HIGGINS) That is correct.

11 Q And you also stated, I believe, that it was
12 necessary in your opinion that there be specific E&DCR's
13 issued to authorize installation of specific vent lines
14 and valves, correct?

15 A (WITNESS HIGGINS) Yes.

16 Q And those E&DCR's had not been issued, those
17 specific E&DCR's?

18 A (WITNESS HIGGINS) That is correct.

19 Q Those specific E&DCR's, had they been issued,
20 would have needed QA review and approval, like all other
21 E&DCR's, correct?

22 A (WITNESS HIGGINS) Yes.

23 Q And since they weren't issued to your
24 knowledge there was no such QA approval?

25 MR. ELLIS: I guess that was my objection. He

1 is asking him about QA approval of unissued E&DCR's.

2 JUDGE BRENNER: Well, now I think it is quite
3 clear. I think your point was valid before, but he is
4 talking about these specific ones that were the subject
5 of the two immediately prior questions and answers.
6 Isn't that right, Mr. Lanpher?

7 MR. LANPHER: Yes.

8 MR. ELLIS: Well, maybe I am missing
9 something, but I thought he was asking about
10 non-existent E&DCR's.

11 BY MR. LANPHER: (Resuming)

12 Q Was there any QA approval of this installation
13 prior to the time that it was done?

14 JUDGE BRENNER: Given the lack of issuance of
15 the E&DCR's.

16

17

18

19

20

21

22

23

24

25

1 WITNESS HIGGINS: For these specific cases,
2 no, there was not. However, as I said earlier, there
3 was the generic E&DCR which had gone through the normal
4 E&DCR review and approval process which included quality
5 assurance organization and which talked about adding
6 those particular vent drain lines. However, the
7 specific ones were not approved by QA, and that is why
8 the violation was written.

9 BY MR. LANPHER: (Resuming)

10 Q Gentlemen, do you have I&E Report 79-12?

11 (Panel of witnesses conferring.)

12 A (WITNESS GALLO) Yes, we have 79-12.

13 Q Turning your attention to Appendix A, the
14 notice of violation, am I correct that this is an
15 instance where battery room ventilation control room
16 panels were installed without approved drawings as
17 required by the specification.

18 A (WITNESS NARROW) That is correct. That is
19 what the notice of violation says.

20 Q Doesn't that constitute a design control
21 problem?

22 A (WITNESS HIGGINS) We would like to read the
23 details on that one.

24 Q Sure.

25 (Panel of witnesses conferring.)

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

2 (Discussion off the record.)

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

4 WITNESS NARROW: Mr. Lanpher, reading the
5 details of that inspection, it is apparent that they did
6 have an E&DCR which had been issued to cover this work
7 and that this referenced a specification. We would
8 presume from this that although they had no specific
9 drawings, they were installing these panels in
10 accordance with the standard detail.

11 I will admit in this case we were not
12 completely clear on the fact that that was actually what
13 happened, but that appears to be the reasonable
14 assumption.

15 BY MR. LANPHER: (Resuming)

16 Q Well, Mr. Narrow, the notice of violation
17 which was written up states that three panels were
18 installed without approved engineering drawings, correct?

19 A (WITNESS NARROW) That is correct.

20 Q And if that in fact is true, that would
21 constitute a design control problem, wouldn't it?

22 A (WITNESS HIGGINS) Mr. Lanpher, again we get
23 into some discussions about how you can categorize these
24 things, and there is some judgment involved, and there
25 were some aspects of design in this, but really it is

1 more a case where there was some design available, and
2 in fact the design that was available to them was in the
3 specification and the E&DCR, and that is what they did,
4 installed them, too. They did in fact have these
5 specific drawings as was required, and that is why the
6 violation was written.

7 In the response to the violation the licensee
8 performed an engineering review, wrote the drawings,
9 issued the drawings, and at the end of the engineering
10 review it was concluded that the installation was
11 acceptable as it was installed originally.

12 Q Well, Mr. Higgins, is it your answer then that
13 this is not a problem with the control of the design
14 process, but it is a problem in control of design
15 documents. We got into that difference the other day.

16 A (WITNESS HIGGINS) I guess more towards that
17 side. This isn't clearly really a document problem.
18 Either it is more a problem of the personnel involved
19 with the work not properly following procedures.
20 Perhaps where you have a case that they weren't
21 operating per the drawings that they should have been
22 operating, they should have had drawings that they were
23 installing it to, detailed drawings, which they didn't
24 have. They worked to the general specification which
25 they would normally do, but normally also they would

1 have specific drawings authorizing the particular
2 installation.

3 I guess in our classification of design
4 control items we tried to include in there items where
5 there were in fact problems with the design. In this
6 case there was no problem with the design itself.

7 Q Gentlemen, looking at page 25 of your
8 testimony -- and we will get into the electrical
9 separation item again; I don't want to go all the way
10 through that if we can avoid it -- but you state that
11 inspection 79-07 identified an electrical separation
12 problem. And I take it from your testimony that you
13 include this as a design control problem, am I correct?

14 (Panel of witnesses conferring.)

15 A (WITNESS HIGGINS) Yes, we did.

16 Q Now, you only mentioned 79-07. In fact, there
17 were a number of other separation violations that were
18 cited, correct?

19 (Panel of witnesses conferring.)

20 A (WITNESS HIGGINS) There were a couple of
21 other, I believe, of electrical separation violations.
22 And my recollection, without going back and looking at
23 each one, is that some were involved with failure to
24 take adequate corrective action which would be more
25 directly against a QA-type of item than design control.

1 Q Well, 79-07 in fact was a failure to take
2 corrective action, and you included that in design
3 control, correct?

4 A (WITNESS HIGGINS) I guess what we meant by
5 this paragraph here -- and we didn't list it as a
6 specific, one of the seven items above -- was that the
7 electrical separation area in general we felt was a
8 problem of design control because there were continuing
9 problems throughout the several years that Mr. Narrow
10 and myself have been involved with the project in
11 resolving the electrical separation area. And I guess
12 we felt that that area as a whole, that there were some
13 problems with the design, and the licensee in fact
14 realized it and put great effort to it, but nonetheless,
15 there were some problems.

16 Q Well, Mr. Higgins, for this paragraph to be
17 more complete shouldn't it have included reference to
18 77-05, which is Suffolk County Exhibit 105 which we
19 discussed yesterday, and that related to separation,
20 failure to meet separation criteria for field-routed
21 cable?

22 A (WITNESS HIGGINS) We did not make an attempt
23 to go and look at each electrical separation violation,
24 because from the standpoint of design control problems
25 and from the standpoint of the adequacy of the design

1 control we felt that that was being addressed as an
2 entire issue. From the standpoint of the hearing
3 testimony and the hearing preparation as we referenced
4 in here, that that whole area from a hearing standpoint
5 was discussed more fully in testimony concerning the
6 other Suffolk County contentions that were filed. So
7 that is why we did not make an attempt to fully catalog
8 that area.

9 Q I understand that, Mr. Higgins, and I just
10 want to -- I would like to attempt to identify those
11 other I&E reports that you would agree fall into the
12 design control area which are not referenced here. And
13 I understand the reason that you didn't feel it was
14 necessary to give a complete listing.

15 But would you agree that 77-05 then would fall
16 into this area?

17 (Panel of witnesses conferring.)

18 Q That portion relating to electrical separation.

19 MR. ELLIS: I think -- I don't know that I
20 object to the question as much as I object to doing it
21 at this time. If they testified they didn't review
22 these for this purpose, then they ought to have an
23 adequate opportunity to review them now that he's asking
24 the question whether they think they are design control.

25 JUDGE BRENNER: Well, this is different than

1 the other items. These are I&E reports that they are
2 either very well familiar with or reasonably well
3 familiar with, and they use the reports in their
4 testimony.

5 I understand they may be thinking about it a
6 little differently, but I also recall their testimony as
7 to how they went ahead and categorized things and listed
8 it, and it was a very reasonable approach. They took
9 their cut, and then after their cut they went back and
10 took another look. That is the way I would have done
11 it, for what that's worth. And that process I think
12 gave them enough familiarity, and these witnesses have
13 said this throughout the course of this proceeding.

14 We are not dealing with witnesses to an auto
15 accident coming in off the street in these kinds of
16 cases. We're talking about expert professional
17 witnesses who are very capable, as exhibited so far, of
18 stating when they think they don't know enough to fully
19 answer the question.

20 MR. ELLIS: I did not mean that they didn't
21 have expertise. I did not mean that they were not
22 expert in these reports.

23 JUDGE BRENNER: You cut me off, Mr. Ellis.

24 The bottom line is -- and maybe I should have
25 just stayed with that -- I think there is enough of a

1 basis for the question to be asked without objection and
2 enough of a foundation if they can't answer it, they're
3 also capable of stating it.

4 MR. ELLIS: My only point was that they had
5 previously --

6 JUDGE BRENNER: Had previously what?

7 MR. ELLIS: My only point was that they had
8 previously indicated that they were not familiar with
9 the electrical separation issue in detail, and I was
10 merely suggesting that if they were going to be asked
11 that now that I had no objection to going into that, but
12 that that might be something more appropriately taken up
13 if they had time to look at it.

14 MR. LANPHER: I think that is for their
15 counsel to make the objection.

16 JUDGE BRENNER: Well, no. That is not right
17 either, Mr. Lanpher. When you have got parties whose
18 interests are affected, we will let them make objections.

19 Nevertheless, so you have the right to make
20 the objection, but it is overruled in this instance.

21 (Panel of witnesses conferring.)

22 JUDGE BRENNER: As long as they're still
23 continuing, I will give you a little more look into my
24 insight. I don't want to automatically needle the
25 witnesses, and I want to see if these witnesses can give

1 us enough information for our purposes on the QA/QC
2 contentions, and I think that is in all of our
3 interests. And I am not afraid of doing it because I
4 know from the experience yesterday that they will state
5 when they can't answer the question.

6 MR. LANPHER: Judge Brenner, maybe my question
7 was confusing, and if I ask it again, then if they need
8 time to confer. I don't want to get into the details of
9 this one again.

10 JUDGE BRENNER: You don't want to, but they
11 may have to to answer it. Let's interrupt the witnesses
12 for a moment. Mr. Lanpher has a concern, which I don't
13 share, that you may not be focusing on the question. So
14 let him ask it again, and then if you still need more
15 time, we will give you the time.

16 BY MR. LANPHER: (Resuming)

17 Q Gentlemen, you included 79-07 in the previous
18 answer to me as a design control problem, the separation
19 area.

20 A (WITNESS HIGGINS) I think maybe your
21 assumption that you're starting off with is not
22 completely valid. What we are including here in this
23 paragraph in 79-07 is one example of the electrical
24 separation area. We feel that the electrical separation
25 area was a design control problem, okay, not

1 specifically 79-07 itself. That was just mentioned
2 because at the time we wrote the inspection report,
3 79-07 was a violation that we had in fact opened for the
4 electrical separation area.

5 Q Well, then, Mr. Higgins, wouldn't you agree
6 that 77-05 also is in the design control area?

7 A (WITNESS HIGGINS) Not necessarily. As I
8 said, some of these are QC type of things, and if we
9 could go back and look at each of the individual
10 violations in the electrical separation area and say
11 this one was a design control one, this one was perhaps
12 a QC one, this was perhaps a recordkeeping one.

13 I'm not sure that that is very valuable
14 because we feel the overall area of design control of
15 electrical separation was a design control problem. In
16 addition, there were some QC problems involved there.

17 Q When I use the word "design control," Mr.
18 Higgins, I mean design control in the QC sense, QA and
19 QC criteria pertaining to design control, Criterion 3 in
20 particular. While 79-07 is not cited against Criterion
21 3, I understood it to be your testimony to believe that
22 this involves design control problems from a QA/QC
23 aspect, not a technical aspect. I mean a QA/QC aspect.
24 Isn't that correct?

25 A (WITNESS HIGGINS) When we talk about design

1 control here we are talking about in general from a
2 quality control standpoint. There are a lot of other
3 aspects of QA and QC besides design control, and I
4 wouldn't make them all the same. So, in fact, some of
5 the things having to do with electrical separation, some
6 of the citations, were in fact failure to take adequate
7 corrective action which is another aspect of QA and QC
8 and not design control.

9 Q Well, but in 79-07 the failure to take
10 corrective action was because they had not properly
11 controlled the design, wasn't it?

12 A (WITNESS HIGGINS) Some of them, as we have
13 said, are design control QA problems, and we can
14 certainly go back and look at each one and provide you a
15 catalog as to which ones we feel fit where, if you think
16 that is valuable.

17 Q Well, Mr. Higgins, you made a listing on pages
18 24 and 25 of the items that fell into the design control
19 category, and that is similar to the other listings, and
20 then on page 26 you state that all of the other
21 violations fell outside those specific groupings that
22 you got in your testimony -- those specific groupings
23 being storage, welding, design control and startup
24 manual.

25 Do you see that testimony at the bottom of

1 page 26?

2 A (WITNESS HIGGINS) I guess you paraphrased our
3 words, but basically that is what it says.

4 Q Is it fair to state that as of right now
5 without further review you don't know whether 77-05
6 would fall within design control or not?

7 A (WITNESS HIGGINS) 77-05 we have looked at,
8 and in general we feel that is the one we were
9 discussing as these initial questions came up. And
10 77-05 is pretty closely tied between design control and
11 QA/QC corrective action. There are some aspects of both
12 in that. To say exactly which one it would be, it would
13 be a hard judgmental choice because there are some
14 aspects of both in that one. That is what we were
15 discussing when you started the questioning again.

16 Q Okay.

17 A (WITNESS HIGGINS) We felt that in this case
18 initially there had been some problems identified by the
19 licensee. Some deficiency correction orders or DCOs
20 were written because of some separation problems. The
21 licensee's corrective action did not completely address
22 that problem in that our inspector found at a later date
23 when this inspection was conducted that there were some
24 additional installatings being made where separation was
25 not properly addressed.

1 The licensee in his response to this stated
2 that he felt that they were different enough that the
3 corrective action probably shouldn't have included it,
4 because in their initial DCOs that were written it was
5 as separation problems between low voltage cables and
6 high voltage cables which were supposed to be
7 separated. In the instance that our inspector
8 identified, it was separation problems between
9 particular divisions of safety-related cables,
10 color-coded cables and nonsafety-related cables. And,
11 therefore, they said that they were different enough
12 that there shouldn't have been corrective action to
13 preclude recurrence in this case.

14 We disagreed with that, and we felt that it
15 was in general a separation problem, although it was
16 separation of different things, and it should have
17 precluded it, and there were some quality control
18 corrective action aspects to that. There were also some
19 design aspects, because from a design standpoint they
20 should have provided proper instructions such that when
21 they installed the safety and nonsafety-related cables,
22 it would have been clear enough to the workers not to
23 install them that way.

24 Q Thank you.

25 Gentlemen, and Judge Brenner, I would like to

1 have marked as Suffolk County Exhibit 108 I&E Report
2 80-10, and the cover letter is dated August 12, 1980,
3 and it refers to an inspection during the time period
4 June 17th to 20, 1980; and I would like to direct your
5 attention to the notice of violation, gentlemen.

6 JUDGE BRENNER: One minute, Mr. Lanpher. It
7 is marked as you requested.

8 (The document referred to
9 was marked Suffolk County
10 Exhibit No. 108 for
11 identification.)

12 JUDGE BRENNER: And are you finished with
13 electrical separation?

14 MR. LANPHER: No. I am at page 29, item 3.B.

15 JUDGE BRENNER: Let me ask you to keep
16 something in mind. And I guess it is too late in terms
17 of your cross examination approach on this subject
18 because you are nearing the end of that, and that's
19 fine. But think about it perhaps for your findings and
20 everyone's findings.

21 If you are assuming that there was a problem
22 on electrical separation which resulted in the
23 separation not being what it should be and then you're
24 focusing on remedial action, what action staff, the
25 utility and ultimately the Board should take upon

1 finding that situation, and what even, assuming we also
2 find it represents QA/QC problems, even granting that,
3 whether there is remedial action that should be taken at
4 this stage beyond the remedial action being taken under
5 the agreement on Suffolk County 31.

6 In other words, if the action is there
7 directly through the substantive contention on
8 electrical separation, what other action should be
9 take? And bearing on the subject will be whether that
10 is a typical function of constructing the plant such
11 that we should make assumptions going into other areas
12 beyond electrical separation or whether there is
13 testimony in the record that there are some
14 peculiarities as to that function with which we should
15 rely on. And just bear all that in mind because it's
16 going to affect what you're going to do in this area
17 with your findings and what we will do with it also.

18 MR. LANPHER: Well, I have attempted to. I
19 could respond. I don't think it is necessary.

20 JUDGE BRENNER: No.

21 MR. LANPHER: I've got some ideas of what's to
22 go into findings in this area.

23 JUDGE BRENNER: In other words, don't ignore
24 it even though it is somewhat separable, the fact that
25 there is agreement on SC-31.

1 MR. LANPHER: Which we are still talking
2 about. But Mr. McCaffrey unfortunately has been sick
3 this week.

4 JUDGE BRENNER: One other thing I would like
5 to clear up, when I said in passing that they did it the
6 way I would do it in going through the I&E reports, what
7 I meant was the process of going through the reports,
8 preliminary categorization and then going back again to
9 see if they would change anything. I did not mean to
10 denote my agreement with their ultimate decisions on
11 what reports should be categorized under what topics.

12 Now, let's go back to you.

13 MR. LANPHER: I think this is marked now,
14 Judge.

15 JUDGE BRENNER: Yes.

16 MR. LANPHER: 80-10 then is Suffolk County 108
17 for identification.

18 BY MR. LANPHER: (Resuming)

19 Q Gentlement, am I correct -- and I'm directing
20 your attention to the second violation which is noted.
21 This was from an instance where the inspector observed
22 that redundant safety-related conduit was installed
23 which did not meet the separation criteria of SH1-159,
24 and that the nonconformance had not previously been
25 documented or tagged, correct?

1 A (WITNESS NARROW) That is correct.

2 Q Gentlemen, would you agree -- well, strike
3 that.

4 Mr. Higgins, in response to an earlier
5 question you described it in at least one aspect, design
6 control aspect, of allowing installation in a
7 nonconforming manner, and that was in connection with
8 77-05 which was cable, and this is conduit. This again
9 is installation in a nonconforming manner, correct?

10 A (WITNESS NARROW) That is correct. It is
11 installation in a nonconforming manner.

12 Q So would you agree that this violation also
13 has pertinence to the design control area?

14 A (WITNESS NARROW) No, sir. Excuse me.
15 (Panel of witnesses conferring.)

16 A (WITNESS NARROW) Mr. Lanpher, in this case
17 they had specifications that prescribed certain
18 separation requirements. The conduit that was installed
19 did not meet these requirements, and QC did not identify
20 this nonconformance to the requirements, so we
21 considered it a quality control problem.

22 Q Well, I agree it is a quality control problem,
23 but doesn't it relate to design also, the implementation
24 of the correct design?

25 A (WITNESS NARROW) I can't see a problem with

1 the design. The design had been furnished to them.

2 Q My question was the implementation of the
3 correct design, Mr. Narrow.

4 A (WITNESS NARROW) Well, I think any violation
5 probably related to implementation of the correct
6 design. They were provided with specifications and
7 drawings, and because they did not conform to those
8 specifications and drawings does not make it a design
9 problem. It is a nonconformance to those criteria if
10 they have installed it in that fashion. QC should have
11 identified it and should have written some type of a
12 nonconforming document. And this is precisely what this
13 particular violation is for.

14 A (WITNESS HIGGINS) In this one we did cite
15 against Criterion 5 which was a failure to follow
16 procedures which were at this time provided for
17 installation of these conduits. And this is another
18 electrical separation problem.

19 Q Was there a reason, gentlemen, that you do not
20 list electrical separation as -- well, let me start
21 over. You elected to list the startup manual problems
22 that are described in your testimony at pages -- well,
23 at page 26 as a separate, distinct problem from a QA/QC
24 standpoint, correct?

25 A (WITNESS HIGGINS) That is correct.

1 Q Was there a reason that you did not elect to
2 discuss electrical separation as a separate and distinct
3 QA/QC problem?

4 A (WITNESS HIGGINS) I guess the way we elected
5 to handle it is as discussed there in the first
6 paragraph on page 25.

7 Q And that was intended to separate electrical
8 separation out as a separate QA/QC problem?

9 A (WITNESS HIGGINS) Not necessarily a QA/QC
10 problem, but it was intended to separate it out as a
11 particular problem area that was quite involved, and
12 involved, as we said yesterday, some engineering
13 difficulties, some difficulties in terms of what the
14 actual criteria were going to be, and there were some
15 QA/QC problems associated with it, yes.

16 Q Well, those problems have continued right up
17 to the present time frame, correct -- the resolution of
18 those problems at least?

19 A (WITNESS HIGGINS) We don't feel that at the
20 present time there are QA/QC problems still associated
21 with electrical separation, no.

22 Q What is the basis for that?

23 A (WITNESS HIGGINS) We have not --
24 (Panel of witnesses conferring.)

25 A (WITNESS HIGGINS) The basis for that would be

1 inspection 82-24 which was the most recent inspection in
2 the electrical separation area.

3 Q And in 82-24 you stated that you were closing
4 out 79-07, correct?

5 A (WITNESS HIGGINS) 70-07-02, yes.

6 Q And that was the electrical separation problem
7 which is described or at least referenced at page 25 of
8 your testimony?

9 A (WITNESS HIGGINS) That is correct.

10 (Counsel for Suffolk County conferring.)

11 MR. LANPHER: Judge Brenner, this might be a
12 good time to break. I may want to ask a couple of
13 questions about 82-24, but I want to go over my notes.
14 I may not need to.

15 JUDGE BRENNER: All right. Fine. Let's break
16 for an hour and come back at 1:00.

17 MR. LANPHER: I know we planned an hour, but
18 could we have an hour and fifteen minutes? I have to go
19 over this and try to pull it together.

20 JUDGE BRENNER: All right. We will still end
21 at 3:30, though, and we will come back here at 1:15.

22 MR. LANPHER: Thank you, Judge.

23 (Whereupon, at 12:00 p.m., the hearing was
24 recessed for lunch, to be reconvened at 1:15 p.m., the
25 same day.)

1 AFTERNOON SESSION

2 (1:20 p.m.)

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

4 We are, in order to save time next week, we're
5 going to defer the discussion which we previously had
6 planned on emergency planning until the week of January
7 10th, 1983 in Long Island, and on whatever day of that
8 week is mutually convenient to the parties. And that
9 includes SOC and NSC, and we would expect them at any
10 such meeting since we are now rescheduling it in New
11 York. And we want everyone involved in the discussion,
12 so all parties are going to be required to attend, and
13 in view of that, set it up at a time when it is
14 convenient for all parties so that won't be a reason for
15 their nonattendance.

16 And although we would prefer to do it that
17 week, if it is impossible to schedule it that week
18 because of commitments of SOC and NSC counsel, we will
19 do it the following week also, but no later than those
20 two weeks.

21 And we are prepared to continue. We can ask
22 for the answers to Judge Carpenter's questions now, or
23 we can let you finish the particular area you were in,
24 Mr. Lanpher, the sub area, whatever you prefer.

25 MR. LANPHER: I really have no preference. I

1 had forgotten about Judge Carpenter's questions until
2 ten minutes ago when I hurriedly got my stuff ready on
3 that, so I can go either way. Whatever you would prefer.

4 JUDGE BRENNER: Well, let's get the answer to
5 Judge Carpenter's question.

6 Whereupon,

7 ROBERT GALLO

8 JAMES HIGGINS

9 AND

10 LEWIS NARROW

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

13 BOARD EXAMINATION

14 BY JUDGE CARPENTER:

15 Q Before the lunch break I had asked the witness
16 panel if they could comment as to whether the 16
17 violations with respect to welding matters that we have
18 been reviewing, whether any of those 16 violations would
19 have produced an unacceptable weld if the violation had
20 not been discovered.

21 A (WITNESS GALLO) Yes, Judge Carpenter. I
22 would like to start out by answering that, and I could
23 go two ways. There are four particular items where I
24 would have questions about. I could cover those, or I
25 could go through all 16.

1 Q I asked you, sir, in your capacity, in your
2 professional judgment if any, which ones. So if you
3 would speak to the ones you think merit attention, that
4 would be fine.

5 A (WITNESS GALLO) Yes, sir. The first one
6 would be item number 2, Inspection Report 76-11. The
7 first one I mentioned on 76-11, and the concern there
8 was with undersized structural steel welds. As I read
9 the inspection report the concern I had with this one
10 was that I could not determine with the information
11 available that the size of the short weld would have had
12 an effect on the structural strength of the component;
13 and we could not determine whether there was any future
14 inspection that would determine that in the licensee's
15 program.

16 Q That is the question I would ask you. That is
17 obviously the next question, so if you could comment in
18 that regard as you go along.

19 A (WITNESS GALLO) Yes, sir.

20 Q You just said as far as -- you can't tell, so
21 you can't have an opinion as to whether the licensee's
22 program or the AE's program would have picked it up.

23 A (WITNESS GALLO) Yes, sir. What I'm saying is
24 I would have to have an engineering review of that or
25 additional information regarding the final inspections

1 that might have been done. That information is not
2 available.

3 Q And NRC did not try to develop that
4 information?

5 A (WITNESS GALLO) To determine if the weld were
6 not accepted or not identified as a problem?

7 Q That if you hadn't picked it up that it would
8 have been picked up.

9 (Panel of witnesses conferring.)

10 A (WITNESS GALLO) To answer your specific
11 question, Judge, we do not know and there is no
12 indication that the NRC tried to make any judgment as to
13 whether or not there would have been a problem with the
14 weld if it had not been identified by the NRC.

15 Now, that is a different question, I think,
16 than if there were problems with other welds of this
17 type after we identified it. I'm not trying to answer
18 that one.

19 I was -- in reviewing these items I did try to
20 identify where I believed that the ASME code inspection
21 or certification or final NDE or final visual inspection
22 or a hydrostatic test I believe would have identified
23 that problem.

24 Q And for number two you just can't come to any
25 conclusion, is that right?

1 A (WITNESS GALLO) I'm saying from the
2 information I have in trying to do a quick review with
3 the information that is in the inspection report I
4 cannot identify a means where the licensee would
5 identify that save our identification of it.

6 It is also difficult to tell whether or not
7 the condition would have been satisfactory as is because
8 of the shortness of the weld, the weld size. If the
9 load were such, the load may have been such that it
10 would have been -- a short weld would have been accepted
11 as is. It could have been acceptable. But that
12 information is not available either.

13 The reason I made that last comment, Judge
14 Carpenter, is in this item and I believe at least one
15 other we are talking about structural steel welding, in
16 general, and our experience in structural steel welding,
17 it is usually far oversized to what is necessary for the
18 loads. That is a judgment call, though, without having
19 the numbers.

20 The second item I had --

21 (Panel of witnesses conferring.)

22 A (WITNESS GALLO) The second item I was going
23 to discuss was item number 4 which was identified in
24 Inspection Report 77-17, and this was the problem with
25 nonconforming contour of a transition at a field weld.

1 In this case all welds were inspected actually by LILCO
2 as a result of our identification of finding, and 82 of
3 408 were found to be unacceptable.

4 Again, in this case I cannot determine or to
5 the best of my ability identify any inspection would
6 have identified that particular problem. Now, this
7 appears to be an ASME code component, so there is a
8 possibility that a final walkdown inspection or a final
9 review of the records of this, which is required in the
10 ASME code type welds, would have identified the problem,
11 but that is difficult to call.

12 Again, there is another way that is a little
13 bit tough to call, but this probably would be covered by
14 the preservice inspection of the weld, whether they
15 would identify this particular problem at a preservice
16 inspection, which usually requires another visual
17 inspection and usually an ultrasonic test. And we're
18 talking about a transition at a field weld, and that is
19 the type of thing that could be detected by an
20 ultrasonic test. If there is a poor transition, the end
21 result might be that you could not successfully complete
22 the ultrasonic test.

23 It appears from my reading of this that the
24 problem of the contour, there were two considerations I
25 can think of. One is I don't want to sharp angle

1 profile because that would be a stress riser location.
2 And the second reason might be just so that ultrasonic
3 testing could be done.

4 Q Well, you did testify that LILCO subsequent to
5 that did inspect all such welds.

6 A (WITNESS GALLO) That is correct. And they
7 identified problems.

8 Q Thank you.

9 A (WITNESS GALLO) The next item is item 10,
10 Inspection Report 78-15. This was one of the skewed
11 angle joints we talked about previously, I believe. In
12 this case our inspection records indicated that there
13 was re-inspection done by the licensee, and some welds
14 were rejected. And there was also a discussion in here
15 of the licensee's response to the violation indicated
16 that they are going to try to requalify the procedure
17 with a less than 60 degrees as identified in the
18 violation. And it is not clear in the writeup that they
19 were successful in that.

20 Also, our writeup indicates that they were
21 taking their position to the AWS code in March of 1979,
22 but it does not -- the Inspection Report does not
23 indicate the results. And subsequent to that to close
24 out the item there is a statement in the inspection
25 report that says that several welds that were identified

1 which are planned to have been cut out or have been out
2 in accordance with new procedures.

3 So it is a little bit difficult to tell with
4 the information we have here whether the AWS code
5 request was approved or denied or it was just delayed
6 too long, that they decided to go ahead with the rework
7 regardless of what the AWS results were.

8 So, again, this is -- to get back to the
9 original question, it would have been identified as the
10 pipe support weld. And I guess that is why I had a
11 little bit of difficulty convincing myself that there
12 was some further inspection that would identify this
13 type of problem.

14 This pipe support weld, some pipe support
15 welds are subject to preservice inspection and
16 in-service inspection, but it is very difficult to tell
17 from the information whether this would be one of them.

18 Q You told me a lot about it, but I'm still not
19 clear as to whether you feel that if NRC hadn't
20 identified it, that an unacceptable weld would have been
21 produced. Now, that is a little bit debatable in a
22 technical sense, and further, I get the impression that
23 the item is still open.

24 A (WITNESS GALLO) To answer your last question
25 first, the item was closed in Inspection Report

1 78-15-01. I'm sorry. The item was identified in
2 78-15. It was closed out in 79-12. And it appears that
3 it was inspected in between another time in Inspection
4 Report 79-02. So the discussion of the item appears in
5 three reports.

6 And to answer your first question, I could not
7 determine what, if anything, in the licensee's program
8 would have identified this type of problem if the NRC
9 had not.

10 (Panel of witnesses conferring.)

11 A (WITNESS GALLO) As I indicated also, the AWS
12 code committee meeting in March '79 results aren't
13 documented in our inspection report, and they may have
14 provided the relief to the licensee which could have
15 said it was acceptable as is, but I don't know that.

16 BY JUDGE MORRIS:

17 Q What was the basis for closeout in 79-12?

18 A (WITNESS GALLO) In 79-12 it discusses the
19 issuance of 11 new weld technique sheets numbered which
20 clarify joint preparation details, and also the fact
21 that several of the welds have been identified which are
22 planned to or have been cut out and reworked in
23 accordance with the new procedures. And there were
24 nonconformance reports to identify the particular
25 welds. That is the basis for the final closeout.

1 MR. LANPHER: Judge Morris, could we get an
2 identification of where in 79-12 he was referring to,
3 please?

4 JUDGE BRENNER: Mr. Gallo, can you do that?

5 WITNESS GALLO: I have the excerpt. We will
6 have to search ourselves.

7 MR. LANPHER: Mr. Gallo, never mind.

8 (Panel of witnesses conferring.)

9 WITNESS GALLO: Discussion 79-12 is on page 6
10 for Mr. Lanpher's information.

11 The next item I was going to discuss was our
12 item number 11, welding defects in the reactor building,
13 puller crane welds.

14 In this case the welds were repaired. If we
15 had not identified them -- again, this is a form of a
16 structural steel weld, and it appears that there were,
17 from the report, there were AWS, as far as the inspector
18 identified AWS code discrepancies or violations with
19 respect to, I expect, surface irregularities and pitting
20 -- what they called rejectable defects.

21 And, again, I would add the same comment I did
22 before: that structural steel welding usually is
23 significantly overdesigned. But this was a vendor --
24 these were vendor welds, as I understand it, and a
25 puller crane was then shipped to the site so that the

1 inspections had been done at the vendor's shop. And I
2 could not identify to myself at least what in the
3 licensee's program would have identified this type of
4 defect at this stage.

5 BY JUDGE BRENNER:

6 Q Was the crane in storage somewhere at the site
7 or in its installed place, do you know?

8 A (WITNESS GALLO) Mr. Narrow informs me that it
9 was installed.

10 Q Thank you.

11 A (WITNESS GALLO) The type of things I was
12 talking about, too, in reviewing the other items where I
13 felt that some inspection, routine inspection, or some
14 other type of inspection would identify them, would have
15 included the ASME code type certification, which is the
16 N-5 certification system, along with the preservice
17 inspection and the in-service inspection required
18 essentially by the NRC where visual inspections,
19 penetrant testing or ultrasonic testing would be
20 required of welding.

21 The other thing in that same ASME code
22 requirements would be the hydrostatic testing required
23 on piping, on piping components.

24 The other thing which is outside the
25 licensee's scope of activities is the NRC has their own

1 plan, which we have discussed briefly, I believe, in
2 Inspection Report 82-19, where the NRC does independent,
3 nondestructive testing, both radiographic and I believe
4 penetrant testing, and they are principally of pipe-type
5 welds.

6 (Panel of witnesses conferring.)

7 A (WITNESS GALLO) To reiterate, the remaining
8 items I guess would be 14 other items. We did feel that
9 save our inspection, there was some method that would
10 have been identified by the licensee -- one of the ASME
11 code requirements or other inspection requirements that
12 we are aware of.

13 In some of the cases I guess we had previously
14 identified the welding procedure or the PQR where it was
15 later determined to be acceptable or previously
16 qualified by another procedural qualification review.

17 Q Just as a check, did I understand one of the
18 things you had in mind by which these items might later
19 have been identified was the in-service inspection
20 program?

21 A (WITNESS GALLO) Yes, sir. And in particular
22 the preservice part of that which has been, I expect,
23 essentially completed pretty much now.

24 Q I guess my question is as to the remaining
25 ones that you think there were methods in place by which

1 reasonably any defects would have been identified. Did
2 any get past service, that is, into the in-service
3 inspection or post-fuel load, for you to put it in that
4 category?

5 You see, in my own mind I consider time
6 identification being preservice, not in-service.

7 A (WITNESS GALLO) I didn't understand your last
8 question.

9 Q I'm concerned that you may have put one or
10 more items in your category of those which would have
11 been identified by LILCO's own inspections and checks
12 and so on only because you were thinking of the
13 in-service inspection program after fuel loading. And I
14 want to make sure that is not the case.

15 A (WITNESS GALLO) No, sir. I was considering
16 the preservice inspection as being the baseline
17 inspection. The in-service inspection has essentially a
18 ten-year cycle over which those welds would have been
19 reinspected, but they all have to be done once.

20 JUDGE BRENNER: Okay. Thank you.

21 BY JUDGE CARPENTER:

22 Q Mr. Gallo, I was asking the question to help
23 me get some perspective on the conclusion that the panel
24 reached that no unacceptable welds exist at Shoreham.
25 And certainly the four that you have identified, that

1 identification was preventative, in one case led to
2 inspection apparently of all the welds in that category.

3 I wonder if it isn't -- I'm having trouble
4 going quite that far. Mr. Lanpher asked if the panel
5 felt that wasn't a little bit far to go.

6 A (WITNESS GALLO) Sir, first of all, I believe
7 we were trying to limit our discussion to safety-related
8 systems. We probably didn't indicate that.

9 Q Well, I am more comfortable now with this
10 additional explanation that you have given me that it is
11 based on NRC inspections and the LILCO program of
12 inspections; that it is very improbable that an
13 unaccepted weld or an unacceptable weld will escape
14 detection, rather than flat statement look at more the
15 strength of the program of evaluation vis-a-vis the
16 assertion about today, what the conditions are.

17 A (WITNESS GALLO) Judge Carpenter, maybe -- I
18 probably agree that your conclusion may have been more
19 correctly worded than ours.

20 Q Well, I say I'm exploring this, trying to
21 understand it, and I got the sense that that is how you
22 came out with such an affirmative statement. But I
23 think it spoke to welds rather than the weld inspection
24 program.

25 I think you affirmed my hypothesis, and that's

1 as far as I wanted to go with it.

2 A (WITNESS GALLO) Yes, sir.

3 JUDGE CARPENTER: Thank you, Mr. Lanpher, for
4 allowing me to interrupt. I thought while we were
5 talking about welding it would be a good chance to
6 explore it further.

7 CROSS EXAMINATION -- Continued

8 BY MR. LANPHER:

9 Q Mr. Gallo, in responding to Judge Carpenter's
10 questions he phrased the question in terms of
11 unacceptable weld. How did you understand
12 "unacceptable" to be used?

13 (Panel of witnesses conferring.)

14 A (WITNESS GALLO) Using the word "unacceptable"
15 that would not conform to the design requirements.

16 Q Mr. Gallo, in your discussion of 78-15 you
17 directed our attention to 79-12, the closeout of that
18 item. Am I correct that in connection with the
19 corrective action and other actions pursuant to the
20 original notice of violation several of the welds had to
21 be cut out and reworked?

22 A (WITNESS GALLO) Yes, sir. Inspection Report
23 79-12 indicates that several welds have been identified
24 to be, or were planned to be cut out or have been cut
25 out in accordance with new procedures. And I take that

1 to mean the 11 new technique sheets also referenced in
2 that paragraph.

3 Q And in connection with 78-16, which was the
4 puller crane item, am I correct that after the
5 inspection report was prepared LILCO inspected
6 additional welds in the puller crane area, and as of the
7 time the report was prepared, they had looked at 30
8 percent of the welds and found that 10 percent of those
9 that they had looked at had rejectable defects.

10 A (WITNESS GALLO) That is stated in Inspection
11 Report 78-16.

12 Q Now, Mr. Gallo, you in responding to Judge
13 Carpenter for your final conclusion about no
14 unacceptable welds exist at Shoreham, you stated that
15 you were limiting your discussion to safety-related
16 systems. Do you recall that statement?

17 A (WITNESS GALLO) Yes, sir.

18 Q Is that true throughout your testimony?

19 MR. ELLIS: That question -- I object to the
20 question because it is excessively broad. I don't know
21 what he means by the rest of the testimony.

22 JUDGE BRENNER: It is very broad. I'm not
23 sure about "excessively" for this reason. I don't want
24 him to have to go through each sub-item. I don't know
25 yet whether the witness can answer it or not, and I do

1 want to make sure the witnesses are aware of the context
2 as well as everyone else here.

3 So why don't you give them just a little bit
4 of context, but I don't want you to have to go through
5 each item. And we will try to draw a compromise.

6 BY MR. LANPHER: (Resuming)

7 Q Mr. Gallo, are you aware of the classification
8 of items as important to safety?

9 A (WITNESS GALLO) Just in a general way, yes.

10 Q Are you familiar with the definitions used by
11 Mr. Denton in defining "important to safety" and
12 "safety-related" as being a subset thereof?

13 A (WITNESS GALLO) Yes. I have seen that letter.

14 Q Well, when you used the term "safety-related"
15 in response to Judge Carpenter were you using it in
16 accordance with the definition set forth in Mr. Denton's
17 letter?

18 A (WITNESS GALLO) As I understand, I am, yes.

19 Q Okay. Your testimony relating to welding
20 addresses only safety-related systems, correct?

21 (Panel of witnesses conferring.)

22 A (WITNESS GALLO) Yes, sir, Mr. Lanpher. It is
23 my understanding that the welding we have been inspected
24 and the welding we have addressed in our inspection
25 programs is safety-related.

1 Q Okay. And then accordingly, that is the
2 welding that you are addressing in your testimony also,
3 the safety-related welding?

4 A (WITNESS GALLO) Yes, sir.

5 Q Now, in the testimony, Mr. Gallo, in the
6 testimony you provided, the prefiled testimony, you
7 describe the I&E program. Is that description of the
8 I&E program for inspection and review of safety-related
9 systems?

10 MR. ELLIS: May we have a reference to what
11 description you're referring to in the prefiled
12 testimony, please?

13 JUDGE BRENNER: No. That is okay. Just
14 answer the question if you can.

15 (Panel of witnesses conferring.)

16 WITNESS GALLO: I'm sorry. I'm not sure what
17 page you're on.

18 JUDGE BRENNER: He's not on any page. Repeat
19 your question.

20 BY MR. LANPHER: (Resuming)

21 Q Gentlemen, in your testimony you generally
22 describe your I&E program for Shoreham, correct?

23 A (WITNESS GALLO) Yes, sir.

24 Q Does that describe a program which addresses
25 -- strike that.

1 That description of that program in your
2 testimony is as that program pertains to safety-related
3 systems, correct?

4 A (WITNESS GALLO) I believe I previously
5 testified, probably a couple of days ago, that the NRC
6 inspection program, principally in the 25-12 area,
7 relates to safety-related areas. As we expand the
8 program into preop testing it does take into account
9 some nonsafety-related areas and also that occurs in
10 operation, too.

11 Q But not during the I&E program prior to preop?

12 A (WITNESS GALLO) In general, that is correct.
13 It is directed toward safety-related systems. Again,
14 there are a couple of minor exceptions such as fire
15 protection, which is covered by Appendix R, 10 CFR 50.

16

17

18

19

20

21

22

23

24

25

1 Q Mr. Gallo, do you recall your testimony on the
2 first day that you were on the stand, where we were
3 discussing ISE report 82-29 and an ENDCR-related problem
4 therein? Do you recall the ENDCR problem in 82-29?

5 A (WITNESS GALLO) No, I don't.

6 Q Maybe Mr. Higgins does.

7 A (WITNESS HIGGINS) Mr. Lanpher, I was the one
8 who testified on that.

9 Q And I asked you the question whether you
10 indicated the item involved was non-safety-related and
11 that that was the reason you did not cite it against
12 Appendix B. Do you recall that?

13 A (WITNESS HIGGINS) Yes, I do.

14 Q And you stated that if it had been a
15 safety-related system, you would have cited it for a
16 violation?

17 A (WITNESS HIGGINS) Yes, I did.

18 Q That ENDCR involved the screen wash system;
19 correct?

20 A (WITNESS HIGGINS) Yes.

21 Q Is that a system which is important to safety
22 but not safety-related?

23 (Witnesses conferred.)

24 A (WITNESS HIGGINS) Mr. Lanpher, I don't have
25 in my hip pocket or even back in my office at the site a

1 listing of what the important-to-safety systems are. I
2 know what the definition is in the Denton memorandum and
3 also the reference to the General Design Criteria. So I
4 can give you my own estimation, but there is nothing
5 that I could look up to and say that is important to
6 safety, that is not even important to safety, that is
7 safety-related.

8 My estimation of the screen wash would be not
9 even important to safety.

10 JUDGE BRENNER: If you had that list, Mr.
11 Higgins, you could save some of your fellow staff
12 members a lot of work.

13 (Laughter.)

14 JUDGE BRENNER: Go ahead, Mr. Lanpher.

15 MR. LANPHER: That is for sure, Judge Brenner.

16 BY MR. LANPHER: (Resuming)

17 Q Well, Mr. Higgins, let's go to Attachment 2B
18 of your prefiled testimony, 79-16 again, page 6 of
19 Attachment 2B, and lines 4 through 7, first of all. And
20 this is in the cleanness area. It states that the
21 inspector also noted cleanness discrepancies on Category
22 2 and 3 equipment, including the control rod drive pumps
23 and condensate booster pumps.

24 Now, do you think -- and I understand you
25 don't have a list of items important to safety but not

1 safety-related -- but between Category 2 and 3, these
2 aren't safety-related systems. Correct?

3 A (WITNESS HIGGINS) Correct.

4 Q Do you believe these would fall within the
5 category of important to safety?

6 A (WITNESS HIGGINS) Yes, I do.

7 Q In this inspection report you identify the
8 deficiencies with respect to these Category 2 and 3
9 items of equipment; correct?

10 A (WITNESS HIGGINS) Yes.

11 Q You did not cite them for a violation against
12 Appendix B because these were not safety-related; is
13 that correct?

14 A (WITNESS HIGGINS) That is correct.

15 Q Why didn't you cite them for a violation
16 against General Design Criterion 1?

17 A (WITNESS HIGGINS) General Design Criterion 1
18 does not say you have to keep the control rod drive
19 pumps and the condensate booster pumps clean. That
20 seems a little simplistic answer, but I believe that
21 that really goes to the heart of the matter.

22 Q Well, GDC-1 states that you shall have -- let
23 me get it. Do you have GDC-1 available, Mr. Higgins?

24 (Pause.)

25 Q And I quote, partway through that GDC, Mr.

1 Higgins, "A quality assurance program shall be
2 established and implemented in order to provide adequate
3 assurance that these structures, systems, and components
4 will satisfactorily perform their safety functions."

5 Now, you understand the structures, systems,
6 and components to mean items important to safety;
7 correct?

8 A (WITNESS HIGGINS) In accordance with the
9 Denton memorandum, yes.

10 Q Then do you understand GDC-1 to require the
11 establishment of a quality assurance program for items
12 important to safety?

13 A (WITNESS HIGGINS) I believe that is what it
14 says.

15 Q But you do not believe that the quality
16 assurance program for items like the control rod drive
17 pumps and condensate booster pumps need to keep those
18 items of equipment clean?

19 A (WITNESS HIGGINS) No, I didn't say that.

20 Q Then I misunderstood you. Do you think that
21 the quality assurance program for those items of
22 equipment should keep them clean?

23 A (WITNESS HIGGINS) I guess we're getting into
24 an area now where things are a bit undefined, and that
25 is why I gave you my answer, that it didn't specifically

1 require that it keep those pumps clean. In fact, it
2 requires that you have an adequate quality assurance
3 program. There is certainly a lot of judgment involved
4 there also. What components have to be included within
5 that is very judgmental.

6 And so the reason that I didn't cite that as a
7 violation to that item is because it is a very
8 judgmental type of thing, an area where policy has not
9 been set within the NRC, and it is really not the
10 business of an individual resident inspector to be
11 making overall NRC-wide policy in writing violations.

12 Q Well, have you ever cited a violation against
13 GDC-1, sir?

14 A (WITNESS HIGGINS) No.

15 Q Do you inspect against GDC-1? Do you use that
16 as one of your standards in your inspection?

17 A (WITNESS HIGGINS) GDC-1 is too general to use
18 as a standard for inspection for my purposes.

19 Q Do you have a checklist or some other guide on
20 how to interpret the quality assurance requirements of
21 GDC-1 in your I&E program?

22 A (WITNESS HIGGINS) No, not to my knowledge.

23 JUDGE BRENNER: Mr. Higgins, notwithstanding
24 all that, you did write that paragraph under E that Mr.
25 Lanpher quoted to you and which you noted these things

1 on the assumption that you do not like to write words
2 just for the sake of writing words. What did you expect
3 to accomplish by doing what you did?

4 WITNESS HIGGINS: I felt those components were
5 dirtier than they should be. I felt they did have some
6 importance to safety, and I felt that the licensee
7 wasn't taking adequate actions to keep them clean. And
8 I was hoping by putting it in the inspection report that
9 he would improve his program and clean them up.

10 I didn't feel that I had a legal basis to
11 write a citation and require a response on the record to
12 it, however. But the licensee acknowledged the comment
13 and cleaned them up.

14 BY MR. LANPHER: (Resuming)

15 Q You didn't expect, even though you didn't call
16 for formal corrective action because it wasn't cited in
17 any of the categories, did you expect the response to
18 the inspection report to include a written notification
19 for your information by LILCO as to what it did in
20 response to that?

21 A (WITNESS HIGGINS) No. And the licensee did
22 tell me informally he did not intend to do that because
23 they were not safety-related items.

24 JUDGE BRENNER: What level of LILCO was that
25 conversation held?

1 WITNESS HIGGINS: It would have been at my
2 exit meeting. Those are generally attended by the
3 managers, but I don't recall at this time who it was. I
4 just don't recall, Judge Brenner.

5 JUDGE BRENNER: What would you have done if
6 they said, forget about it, we're not doing it?

7 WITNESS HIGGINS: What would I have done
8 then? We would have discussed it with my regional
9 supervision and tried to get them to call at a little
10 higher level up at the licensee to see if we could
11 change those situations.

12 JUDGE BRENNER: In other words, you would have
13 pursued it further if you had not gotten an acceptable
14 response, notwithstanding the fact that you expected the
15 response to be informal?

16 WITNESS HIGGINS: That is correct.

17 JUDGE BRENNER: Thank you.

18 Back to you, Mr. Lanpher.

19 BY MR. LANPHER: (Resuming)

20 Q By the way, I took a look at 79-16, and there
21 is no indication on the second page where sometimes
22 there is an asterisk, who was at the exit meetings and
23 not, and there wasn't an indication here.

24 A (WITNESS HIGGINS) As the resident inspector,
25 I have multiple exits during the month, and it gets too

1 complicated to have single asterisks, double asterisks,
2 swords and everything else.

3 JUDGE BRENNER: Well, you answered my
4 question. I wasn't as interested in the individual so
5 much as the level. And you told me a management level.

6 WITNESS HIGGINS: That is correct.

7 JUDGE BRENNER: Or a managerial level.

8 MR. LANPHER: One moment, Judge.

9 (Pause.)

10 BY MR. LANPHER: (Resuming)

11 Q Would it be fair to state, Mr. Higgins, then
12 that if you see problems with non-safety-related
13 systems, you will at least on occasion write them up, as
14 you did in 79-16, but you don't have -- well, is that
15 true?

16 A (WITNESS HIGGINS) Yes.

17 Q I apologize this if it is repititious. Just
18 so it is clear in my own mind, you don't have a
19 checklist or other kinds of similar inspection program
20 for systems, structure, or components which are
21 important to safety but not safety-related?

22 A (WITNESS HIGGINS) For some specific ones we
23 do, and I think those have already been discussed.

24 Q Like fire protection?

25 A (WITNESS HIGGINS) For example, fire

1 protection, radwaste systems, instrumentation systems, a
2 number of our pre-op test programs. Inspection
3 procedures call for review of preoperational tests for
4 these types of things we're talking about here, control
5 rod drive pumps, condensate pumps, booster pumps, that
6 sort of thing.

7 So we do have a lot, particularly in the
8 preoperational test area and then also when you get to
9 the plant operation stage. But not as -- we don't have
10 an overall program that says for these
11 important-to-safety things as a group this is what you
12 do. It's more identified specifically.

13 Q Thank you.

14 MR. LANPHER: It seems like a long time ago,
15 but I am going to go back to 82-24 now where I left off
16 before lunch. And I have just one or two questions.

17 That has not previously been marked for
18 identification, so if we may, Judge Brenner, I would
19 like to have it marked as Suffolk County Exhibit 109 for
20 identification.

21 While I am identifying it, I am going to
22 direct the witnesses' attention to page 5 of the details.

23 82-24 has a cover letter. I believe it is a
24 little hard to read. It is dated October 15, 1982, and
25 it pertains to an inspection conducted from September 7

1 through 10, 1982.

2 (The document referred to
3 was marked Suffolk County
4 Exhibit No. 109 for
5 identification.)

6 BY MR. LANPHER: (Resuming)

7 Q Gentlemen, I want to specifically direct your
8 attention to the paragraph at the middle of the page
9 starting with, "The inspector toured."

10 A (WITNESS HIGGINS) We have it.

11 Q Have you had an opportunity to review that
12 earlier?

13 A (WITNESS HIGGINS) I would like to read it now.

14 Q Okay.

15 (Pause.)

16 A (WITNESS HIGGINS) Yes.

17 Q Do you agree this was an instance where the
18 inspectors identified a nonconformance with the
19 electrical separation specification, in that there were
20 two examples where wrapped cable did not meet the 1-inch
21 minimum separation distance from the cable tray?

22 A (WITNESS HIGGINS) Yes.

23 Q Wasn't this written up as a violation, sir?

24 A (WITNESS HIGGINS) The reason is that the
25 licensee was able to produce evidence that the cables

1 had been acceptable -- that is, greater than 1 inch --
2 at the time of the quality control inspections, but that
3 subsequent activities had knocked them out of alignment
4 and made them closer.

5 And also, the fact that we felt again here
6 this is a situation having to do with the overall
7 electrical separation area that the final program was
8 still ongoing and that there were additional steps to be
9 taken in the electrical separation area to make it
10 finally accepted by the licensee.

11 The licensee was aware that there was still
12 more to be done. We were aware of it. What they had
13 told us at the time of this inspection was that as they
14 were proceeding along with, shall we call it, their
15 final fix in the electrical separation area, that they
16 had done a number of things.

17 The majority of the things that they were
18 planning to do were complete in certain specific areas.
19 They had decided to address the diesel generator rooms
20 first because they were fairly small and did not have a
21 tremendous amount of cabling as opposed to some of the
22 other areas. Therefore, they were partially through
23 their program although it had been finally completed and
24 accepted as indicated here. And they more or less
25 invited our inspector to come in and take a look at it

1 and see what it looked like. And we in fact went in to
2 do that.

3 We said, where are some areas that are far
4 enough along that we can look at them? As a matter of
5 fact, this inspection was scheduled by myself to make
6 sure that things were far enough along that we would
7 have some valuable and meaningful things to look at, but
8 early enough in the program such that the program wasn't
9 near completion and we still could have valuable input
10 with any comments that we would make.

11 In this instance, the inspector identified
12 some problems and also wrote an unresolved item to
13 document the follow-up on the overall problem. So I
14 guess what I am saying is that for the two specifif
15 instances that we found, we considered them fairly
16 trivial, in that there were still more things to be done
17 by the licensee, they were not particularly significant
18 in themselves, and the licensee and we were aware that
19 there was more to be done.

20 But what we were concerned with and the reason
21 we wrote the unresolved item was that we felt that the
22 type of thing that happened here -- namely, these being
23 moved out of position and violating the 1-inch
24 separation after the quality control inspection took
25 place -- was a thing that could happen very easily in

1 other parts of the plant after the quality control
2 inspections took place, particularly with respect to
3 these cables in free air.

4 And therefore, we wrote it up as an unresolved
5 item, and the licensee has been addressing this. As a
6 matter of fact, the way he is addressing it is that
7 there have been engineering tests and evaluations that
8 have demonstrated that the 1-inch separation distance is
9 not required as long as you have it either wrapped or
10 barriered.

11 And it is my understanding, although the item
12 is not closed yet, that the route the licensee is going
13 to take is going to use these engineering tests by Wyle
14 Labs, I believe, to justify not having to meet the
15 1-inch.

16 JUDGE CARPENTER: I just want to ask, Mr.
17 Gallo, if you could help the Board. This area that this
18 inspection report talks about, is this unique to
19 Shoreham, or is this the sort of problem that Region I
20 is having to work with other places?

21 (Witnesses conferred.)

22 WITNESS GALLO: Judge Carpenter, as to your
23 question, we all basically agree that the electrical
24 cable separation is a problem we find at essentially
25 every construction site, but that it appears that

1 Shoreham does have a little bit higher, higher level of
2 problem than the average site.

3 JUDGE CARPENTER: Thank you very much for that
4 perspective.

5 BY MR. LANPHER: (Resuming)

6 Q Gentlemen, in 82-24, pages 2 and 3, the first
7 page of the details and the second page, is where I&E
8 closed out the cable separation matters in 79-07, and at
9 the top of page 3 closed out cable separation items that
10 we have been talking about in CAT. Correct?

11 A (WITNESS HIGGINS) That is correct.

12 Q It is fair to state that notwithstanding those
13 close-outs, cable separation remains at least an
14 unresolved item at Shoreham today?

15 MR. ELLIS: Objection, unless there is some
16 indication of what is meant by "difficulties or
17 problems." I think the question is unclear unless he is
18 referring to a specific item that isn't closed out.

19 JUDGE BRENNER: I am going to allow the
20 question as asked, and if Mr. Higgins will forgive me,
21 and the other members of the panel, put the burden on
22 them to explain what the current situation still is in
23 the context of the question.

24 WITNESS HIGGINS: At the time of this
25 inspection I did have discussions with the inspector,

1 Mr. Richards, who did the inspection, as to closing out
2 of these items and the further things that had to be
3 done. We felt the particular problems that had been
4 identified in the previous items in 79-07 and in 82-04
5 had been addressed.

6 Mr. Richards performed an overall review of
7 where the electrical separation program was headed at
8 Shoreham, and he felt when the inspection was performed
9 that in general it was fairly well resolved and headed
10 in the right direction except there were a few areas
11 where he felt that there was still additional
12 information or additional things that needed to be
13 better defined. For those he wrote up four unresolved
14 items which are in paragraph 3 of this inspection
15 report. And those are basically the areas that we feel
16 are still of some question in fairness to the licensee
17 for several of these.

18 The licensee was headed in the direction that
19 is indicated by the item anyhow. It is just that the
20 information wasn't there or the procedures weren't
21 finalized. For example, in some of the testing that is
22 described here, they were performing testing, and it's
23 just that the data was not available yet for our review
24 and determination if it was acceptable.

25 MR. LANPHER: I have no further questions on

1 that item, Judge Brenner.

2 JUDGE BRENNER: Let me try one and hope I
3 don't get whole-hog into the area of electrical
4 separation that you can't get into. I don't think I
5 will.

6 Is it fair to infer from the item on page 5
7 with respect to the concern that the 1-inch separation
8 can be maintained in the future beyond that particular
9 item? And I also have in mind your explanation that
10 LILCO might have elected a different way -- that is,
11 wrapping -- and then in the engineering analysis
12 justifying that.

13 Is it fair to infer from all of that that the
14 IE inspectors involved in this report and perhaps also
15 yourself believes that it would be just too much
16 perfection to expect from an ongoing QC program that
17 cables capped approximately an inch apart in an
18 operating plant would maintain that minimum distance?
19 Is that the problem you are worried about?

20 Let me put it more bluntly. If they ended up
21 saying they're going to maintain the 1-inch separation
22 and that's going to be the basis for acceptability, do
23 you have difficulty believing that the level of
24 compliance with that will be sufficient over the life of
25 the plant?

1 WITNESS HIGGINS: After this inspection I have
2 told Long Island Lighting Company representatives that I
3 don't believe there is any way they could maintain that
4 1 inch if they commit to it.

5 JUDGE BRENNER: I guess that answers my
6 question. And let me ask this. Is that a comment on
7 LILCO or your assessment of the level of efficacy to
8 expect from any QC program?

9 WITNESS HIGGINS: The second, particularly
10 considering that what we're talking about here are
11 cables that are basically in free air or in transition
12 between a component and a cable tray or a conduit and a
13 cable tray, this type of thing.

14 And in many areas there are large bundles of
15 them containing large numbers of cable, and you're
16 probably talking on the order of tens of thousand here,
17 not just thousands. And in a lot of cases because of
18 the way the cables were run and the necessity to
19 separate the safety-related from the non-safety-related,
20 there are just so many instances where they could be
21 disturbed and moved closer, that I don't feel that there
22 is any way that they could do it.

23 MR. ELLIS: Judge Brenner, for my own planning
24 purposes, did you plan to break this afternoon?

25 JUDGE BRENNER: Yes. I was just looking at

1 the clock right now with that in mind.

2 MR. LANPHER: Could I just ask one or two more
3 questions and then I will be, I think, done with the
4 cable separation issue.

5 JUDGE BRENNER: All right.

6 MR. LANPHER: Why don't we just take the break?

7 JUDGE BRENNER: All right, we will take 15
8 minutes and come back at 2:40.

9 (Whereupon, at 2:25 p.m., a brief recess was
10 had, to reconvene at 2:40 p.m., this same day.)

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

1 JUDGE BRENNER: We are ready to proceed.

2 BY MR. LANPHER: (Resuming)

3 Q Mr. Higgins, in connection with 82-24, do you
4 know what the objective evidence was that is referred to
5 on page 5; that is, the objective evidence that the
6 cables have been moved slightly?

7 A (WITNESS HIGGINS) I had some discussion with
8 the inspector, I don't recall exactly what it was. I
9 think in one instance there was a repair rework request
10 shown which was working on a component or a deck plate
11 or something that was located right next to it that you
12 almost could move out without bumping it in one case.
13 And I don't recall what the second one was. I guess I
14 really don't have definite information on that.

15 JUDGE BRENNER: Mr. Lanpher, maybe this is a
16 heck of a time to ask this of you with 50 minutes left
17 to go in a long week, but why is that question
18 necessary, given the context of prior answers as to why
19 this item was considered important by IE and the other
20 answer by Mr. Higgins in response to my follow-up
21 questions? Why did we have to know what the objective
22 evidence was?

23 MR. LANPHER: Depending upon what the kind of
24 evidence it was, it might have been very similar to the
25 CAT inspection violation 3, Judge Brenner. That is

1 where the scaffolding, the other work had messed up
2 something.

3 JUDGE BRENNER: Okay. I will accept that
4 answer. Go ahead.

5 BY MR. LANPHER: (Resuming)

6 Q Gentlemen, I want to just briefly turn your
7 attention back to page 24 of your prefiled testimony.
8 Mr. Gallo, I earlier asked you whether Item 2 on that
9 page had a typographical error. Does it?

10 A (WITNESS GALLO) Yes, sir, Mr. Lanpher. For
11 the record, Item 2 on page 24 of the NRC prefiled
12 testimony should read Inspection Report 80-10" instead
13 of "80-14.

14 Q Thank you. Gentlemen, yesterday -- I guess it
15 was yesterday -- you described how the ENDCR problem
16 discussed in the CAT inspection -- the weakness wasn't a
17 violation, it wasn't cited as a violation -- relates to
18 control of design documents; correct? Do you recall
19 that -- as opposed to a design control problem?

20 A (WITNESS HIGGINS) ENDCRs are certainly design
21 documents. I guess the weakness that we wrote up, I
22 wouldn't classify exactly as you did.

23 Q Well, that weakness, if you were including on
24 page 24 of your testimony all -- well, if you are
25 including design control problems, if you had been

1 including things other than violations, would you have
2 included the ENDCR problem identified in CAT, or the
3 weakness?

4 A (WITNESS HIGGINS) No.

5 Q Why not?

6 A (WITNESS HIGGINS) Because I guess as I have
7 characterized before, the things that we put into design
8 control were generally items that we felt were a real
9 problem with the design process itself or with actual
10 hardware of the design not being implemented properly.

11 Q Mr. Higgins, could you turn your attention to
12 I&E Report 81-22, which has previously been marked as
13 Suffolk County Exhibit 104, and page 7 of that, and
14 paragraph D, as in "dog," at the bottom of page 7?

15 MR. ELLIS: What was the number again?

16 MR. LANPHER: Page 7.

17 MR. ELLIS: Thank you.

18 BY MR. LANPHER: (Resuming)

19 Q Mr. Higgins, you were the inspector on this;
20 correct?

21 A (WITNESS HIGGINS) Correct.

22 Q Now, Mr. Higgins, it indicates that you found
23 that design change documents, ENDCRs, and drawing
24 updates were not distributed in a controlled manner to
25 the startup engineers. What did you mean by "controlled

1 manner"? What was the problem here?

2 A (WITNESS HIGGINS) The licensee and I had some
3 disagreements on this item. I guess I maintained that
4 it was not being done in a fully controlled manner,
5 whereas they maintained that it was. And that is why we
6 ended up writing it as an unresolved item. In fact, the
7 ENDCRs were sent to the test engineer as part of the
8 distribution before a particular ENDCR. It includes the
9 startup group and the cognizant startup test engineer,
10 and then the startup test engineer is responsible for
11 the implementation of startup activities which may be
12 multiple as they relate to an ENDCR.

13 There was not a system set up where the
14 startup test engineer would have to receipt for that
15 ENDCR and provide any type of record that he had gotten
16 it and taken the actions required other than if you look
17 for the particular system and to that particular ENDCR,
18 you could find that.

19 I guess what I am saying is that the licensee
20 had some controls and some distribution, but I didn't
21 feel it was adequate and particularly in light of some
22 of the problems that I found in the violation. So what
23 I was trying to do in paragraph D and in the unresolved
24 items was to get at the symptoms of the problem rather
25 than just the problems themselves.

1 Q You stated that the licensee disagreed with
2 your concern?

3 A (WITNESS HIGGINS) Disagreed with my
4 evaluation of it. They agreed that the end results were
5 unsatisfactory and that there were actions that needed
6 to be taken.

7 Q Well, then what was the disagreement?

8 A (WITNESS HIGGINS) Well, we did have a
9 particular disagreement about the use of the word
10 "controlled." They felt that it was a controlled
11 distribution, whereas I felt it was not.

12 Q Is it fair to state that in your opinion this
13 constituted a weakness in the controlled distribution or
14 in the control of ENDCRs and drawing updates?

15 A (WITNESS HIGGINS) I classified it as an
16 unresolved item at the time. We normally don't use the
17 classification of a "weakness" except in the special
18 team inspections that we do.

19 Q Well, not using it, I can't think of a better
20 word than "weakness" here, so I am not using it in that
21 technical sense, as you were in CAT. But you thought
22 there needed to be improvements in the system?

23 A (WITNESS HIGGINS) Yes, I did.

24 MR. LANPHER: Judge Brenner, I would like to
25 move the admission of 81-22, Suffolk County 104, to the

1 extent that it has been inquired into.

2 JUDGE BRENNER: Okay. In the absence of
3 objection, it is admitted to that extent.

4 (The document previously
5 marked Suffolk County
6 Exhibit No. 104 for
7 identification was
8 received in evidence.)

9 MR. LANPHER: There are three other Suffolk
10 County exhibits which were marked today which I have not
11 moved into evidence, which I would like to, Judge
12 Brenner. Suffolk County Exhibit 107, which is I&E
13 Report 77-07, and that relates to a welding matter.
14 Suffolk County Exhibit 108, that is I&E Report 80-10,
15 and that was a 1980 separation, electrical separation
16 problem. And Suffolk County Exhibit 109; that is 82-24
17 that we were just discussing a few minutes ago relating
18 to electrical separation again.

19 JUDGE MORRIS: What was your number for 107
20 again, Mr. Lanpher?

21 MR. LANPHER: Excuse me?

22 JUDGE MORRIS: The I&E inspection report
23 number for Exhibit 107?

24 MR. LANPHER: I have 77-01.

25 JUDGE MORRIS: Correct. I think you said 10.

1 MR. LANPHER: I apologize. Thank you.

2 JUDGE BRENNER: All right. In the absence of
3 objection, those three exhibits are admitted to the
4 extent noted.

5 (The documents previously
6 marked Suffolk County
7 Exhibits No. 107 through
8 109 for identification
9 were received in
10 evidence.)

11 MR. LANPHER: Judge Brenner, I am back to page
12 30 of my outline, I think, Item F.

13 JUDGE BRENNER: Thank you.

14 BY MR. LANPHER: (Resuming)

15 Q Gentlemen, in the design control area, we
16 talked about a number of the items. On page 25 you
17 discuss Items 1, 3, and 5 specifically, and you state
18 that the remaining four items, which are 2, 4, 6, and 7,
19 relate to the conformance of plant with the licensee
20 commitments or regulatory requirements. And you go on
21 to state that they are being addressed in the Shoreham
22 configuration review program. Do you see that testimony?

23 A (WITNESS HIGGINS) Yes, we see that paragraph.

24 Q Would you agree that -- strike that.

25 You referred to a November 12, 1981, meeting

1 between the licensee and the NRC Staff. And you state
2 that at that meeting the issue of conformance with
3 licensee commitments and regulatory requirements was
4 discussed. Why was this meeting held, if you know?

5 A (WITNESS HIGGINS) Yes. It was held because
6 of our concern in the FSAR conformance area.

7 Q Had this been a problem that had recurred
8 several times prior to November 1981?

9 A (WITNESS HIGGINS) We had had a number of
10 findings and inspection reports that identified
11 discrepancies between the as-built plant and the FSAR
12 design description.

13 Q Well, why is the Staff, or why was the Staff,
14 concerned about conformance of the as-built plant to the
15 FSAR description?

16 A (WITNESS GALLO) Mr. Lanpher, there are two
17 reasons why we were concerned with that description of
18 the plant as shown in the FSAR. The first one was, of
19 course, the review done by Nuclear Reactor Regulation
20 people in Washington, concerned that they were reviewing
21 the plant that was actually being built at Shoreham.

22 And the second reason is a long-term reason:
23 to make sure that the FSAR for our purposes, NRC, and in
24 the future during operations, that we have a reliable
25 document that represents the as-built plant.

1 Particularly, it becomes very useful in emergency
2 situations where in the regional office we do not have
3 necessarily all of the design drawings that are
4 available at the site. We have principally the FSAR.

5 Q Then it is your testimony that NRR primarily
6 reviews the adequacy of the plant to regulatory
7 requirements by a review of the FSAR?

8 (Witnesses conferred.)

9 A (WITNESS GALLO) Mr. Lanpher, NRR reviews the
10 description of the plant found in the FSAR in addition
11 to what is in the basic FSAR document. There are
12 questions and answers which are mailed back and forth to
13 each other and then eventually reflected in the FSAR
14 plus site visits done by various organizations within
15 NRR, and on some occasions, I understand, independent
16 reviews such as computer programs, the computer program
17 may be identified in the FSAR. But I believe the NRR
18 does go further on those type of program.

19 A (WITNESS HIGGINS) There are also a number of
20 instances that I am aware of where the actual detailed
21 piping and instrumentation drawings and logic drawings
22 have been given to NRR for their review both at the site
23 and sent to them for review both by NRR and by
24 NRR-contracted organizations such as EG&G and Battelle.

25 Q Well, is it fair to state that the Staff's

1 position that the FSAR, at least to the extent of detail
2 it goes into, should be an accurate description of the
3 design?

4 A (WITNESS GALLO) I would agree with that
5 statement.

6 Q And it should be up to date?

7 A (WITNESS GALLO) It is not required to be up
8 to date as of today's design changes. I do not believe
9 there is any requirement for that.

10 Q I don't mean minute-to-minute up to date, Mr.
11 Gallo, but do you believe that as changes in design are
12 made and identified by the licensee on a reasonably
13 prompt basis, those changes should be communicated to
14 the NRC?

15 A (WITNESS GALLO) I believe that, but I don't
16 think there is any NRC requirement that says that.

17 Q Well, if they are not communicated reasonably
18 promptly to the NRC, isn't there a danger that NRR's
19 review will be based on out-of-date information?

20 A (WITNESS GALLO) That was one of the concerns
21 we had with the meeting. And of course, we in the
22 regional office do not necessarily know every review and
23 every document that the licensing folks have other than
24 the FSAR. So it is very difficult to identify if they
25 know that there is a design change because of a meeting

1 that was held in Washington or at the site, and the FSAR
2 later is going to be updated.

3 It is very difficult for us to tell whether
4 they have knowledge of the way the system is correctly
5 described other than by looking at the FSAR and
6 comparing it to what we see at the site.

7 Q What role, if you know, does quality assurance
8 play at LILCO in ensuring that the FSAR is maintained up
9 to date and accurate?

10 A (WITNESS GALLO) I do not know.

11 A (WITNESS HIGGINS) I can add a little bit to
12 that. I know that the design change -- and I guess I
13 would add to start out here that the responsibility for
14 the FSAR has been effected by Stone and Webster for Long
15 Island Lighting Company, and I know that Stone and
16 Webster quality assurance is involved with design
17 changes and with FSAR changes and so forth.

18 Also, when, for example, ENDCRs are approved,
19 there is an indication on the ENDCR whether or not an
20 FSAR change is required and there is a quality assurance
21 review of the ENDCRs.

22 Q Would you agree then, Mr. Higgins, that as
23 ENDCRs are written up and reviewed and approved, that
24 changes to the FSAR are part of that ENDCR process, or
25 the need to change the ENDCR?

1 A (WITNESS HIGGINS) That is part of it, as I
2 indicated, but there is a place to indicate on the ENDCR
3 itself whether or not that particular change results in
4 an FSAR change and whether or not the FSAR should be
5 changed to incorporate that. And it is just a checkbox,
6 yes or no. And if yes, then it goes into a cycle for
7 voluntary FSAR changes, which is the system that Stone
8 and Webster and LILCO have.

9 Q Have you been able to determine what the cause
10 was? You identified a problem sometime, at least by
11 November 1981, that there were discrepancies between the
12 FSAR and the as-built plant; correct?

13 A (WITNESS HIGGINS) Yes.

14 Q Were you able to determine what the cause of
15 those discrepancies were? Or were there multiple causes
16 or what?

17 A (WITNESS HIGGINS) We weren't able to clearly
18 identify one particular cause. And at the meeting that
19 we had in November with licensee, we had a number of
20 items that had been identified at various inspection
21 reports prior to that, and they had previous to this
22 meeting gone through each of them and done an analysis
23 of it to try to determine what the discrepancy was and
24 the cause of the particular discrepancy.

25 And we thought that we could get through that

1 fairly quickly. As it turned out, the meeting lasted an
2 entire day, just to go through these, to my
3 recollection, about 15 to 20 items. And I think the
4 conclusion that we reached was that it was a complicated
5 matter and that there were many different things that
6 could cause it, although there didn't appear to be any
7 really one common thread running through.

8 Therefore, that was the reason that we ended
9 up with such a broad program as the Shoreham plant
10 configuration review program to address the
11 discrepancies. In general, the discrepancies we found,
12 most of them were of fairly fine detailed type of
13 discrepancy. Some of them were larger, however, and
14 there was really -- it was really not amenable to a
15 simple solution to say, this is the cause, we do this
16 and that corrects the problem.

17 What really had to be done was a full review
18 to make sure that all of these fine detailed
19 discrepancies were identified and corrected in the FSAR.

20 Q Am I correct that you believe that even the
21 fine details in the FSAR should be accurate for NRR
22 review and I&E review?

23 A (WITNESS HIGGINS) In general, that is true.
24 There may perhaps be, as is the final output of the
25 Shoreham plant configuration review program that has

1 gone down to the exact detail to see that everything
2 needs to be exactly correct. I believe the final output
3 is perhaps going to say that there can be some generic
4 type trains in there with a proviso of the nature that
5 test vent and drain connections are typical, or
6 something like this, perhaps; or, let's say, valve
7 capping or valve locking as indicated in the FSAR is not
8 as exactly at the plant.

9 But other than perhaps some very specific
10 exceptions of the types that I just discussed, yes, I
11 agree that the informational detail in the FSAR should
12 be correct.

13 Q Gentlemen, I would like to direct some
14 questions related to some of the details of the CAT
15 inspection now.

16 First, however, there has been previous
17 testimony about the CAT inspection in the description, I
18 think, that the inspectors use, that this was an
19 inspection of completed construction of the RHR system.
20 Did CAT only look at the completed aspects of the RHR
21 system, or what? I am looking at the first page, the
22 signature page, where the summary states, "Special team
23 inspection of completed construction."

24 A (WITNESS HIGGINS) We looked at all aspects of
25 the RHR system.

1 Q So what was the meaning of "completed
2 construction"? The cover letter says this refers to the
3 -- what did you mean by "completed"?

4 A (WITNESS HIGGINS) What we meant was when we
5 went to do the inspection we went to do a basically
6 as-built inspection to verify one of the more or most
7 important safety systems in the plant to verify its
8 as-built configuration. And since the plant was still
9 some time from fuel load, from licensing, we wanted to
10 pick a system that was essentially done or complete.

11 And so in selecting what system to pick, we
12 first of all tried to pick an important safety system,
13 and secondly, we wanted to pick a system that was
14 essentially done enough so that we could perform a
15 meaningful inspection and not continually get answers
16 such as, why is this pipe support only half-welded, and
17 the answer being, well, we haven't finished working on
18 it yet.

19 So that is the meaning of "completed." The
20 fact that we wanted to choose a completed system so that
21 we could have a meaningful inspection, and we just
22 indicated that in the letter.

23 Q Gentlemen, I would like to turn your attention
24 to Appendix B, the notice of deviation. And deviation
25 number 4, why did the Staff list this item relating to

1 the LPCI loop selection logic as a deviation from FSAR
2 commitments?

3 A (WITNESS HIGGINS) As I stated earlier, we
4 feel that in all of the informational detail the FSAR
5 should be correct. We realize that there was another
6 location in the FSAR, perhaps more than one, where the
7 LPCI loop selection logic had been correctly identified.

8 And also, we were aware that NRR knew that
9 LPCI loop selection had been deleted and not in the
10 design for Shoreham, but having it in the FSAR like that
11 certainly could lead to possible confusion. And we
12 didn't like that, and we wanted it corrected.

13 Therefore, any deviation between the as-built
14 plant and the FSAR that we found that was not in an
15 ongoing scheduled change by LILCO in the works, shall we
16 say, we included as a deviation.

17

18

19

20

21

22

23

24

25

1 Q When you say deviation, that is a deviation
2 from an FSAR commitment; is that correct?

3 A (WITNESS HIGGINS) Correct. Basically, what we
4 are saying is the FSAR in that location said that LPCI
5 loop selection logic was what the plant had, and in
6 fact, it didn't. We were aware that the FSAR did say in
7 another place that it had a different type of logic, but
8 I guess this is more of a QA, would you say, on their
9 FSAR to see how accurate it is. And in fact, we felt it
10 was inaccurate in this place and we wanted it corrected.

11 Q Gentlemen, I would like you to turn to page 14
12 of the CAT inspection under Labeling, and we spent some
13 time on this in Mr. Hubbard's examination. I don't know
14 if you have had a chance to review those transcripts,
15 but I would like to ask several questions about this.

16 First, it states that Annunciator 1122 has a
17 seemingly contradictory label. What was I&E's concern
18 in this regard?

19 A (WITNESS HIGGINS) I don't recall the exact
20 words of the label at this time, but the concern was
21 possible confusion of the control room operator.

22 Q You would agree that control room labels on
23 annunciators should not be contradictory?

24 A (WITNESS HIGGINS) Yes.

25 Q And you believe that this should have been

1 identified previously? Is that why you wrote it up?

2 A (WITNESS HIGGINS) We believed it shouldn't
3 have been there, and that is why we wrote it up. I
4 don't know when the annunciator was installed, as to
5 whether or not it was before or after the other control
6 room human factors reviews. But the fact that it was
7 still there and it wasn't on an outstanding list of
8 control room human factors items to be corrected is why
9 we wrote it up.

10 Q You checked that outstanding list to determine
11 whether this was one of those items?

12 A (WITNESS HIGGINS) We asked the licensee to
13 check it and asked him to show us. If it was on a list
14 to be corrected, we wouldn't include it on the report.
15 And in fact, there were some things that we came up with
16 that were already on their list to be corrected and we
17 said fine, and we did not include those in the report.

18 Q Do you know what -- well, what system or
19 process by the licensee should have avoided having a
20 contradictory label?

21 (Panel of witnesses conferring.)

22 A (WITNESS HIGGINS) They had a human factors
23 review of the control room by, I believe, it was General
24 Physics Corporation done for them, which the NRC
25 required them to do.

1 Q Do you know whether --

2 A (WITNESS HIGGINS) Mr. Gallo corrects me. We
3 didn't really require it; it was one of the post-TMI
4 items that we requested they do and they did.

5 Q Strongly requested?

6 A (WITNESS GALLO) They weren't legal
7 requirements, as we have defined them before.

8 Q Do you know what Annunciator 1122 was used for?

9 A (WITNESS HIGGINS) I don't recall.

10 Q I believe you already stated that you don't --
11 or do you recall in what manner the label was
12 contradictory?

13 A (WITNESS HIGGINS) No.

14 MR. ELLIS: For the record, it does say
15 "seemingly contradictory."

16 JUDGE BRENNER: I was going to ask something
17 at the end partly because of the comment Mr. Ellis made,
18 and I had partly forgotten -- I don't know whether you
19 can answer, Mr. Higgins, since you don't remember what
20 the label said. The one thing I'm interested in is
21 whether almost any reasonable person looking at that
22 label would have said that label has got to go; it is
23 going to create problems. Or whether it was in the area
24 of nice to have improvement, and you can see how
25 somebody reviewing it before might not have jumped on

1 that change, or none of the above.

2 WITNESS HIGGINS: I think I would put it more
3 in the category of there could be some disagreement on
4 it; not something that would really jump out at you.

5 JUDGE BRENNER: I take it you remember enough
6 about it to answer that, even though you don't remember
7 exactly what was involved.

8 WITNESS HIGGINS: I wrote that particular
9 bullet.

10 JUDGE BRENNER: Okay.

11 BY MR. LANPHER (Resuming):

12 Q Well, Mr. Higgins, you thought it was
13 seemingly contradictory enough that it should never have
14 been installed that way, correct? The label?

15 A (WITNESS HIGGINS) That was my opinion, yes.

16 Q Do you know whether the installation of this
17 annunciator label had been reviewed by LILCO Quality
18 Assurance?

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

20 Q Do you know whether LILCO Quality Assurance,
21 in the course of its activities, does review items like
22 the labels on control room panels?

23 A (WITNESS HIGGINS) I don't know.

24 Q Do you think it should?

25 (Panel of witnesses conferring.)

1 A (WITNESS HIGGINS) We don't have a strong
2 opinion on that.

3 Q That implies you have a weak one. I mean, do
4 you have any opinion?

5 A (WITNESS HIGGINS) We are undecided.

6 Q Mr. Gallo?

7 A (WITNESS GALLO) I guess my initial impression
8 would be if it was purchased as a quality component,
9 then QA should be involved. Now, I don't know -- the
10 labels are probably not purchased as quality
11 components. They may be produced locally.

12 Q Well what do you mean by a quality component?
13 Do you mean a safety-related?

14 A (WITNESS GALLO) A safety-related component.
15 In this case, if it is really an annunciator, I do not
16 believe that annunciators are safety-related. So I
17 guess I would say that that would probably eliminate
18 quality assurance from involvement. That is my general
19 understanding; that annunciators are not safety-related
20 items. I don't know that this one was.

21 A (WITNESS HIGGINS) Just one minute.

22 (Panel of witnesses conferring.)

23 Q Mr. Gallo, you stated that if a component were
24 not safety-related, that eliminates Quality Assurance
25 from involvement. Did you mean to say that?

1 A (WITNESS GALLO) In my experience, yes, that
2 would be the case.

3 Q Gentlemen, continuing on page 14, the next
4 bullet states that the Mimic 4E11 MOV-50 and B loop
5 drywell spray is incorrect in the control room and the
6 remote shutdown panel. How was the Mimic incorrect?

7 A (WITNESS HIGGINS) As I recall, this was a case
8 that the drywell spray was shown tapping off of the
9 wrong side of the valve.

10 Q Did this item have a potential to mislead an
11 operator?

12 A (WITNESS HIGGINS) Yes. The operators that
13 were questioned at the time were aware that it was
14 wrong, also.

15 Q Did you inquire why it had not been changed?

16 A (WITNESS HIGGINS) I don't recall. We did ask
17 if it was scheduled to be changed and if they could show
18 that it was definitely scheduled to be changed in their
19 program, and they couldn't show us anything and that is
20 why we put it in the report.

21 Q This is again referring to that work list or
22 whatever that you mentioned when we were discussing the
23 annunciator?

24 A (WITNESS HIGGINS) That is correct.

25 JUDGE BRENNER: I'm not sure if I heard you

1 right, Mr. Higgins. Did you say LILCO stated it was
2 scheduled to be changed but couldn't show you any
3 documentation? I guess I just didn't hear you. Could
4 you tell me again?

5 WITNESS HIGGINS: No. We asked them for the
6 documentation and it was not on the list, and therefore,
7 it was, in their view, not scheduled to be changed.
8 Although they did say that they probably would have
9 picked it up and changed it. Since it was not on the
10 list and it was not scheduled, we wrote it up in the
11 report.

12 BY MR. LANPHER (Resuming):

13 Q You said this was a control room operator or
14 operators had told you that they knew that it was
15 incorrect?

16 A (WITNESS HIGGINS) Yes. Some of the operators
17 that were on duty in the control room at the time of the
18 observation said they were aware that it actually tapped
19 off the other side of the valve.

20 Q Do you know how long this incorrect Mimic had
21 been present in that condition?

22 A (WITNESS HIGGINS) No.

23 Q Did you inquire of LILCO regarding that fact?

24 A (WITNESS HIGGINS) Do you know whethr this item
25 had had QA/QC review?

1 A (WITNESS HIGGINS) No.

2 Q Is it fair to state that -- I had asked you
3 before whether this had a potential to mislead an
4 operator and you said yes, but they knew about it? If
5 an operator -- if you had a new operator that didn't
6 know about it, did it have the potential to mislead?

7 A (WITNESS HIGGINS) Yes, it did.

8 Q And was that I&E's concern?

9 A (WITNESS HIGGINS) Yes.

10 Q Now, to get back to Judge Brenner's question
11 relating to annunciators, was this a close judgment
12 call, or was this just plain incorrect?

13 A (WITNESS HIGGINS) No, this was clearly
14 incorrect.

15 JUDGE BRENNER: Maybe we had better take a
16 minute and on the record ask Mr. Higgins or one of the
17 other witnesses if they could just very briefly explain
18 what an operator uses these Mimics for. We've had
19 testimony before about the Mimics and I think we all
20 know, but it is not on the record.

21 WITNESS HIGGINS: I would just have to give
22 you that in my experience because I'm not familiar with
23 exactly how LILCO trains the operators with regard to
24 Mimics. Is that what you would like?

25 JUDGE BRENNER: Yes. In other words, I want

1 to put it in the context of your testimony that if an
2 operator didn't know it was wrong, it could tend to be
3 misleading. When the operators -- what information does
4 the Mimic give the operator that the other lights and
5 dials and annunciators don't, and so on.

6 WITNESS HIGGINS: The Mimic shows on the panel
7 where the valves are and where the piping is and where
8 the tap-offs are, where the pumps are in the system and
9 this type of thing. So it would show you actually the
10 full logic, shall we say, of a piping system or an
11 electrical system, which are also mimicked.

12 Operators are supposed to operate the plant in
13 accordance with the procedures both during normal
14 operation and during accident situations, and,
15 therefore, the procedures should tell them which valves
16 to open, which pumps to run, this type of thing,
17 irregardless of what the Mimic shows. In fact, the
18 older plants don't have Mimics, and this has been one of
19 the post-TMI improvements. And in fact, it has been my
20 experience that the Mimics at Shoreham are much superior
21 to those at any other commercial plant that I have seen.

22 The concern here was that the Mimic was
23 incorrect and possibly could lead to an error if it was
24 left to be wrong, and therefore, we wanted it corrected.

25 JUDGE BRENNER: I take it when a warning

1 device goes off, that a certain number of pump or a
2 valve is operating in a certain way, it is helpful for
3 the operator to look at the Mimic and be reminded of
4 precisely where in the logic that piece of equipment is.

5 WITNESS HIGGINS: That helps. Also, it is
6 particularly helpful on, say, an RHR system, for
7 example, there are a couple of dozen valves in the
8 system in different parts of the system, like a pump
9 suction valve, a pump discharge valve, valves for
10 different branch lines and this type of thing.

11 If, as on some plants, you have all of these
12 valve switches and pump switches just in horizontal and
13 vertical rows, by looking at it, you can't tell which
14 ones you have to operate. You either have to have the
15 numbers memorized or you have to go to a procedure and
16 then search for it. But by having it laid out in the
17 Mimic you know that you want the pump suction and
18 discharge valves open and you can very easily see them
19 and open them. It is really a memory aid.

20 JUDGE BRENNER: Thank you.

21 BY MR. LANPHER (Resuming):

22 Q Mr. Higgins, do you know who was responsible
23 for the design of the Mimics, for the Mimic that we have
24 been talking about? Bullet 2 on page 14. I mean, was
25 that a LILCO engineering organization or what?

1 A (WITNESS HIGGINS) I don't know exactly. I do
2 know that there was a lot of input from a number of
3 different organizations, and I remember that just from
4 the involvement that I had with the NRC control room
5 human factors review that was done about a year and a
6 half ago at Shoreham.

7 Q Do you know whether the Mimic was -- whether
8 the incorrectness resulted from someone just doing the
9 installation wrong, or had the design of the Mimic been
10 done wrong?

11 A (WITNESS HIGGINS) I don't know.

12 Q So it would be fair to state that you don't
13 know what the cause of this problem was?

14 A (WITNESS HIGGINS) Yes, it would.

15 Q The next bullet, Mr. Higgins, is another
16 Mimic. It is for a pressure control valve, and the
17 bullet states that that one was incorrect, also. In
18 what way was that item incorrect?

19 A (WITNESS HIGGINS) This one I don't remember
20 the manner in which it was incorrect.

21 Q Do you recall whether this was a close call,
22 or was this clearly incorrect?

23 A (WITNESS HIGGINS) I believe this one was
24 clearly incorrect, also.

25 Q Did this have the potential to mislead an

1 operator?

2 A (WITNESS HIGGINS) I can't be quite as certain
3 on this one because I don't really recall the details of
4 it.

5 Q Do you know whether LILCO operators knew that
6 this one was incorrect, also?

7 A (WITNESS HIGGINS) I am not sure on that one.
8 I don't remember my discussions with the operators.

9 Q Is it fair to state you don't know whether
10 this Mimic had been reviewed by LILCO Quality Assurance?

11 A (WITNESS HIGGINS) Yes, that is fair.

12 JUDGE BRENNER: At any point that is
13 convenient we will stop. I see you looking up at the
14 clock.

15 MR. LANPHER: Yes, I'm going to continue with
16 some of these items, but there are some that I may want
17 to delete so I suppose this is as good a time as any.
18 And my best estimate for Monday would be that I would be
19 completed before noon.

20 JUDGE BRENNER: All right. I would like to
21 get a cross plan from LILCO, as we indicated, on Monday.

22 MR. ELLIS: I have it now, and I can give it
23 to you with the disclaimer that we may do some
24 substantial work over the weekend.

25 (Discussion off the record.)

1 JUDGE BRENNER: All right. We are going to
2 reconvene Monday at 9:00 o'clock.

3 MR. BORDENICK: Judge Brenner, one brief item.
4 You had asked --

5 JUDGE BRENNER: We can let the witnesses go,
6 right?

7 MR. BORDENICK: Yes.

8 JUDGE BRENNER: So long, have a nice weekend,
9 we'll see you Monday.

10 JUDGE CARPENTER: Mr. Higgins, the last little
11 bit of area that you were questioned in that you were
12 unfamiliar with, can you be prepared on Monday perhaps
13 to have done some review?

14 WITNESS HIGGINS: This is on the control room
15 Mimic items?

16 JUDGE CARPENTER: Yes, that general area, the
17 CAT inspections.

18 WITNESS HIGGINS: Do you mean more specific
19 than the answers I already gave?

20 JUDGE CARPENTER: Yes, the couple of areas you
21 just didn't remember. Are there notes or something?

22 WITNESS HIGGINS: I will check. I don't
23 believe that information is retrievable, but I will
24 check to see what I have.

25 JUDGE CARPENTER: Thank you.

1 MR. BORDENICK: Judge Brenner, besides
2 excusing the witnesses, I was alluding a moment ago to
3 the fact that earlier this week you had asked the staff
4 for some sort of a statement on why we weren't going to
5 file testimony on Torrey Pines. I don't know if this is
6 precisely what the Board was looking for, but I have a
7 memorandum from Mr. Novak who is the Assistant Director
8 for Licensing in the Office of Nuclear Reactor
9 Regulation, to Mr. Christenbury who is the Chief Hearing
10 Counsel, and I think it essentially says what I had
11 indicated earlier.

12 If that suffices for the Board, I will pass
13 that out. I don't think we need to make it an exhibit
14 or anything, to give it that status, but I did want to
15 identify it on the record before I gave it out.

16 JUDGE BRENNER: Well, we will receive it and
17 see if we have any questions, or if we want to make it a
18 part of the record or not, because we may want to make
19 some findings on the approach of the staff in the
20 context of Torrey Pines. And that is why I wanted this
21 statement on the record.

22 We will see. The form doesn't matter to me,
23 and that form is as convenient as any, as is the memo
24 form. It is the content that I'm interested in.

25 MR. LANPHER: Can I inquire whether the

1 remaining CAT item is available?

2 MR. BORDENICK: No.

3 JUDGE BRENNER: Yes, you may inquire, and no,
4 it is not available.

5 MR. BORDENICK: In all seriousness I think --
6 I recognize we are late on it in general, but this was a
7 situation where the resolution really was reached late
8 yesterday and it will be over here Monday.

9 JUDGE BRENNER: I'm not criticizing; I merely
10 stated the obvious impact on our schedule.

11 MR. BORDENICK: The staff is aware of the
12 impact.

13 MR. LANPHER: If I get it on Monday, Judge, I
14 should be able to get it turned around and ask any
15 questions I may have on it next week, I would hope.
16 Unless it some really large thing.

17 JUDGE BRENNER: Well, we appreciate your best
18 efforts, too, in that regard, and we know the staff has
19 been making extensive efforts this week at least, and we
20 appreciate that. And it is a matter of everybody trying
21 to pull together.

22 All right, we will be picking up at 9:00
23 o'clock on Monday morning.

24 (Whereupon, at 3:30 p.m., the hearing in the
25 above-entitled matter was recessed, to reconvene at 9:00

1 o'clock a.m., Monday, December 20, 1982.)
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

NUCLEAR REGULATORY COMMISSION

This is to certify that the attached proceedings before the

BEFORE THE ATOMIC SAFETY & LICENSING BOARD

in the matter of: Long Island Lighting Company (Shoreham Nuclear Power
Station)

Date of Proceeding: December 17, 1982

Docket Number: 50-322 OL

Place of Proceeding: Bethesda, Maryland

were held as herein appears, and that this is the original transcript
thereof for the file of the Commission.

Ray Heer

Official Reporter (Typed)

Ray Heer

Official Reporter (Signature)