

NUCLEAR REGULATORY COMMISSION

ORIGINAL

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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In the Matter of: :  
: :  
LONG ISLAND LIGHTING COMPANY : :  
: : DOCKET NO. 50-322-OL  
(Shoreham Nuclear Power Station) :

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AT: Bethesda, Maryland

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

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

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Bethesda, Maryland  
Tuesday, November 9, 1982

The hearing in the above-entitled matter  
reconvened, pursuant to recess, at 9:08 a.m.

BEFORE:

LAWRENCE BRENNER, Chairman  
Administrative Judge

JAMES CARPENTER, Member  
Administrative Judge

PETER A. MORRIS, Member  
Administrative Judge

## 1 APPEARANCES:

2 On behalf of Applicant:

3 ANTHONY F. EARLEY, Esq.

4 T. S. ELLIS III, Esq.

5 Hunton &amp; Williams

6 707 East Main Street

7 Richmond, Va. 23212

8 On behalf of the Regulatory Staff:

9 BERNARD BORDENICK, Esq.

10 Washington, D.C.

11 On behalf of Suffolk County:

12 LAWRENCE COE LANPHER, Esq.

13 Kirkpatrick, Lockhart, Hill,

14 Christopher &amp; Phillips

15 1900 M Street, N.W.

16 Washington, D.C. 20036

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C O N T E N T S

2	<u>WITNESSES:</u>	<u>DIRECT</u>	<u>CROSS</u>	<u>REDIRECT</u>	<u>RECROSS</u>	<u>BOARD</u>
3	T. Tracy Arrington,					
4	Frederick B. Baldwin,					
	William M. Eifert,					
5	T. Frank Gerecke,					
	Joseph M. Kelly,					
6	Donald G. Long,					
	William J. Museler and					
7	Robert G. Burns (Recalled)					
8	By Mr. Bordenick		13,292			
	By Mr. Ellis				13,318	

(Afternoon Session.....13,374)

10	T. Tracy Arrington,					
11	Frederick B. Baldwin,					
	William M. Eifert,					
12	T. Frank Gerecke,					
	Joseph M. Kelly,					
13	Donald G. Long,					
	William J. Museler and					
14	Robert G. Burns (Resumed)					
15	By Mr. Ellis				13,382	

E X H I B I T S

17	<u>NUMBER</u>	<u>IDENTIFIED</u>	<u>RECEIVED</u>	<u>BOUND IN</u>
				<u>TRANSCRIPT</u>
18	LILCO 23	13,317	13,317	13,317
19	LILCO 24	13,319		13,320
20	LILCO 25	13,442		13,442
21	LILCO 26	13,465	13,465	13,465
22	LILCO 27	13,467		

24	<u>RECESSES:</u>	
25	Morning - 13,315 - Noon - 13,373 - Afternoon - 13,420	

P R O C E E D I N G S

1

2

(9:08 a.m.)

3

JUDGE BRENNER: Let's go on the record.

4

5 more thing off the record?

6

JUDGE BRENNER: All right.

7

(Discussion off the record.)

8

9 the subject of emergency planning and the depositions,  
10 yesterday we received Suffolk County Response to  
11 Licensing Board Proposal of November 2nd, 1982. The  
12 response states the county's position but does not  
13 provide any of the legal analysis which the county had  
14 sought an opportunity to provide on the Board's  
15 authority to take the approach we proposed to take.

16 So in the first instance, it's not clear to us  
17 if this is meant to be the full county filing, or if  
18 this was an advanced indication of the county's attitude  
19 and that the county still plans to file on the due date  
20 of the 12th. This Friday. I don't know if you know the  
21 answer, Mr. Lanpher.

22 MR. LANPHER: This is the filing, the only  
23 filing that we are contemplating this week.

24 JUDGE BRENNER: All right.

25 Also on the subject of emergency planning, as

1 we have done throughout this proceeding, we expect the  
2 county to keep SOC and NSC informed of procedural  
3 matters, and some of these go into substantive areas,  
4 that affect them when they are not here, particularly,  
5 due dates and so on. We neglected, however, to mention  
6 that expressly last Tuesday when we had that discussion.

7           From the schedule filed by LILCO, it appears  
8 that SOC at least was informed. In any event, we are  
9 issuing a memorandum today advising SOC and NSC of what  
10 occurred last Tuesday, just to make absolutely sure, and  
11 are enclosing the relevant transcript pages. We are  
12 giving SOC and NSC the opportunity to file their views  
13 on the authority of the Board to implement the proposal,  
14 if they wish to do so, in addition to the county views.

15           However, because we're not sure when they  
16 first received notification of the due dates, we are  
17 allowing them to file their views so that they are  
18 received by November 18, 1982. And we're also requiring  
19 them to let the Board know by telephone or other rapid  
20 means on the 15th whether or not they intend to file  
21 something on the 18th. Therefore, when the staff and  
22 LILCO file their views which are now due on the 12th,  
23 they should make sure that SOC and NSC receive them on  
24 the 12th.

25           We will wait for all the views before we

1 decide fully what to do and what we can do. However, we  
2 want to make absolutely sure that the county understands  
3 what we propose to do, because as we see it, the county  
4 is already in default of a requirement that we had asked  
5 for by today. If we find we have the legal authority to  
6 implement the proposal, the default will be all the more  
7 serious.

8           Before we take any action because we have  
9 misunderstood the county's position and before the  
10 county maintains a position because it has misunderstood  
11 our proposal, we want to make sure that we are all  
12 communicating. Therefore, on November 22nd, we have  
13 planned to meet to discuss emergency planning motions to  
14 strike, in any event.

15           I suppose I should ask if any motions to  
16 strike are being filed today.

17           MR. EARLEY: Judge, I'm not sure whether they  
18 are being filed. It was my understanding that we would  
19 have some motions, but I can find that out and let you  
20 know.

21           JUDGE BRENNER: All right.

22           MR. LANPHER: I am in the exact same position  
23 as Mr. Earley. I can find out at the morning break.

24           JUDGE BRENNER: Let's find out as soon as I  
25 can. The reason I digressed and asked that question now

1 is we would use the fact that we were meeting anyway on  
2 November 22nd to discuss fully the deposition proposal  
3 and our authority to do it, and in very concrete terms  
4 so everybody knows what the Board is proposing. If we  
5 find that we don't have the authority to do it between  
6 now and then, we will discuss that also. And we will  
7 also discuss the county's default as of this time and  
8 appropriate actions flowing from that.

9 MR. BORDENICK: Judge Brenner, the staff filed  
10 a motion to strike yesterday. Has the Board received  
11 that?

12 JUDGE BRENNER: No.

13 MR. BORDENICK: I will --

14 JUDGE BRENNER: That doesn't mean it's not in  
15 the mill somewhere.

16 MR. BORDENICK: We will get a copy over as  
17 soon as possible.

18 JUDGE BRENNER: Well, it may be up there when  
19 we break for lunch, so I wouldn't worry about it until  
20 it is still not in evidence by the end of lunch.

21 All right. As of now, we are going to be here  
22 on the 22nd. If it turns out the motions to strike are  
23 so few that we can rule in passing during another  
24 session, we can discuss alternate arrangements. I would  
25 very much appreciate the continuing courtesy of the



1 county in informing SOC and NSC if we decide to use the  
2 22nd, that they are invited to attend and participate.

3           Hold off until near the end of the day and  
4 we'll see what we're doing. It strikes me that that  
5 would be a good day for them also since it's on a Monday  
6 and they can travel down on Sunday if they so desire.  
7 Did you want to say something, Mr. Lanpher?

8           MR. LANPHER: I am pretty sure that SOC was  
9 informed by our office last week -- I don't know the  
10 exact day -- regarding the Board's proposal. I am not  
11 so sure about the North Shore Coalition. I'll find  
12 out. But in the future, we will attempt to assure that  
13 both are informed.

14           JUDGE BRENNER: I appreciate that. I didn't  
15 mean to infer that the county had forgotten that it said  
16 it would do that. It is just a matter of what we forgot  
17 to expressly mention on Tuesday. And just to make sure  
18 we are touching base with all the cognizant parties, we  
19 sent out this memorandum today.

20           MR. LANPHER: Will copies of that memorandum  
21 be available in the hearing room?

22           JUDGE BRENNER: Yes. I will bring it down  
23 after lunch.

24           Let me say one more thing. To be frank, we  
25 don't understand the county's position fully, and we can

1 learn more on the 22nd when the county's counsel  
2 handling emergency planning matters are present. And  
3 it's not clear if the county has taken the position that  
4 it will not participate because it does not believe the  
5 Board has the authority to implement it -- something we  
6 said we will look at over the next week to two weeks --  
7 or if the county is saying even if the Board has the  
8 authority to do it, it won't participate.

9           In addition, the county's default adversely  
10 affects the possibility of proceeding in a timely  
11 fashion if we find we do have the authority, and that  
12 was the purpose of getting the schedule lined up today.  
13 So we consider it a serious default, and we will be  
14 discussing it further along with the total subject on  
15 the 22nd.

16           We're disappointed that we're not getting the  
17 legal views of the county to assist us. Mr. Brown, when  
18 he was here earlier, was very strong I believe that we  
19 did not have the authority to do it, and we had hoped to  
20 get his legal analysis as to why we did not. As we said  
21 Tuesday, we are going to very seriously look at it, and  
22 the county's filing does not provide any assistance in  
23 that regard. And that is why I asked the question I  
24 asked at the outset.

25           I suppose the one area still left incomplete,

1 even after sending the memorandum out to the other  
2 parties, is what NSC's estimate of the time it would  
3 take in examining the LILCO and staff witnesses on its  
4 contention, and the deposition. And as we discussed  
5 last week, it would be essentially the same time  
6 estimate as he would have at a hearing.

7           The footnote in the schedule filed by LILCO  
8 indicates -- I guess it's the cover letter, rather. The  
9 footnote indicates that LILCO was unable to reach  
10 counsel for the North Shore Coalition and it would be  
11 good if the county or LILCO or the staff or everyone can  
12 at least cover that with Mr. Shapiro and find out what  
13 his schedule estimate would be. Because the memorandum  
14 we sent out doesn't discuss the schedule estimates; it  
15 only discusses the filing on the overall authority to do  
16 it.

17           Not now, but sometime soon we want to set up a  
18 schedule for the county to inform the Board and the  
19 parties as to what aspects of the Torrey Pines report it  
20 seeks to pursue. Maybe we should ask for a suggested  
21 day and then we can think about it and come back with  
22 our date.

23           MR. LANPHER: Judge Brenner, I talked to  
24 consultants reviewing that report yesterday and they're  
25 working diligently. I don't know exactly when I will

1 have preliminary feedback on it, but I think before the  
2 end of the week I will.

3 I'd like, on the record, to thank LILCO for  
4 bringing additional copies of the Torrey Pines report,  
5 which we received yesterday, and in turn put in Federal  
6 Express to appropriate places. So that's going to be  
7 very helpful.

8 JUDGE BRENNER: Good. I guess that means we  
9 will get a replacement copy soon, also.

10 MR. LANPHER: I would think by the end of the  
11 week I will be in a position to speak with more  
12 authority on that, or Mr. Dynner, since he's not here,  
13 is going to be following that more closely since I will  
14 be here during the redirect.

15 JUDGE BRENNER: Maybe we can do this in light  
16 of that. Let's let it go until you have a better handle  
17 on things. Nearer the end of the week, it would be our  
18 proposal to be able to get some sort of -- not some sort  
19 of, but -- an outline of what areas of Torrey Pines,  
20 what aspects of the Torrey Pines report the county would  
21 seek to pursue further; that is, by examination of  
22 witnesses.

23 If we could get that on Tuesday, the 16th, we  
24 have a number of miscellaneous matters to discuss that  
25 day, also. It would be useful if the county could put

1 their subject matter of Torrey Pines in the context of  
2 the contentions or the particular subparts. If the  
3 county wishes to claim that there is something new in  
4 Torrey Pines, not squarely within the contentions but  
5 related to it, you can say that, also. We would then  
6 discuss the schedule for examining the witnesses.

7           There's a passing reference to the Torrey  
8 Pines deposition in the emergency plan filing, and it is  
9 our proposal that depositions will be taken before we  
10 take up Torrey Pines at a hearing, particularly in that  
11 context where we have no prepared testimony. LILCO has  
12 presented the case it thinks it needs to present, and we  
13 would want to get a focusing of what we would be  
14 considering at the hearing, and the depositions are the  
15 way we think that focusing can be accomplished for the  
16 benefit of the parties and the Board.

17           Torrey Pines depositions -- obviously, counsel  
18 would ask the questions they think they should ask but  
19 it will probably be closer to a discovery type  
20 deposition because there is no direct testimony per se,  
21 although there is the report that would be asked about.  
22 And the idea would be that parties should then move  
23 portions of those Torrey Pines depositions into evidence.

24           The depositions would include examination by  
25 all parties; that is, cross, follow-up questions by a

1 third party and redirect. Then we would have the  
2 witnesses here if the parties, if any party seeks to  
3 have them here, or if the Board seeks to have them here  
4 merely for the asking. No showing has to be made. And  
5 then parties can ask follow-up questions in front of us  
6 after our questions, if any, and if they wish, we will  
7 allow limited time to highlight particular questions  
8 from the Torrey Pines depositions if they seek to re-ask  
9 them.

10 We don't think that's necessary, but parties  
11 seem to think that when we hear the question and answer,  
12 it registers differently than when we read the question  
13 and answer. It's not the case, but we give parties that  
14 opportunity, also. So we will want to talk about the  
15 follow-up schedule as to when things will be focused on  
16 for Torrey Pines.

17 MR. LANPHER: The date you're saying for that  
18 is next Tuesday?

19 JUDGE BRENNER: Yes. If you think that's  
20 impossible for some reason that we don't presently  
21 foresee, you'd better tell us by the end of this week.  
22 But it strikes us as being feasible. We were concerned  
23 that weren't enough copies -- that there would not be  
24 enough copies of the report filed timely. LILCO,  
25 frankly, surprised us by filing initial copies of the

1 report as early as they did. And then the question  
2 became whether there were enough copies around, and we  
3 think everybody pitched in to solve that problem,  
4 including the Board.

5           Finishing up with Torrey Pines, we hope the  
6 parties are going to be talking with each other on such  
7 things as which witnesses would be most appropriate.  
8 This was mentioned on the record the other week. And  
9 any other aspects. If you can do things informally, you  
10 can cut down on the need to learn things for the first  
11 time at the deposition.

12           We have nothing else, other than beginning the  
13 examination of LILCO's panel by the staff.

14           MR. LANPHER: Judge Brenner, I have several  
15 minor things. First, the easiest. This Friday's  
16 schedule. At one point you had indicated that on  
17 Fridays we would probably run until 1:00 o'clock, taking  
18 a short morning break and no lunch break. Is that your  
19 intention this week?

20           JUDGE BRENNER: Let me talk to the other Board  
21 members and we will let you know.

22           MR. LANPHER: Second, --

23           JUDGE BRENNER: Do the parties have a  
24 preference one way or the other?

25           MR. LANPHER: I have a personal preference

1 this week because of an obligation out of town.

2 JUDGE BRENNER: What would you like?

3 MR. BLACK: I'm supposed to be in Pennsylvania  
4 at noon on Friday, which I obviously can't make.

5 JUDGE BRENNER: Not unless they move  
6 Pennsylvania here.

7 MR. LANPHER: That's right. So the earlier we  
8 adjourn on Friday would be helpful for my personal  
9 schedule.

10 JUDGE BRENNER: Okay, we'll take that into  
11 account.

12 MR. LANPHER: The second thing I wanted to  
13 mention is that an offer of proof relating to operating  
14 quality assurance is being typed this morning, and I  
15 expect it will be here sometime later today and  
16 distributed as soon as it arrives.

17 JUDGE BRENNER: All right. Let's hold off on  
18 making the offer of proof on the non-operational QA and  
19 exhibit, then, and we will have sequential exhibit  
20 numbers for the two offers of proof.

21 MR. LANPHER: All right. A third thing is I  
22 just want to state Suffolk County Exhibit 73 was the  
23 statistical or, so to speak, statistical summary of the  
24 storage surveillances, and the Board had raised some  
25 questions about why there were some disparities in



1 numbers.

2 I expect to have a short piece of paper here  
3 very soon which attempts just to explain each of those  
4 so we don't have to take time on the record. I will  
5 distribute that when it becomes available.

6 JUDGE BRENNER: All right. Welcome back, to  
7 the witnesses. Mr. Kelly, I'm glad you have recovered,  
8 and we will proceed with, as I understand it now, the  
9 staff questions on everything but the operational QA,  
10 and then we will go to LILCO's redirect.

11 I don't know if I should ask for time  
12 estimates. Well, I will ask.

13 JUDGE BRENNER: Judge Brenner, I hate to use a  
14 trite answer -- it's going to depend on the answers we  
15 get from the witnesses. I doubt that it's going to take  
16 more than an hour at the outside.

17 JUDGE BRENNER: Does LILCO have a better  
18 estimate now?

19 MR. ELLIS: Yes, Judge Brenner. I would think  
20 that we would be able to finish the redirect of  
21 construction QA by sometime Thursday.

22 JUDGE BRENNER: And at that point, we would go  
23 to the Board questions and the county's follow-on.

24 MR. ELLIS: Yes, sir. And it may be earlier  
25 than that.

1 JUDGE BRENNER: All right, let's proceed.

2 Whereupon,

3 T. TRACY ARRINGTON,  
4 FREDERICK B. BALDWIN,  
5 WILLIAM M. EIFERT,  
6 T. FRANK GERECKE,  
7 JOSEPH M. KELLY,  
8 DONALD G. LONG,  
9 WILLIAM J. MUSELER and  
10 ROBERT G. BURNS

11 were recalled as witness by counsel for LILCO and,  
12 having been previously duly sworn, were examined and  
13 testified further as follows:

14 CROSS EXAMINATION

15 BY MR. BORDENICK:

16 Q The general area of my questions has to do  
17 with the county's cross examination on, I believe,  
18 October 28th regarding the so-called CAT inspections.  
19 That's NRC Inspection 82-04. I believe that the chief  
20 spokesperson giving the answers at that time was Mr.  
21 Museler. I believe Mr. Eifert had an answer at one  
22 point. So my questions probably will be directed to  
23 Mr. Museler, but anyone on the panel who wants to add to  
24 an answer is certainly welcome to do that.

25 Mr. Museler, do you recall -- generally, do

1 you recall your testimony during Mr. Lanpher's cross  
2 examination on the CAT inspection?

3 A (WITNESS MUSELER) Yes, sir.

4 Q Okay. You used the phrase "FSAR commitment"  
5 quite a bit in response to Mr. Lanpher's questions. I  
6 wonder if you would elaborate a little further for us as  
7 to what your understanding is as far as an FSAR  
8 commitment. What does it mean, in other words?

9 A (WITNESS MUSELER) Yes, sir, we will try to do  
10 that. We have given that some thought since the  
11 original testimony was given, and we recognize that  
12 there is a significant interest in a specific definition  
13 for that term.

14 The way I'd like to try to answer your  
15 question is to give you a relatively short definition of  
16 what the word "FSAR commitment" means, and then try to  
17 illustrate by taking a couple of references to the FSAR  
18 and try to explain what it means in that context.

19 As we're concerned, or as we define it and as  
20 we believe the regulations require it, a commitment in  
21 the FSAR is a statement that sum feature of the plant or  
22 some feature of its operation such as a system or a  
23 component or in some cases, even a procedural  
24 requirement, must meet a specific regulatory  
25 requirement, meet the design bases -- in many cases, the

1 design bases are an FSAR commitment -- and performance  
2 capabilities or performance requirements of the plant,  
3 or of the plant systems.

4           To say it another way, it is the intent to  
5 meet or accomplish a goal and the goal is what is stated  
6 in the FSAR. Now, those are very general words. I'd  
7 like to explain what they mean by talking about three  
8 levels of information that are contained in the FSAR  
9 that I think will hopefully illustrate it.

10           First, before I go to the three levels, the  
11 FSAR obviously -- and PSARs -- have grown from what used  
12 to be a two or three-volume document to 18, 20, 25  
13 volumes. Obviously, the amount of information and the  
14 level of detail has changed over the years, and  
15 therefore, we are really witnessing an evolving process  
16 in terms of what the staff would like to see in the FSAR.

17           The three levels of FSAR information that I  
18 would like to use to try to draw, or try to explain our  
19 understanding of what an FSAR commitment is, are first,  
20 what we would consider to be a definite FSAR  
21 commitment. Second, we would characterize as  
22 significant details in the FSAR, not a commitment as we  
23 define it, but of such significance that we believe that  
24 the NRC should be made aware of any changes in that  
25 information fairly rapidly on a real time basis. By

1 that I don't mean pick up the phone that morning, but  
2 certainly, in a short period of time and depending on  
3 the specific item, not necessarily wait for document  
4 updates, but in some cases via phone and in other cases,  
5 via letter.

6 JUDGE BRENNER: Mr. Museler, I apologize. Let  
7 me interrupt because the answer is long already and it  
8 sounds like it's going to be longer. I don't know if  
9 this is what Mr. Bordenick had in mind or not. I don't  
10 know how much time you allowed for this one question and  
11 answer in your estimate. Maybe you ought to focus a  
12 little more sharply on what you're trying to get,  
13 because I don't believe all this is useful in the  
14 answer, but I'm not criticizing the witness because it  
15 was a broad question, and that might help the witness  
16 also.

17 Do you have a context? It's kind of a big  
18 question.

19 MR. BORDENICK: It was a broad question, Judge  
20 Brenner, and I purposely made it a broad question  
21 because I was interested in getting --

22 JUDGE BRENNER: Is this the answer you want?  
23 I mean, the subject matter is the answer you want?

24 MR. BORDENICK: It is.

25 JUDGE BRENNER: Okay, I'll let the witness

1 continue.

2 MR. BORDENICK: If I feel he has gone beyond  
3 what I was looking for, I will interject.

4 JUDGE BRENNER: Well, it's hard for a witness  
5 to know when he gets a question that broad. That's my  
6 concern. So none of this, as I say again, is a  
7 criticism of the witness.

8 MR. BORDENICK: I understand that, Judge  
9 Brenner, and it was designed to be a broad question.

10 JUDGE BRENNER: Okay. Go ahead, Mr. Museler.

11 WITNESS MUSELER: The third level of FSAR  
12 information is what I would like to characterize as  
13 descriptive detail, certainly not of a commitment nature  
14 but detail which may be useful and detail which is being  
15 added over the years in response to staff requests for  
16 more detail.

17 So the three levels are definite commitments  
18 in the FSAR, significant detail which we feel the NRC  
19 should be made aware of in terms of any changes. And  
20 thirdly, descriptive detail which we believe should be  
21 kept accurate, but which we also believe has no effect  
22 on either our analyses or the staff's analyses or the  
23 staff's conclusions.

24 To try to put that in perspective, taking a  
25 look at the RHR system which was the subject of CAT, I

1 tried to pick out a few examples of each one of those  
2 levels in the FSAR. The first level, what we would  
3 consider to be definite commitments, first, what the  
4 plant and its systems must meet 10 CFR 100.

5           Secondly, and becoming more specific, with  
6 regard to ECCS systems, that the plant and its ECCS  
7 systems must meet NRC acceptance criteria as defined in  
8 10 CFR 50.46. The RHR system is included in the ECCS  
9 systems.

10           Becoming more specific but related to those  
11 commitments are commitments such as the ECCS systems  
12 must insure that the peak clad temperature of the fuel  
13 during the postulated accidents does not exceed 2200  
14 degrees Fahrenheit, and that's included on page 6.3-1 of  
15 the FSAR.

16           Other features of the RHR system which I  
17 believe are FSAR commitments include such items as  
18 auto-initiation of the system, ability of the system to  
19 function on loss of off-site power, ability of the  
20 system to perform its safety functions under the safe  
21 shutdown earthquake, tornado, LOCA, various transients,  
22 and that the system perform its safety functions  
23 considering a single failure. All of those latter ones  
24 are contained on page 6.3-2 of the FSAR.

25           That type of information is what we consider

1 to be an FSAR commitment.

2           The second level we discussed, which we  
3 characterized as significant detail, -- not commitments,  
4 but items which we certainly concur with the staff that  
5 we should keep them fully apprised of on a real time  
6 basis -- for the RHR system would include such items as  
7 the fact that there were four LPCI pumps electrically  
8 driven, as shown on page 6.3.12. The fact that the  
9 actuation signal identification for that system in an  
10 accident mode be identified in the FSAR in this  
11 particular case; the fact that the system is actuated on  
12 high dry well pressure or low RPV pressure on 6.3.42;  
13 and information such as that contained on Table 6.3.3-4  
14 which indicates the safety systems and the safety modes  
15 available to the plant for RHR under certain  
16 single-failure evaluations.

17           That information we believe is significant.  
18 We believe the staff needs to know if we were to change  
19 that information, and we need to make sure that that  
20 information is given to the staff in the most efficient  
21 manner possible, not waiting for periodic FSAR updates.

22           To contrast those two, I think you can see  
23 that definite commitments are promises or requirements  
24 that the plant meet certain goals; that the RHR system  
25 keep the peak clad temperature below 2200 degrees, that



1 it meet the other ECCS criteria as set forth in 10 CFR  
2 50.46, and that it have certain specifically prescribed  
3 features that the regulations and/or the staff require,  
4 such as auto-initiation, loss of off-site power, et  
5 cetera.

6           The second lower level of information in the  
7 FSAR is significant. To do that, our RHR system uses  
8 four pumps, and it gets its actuation signal from the  
9 two parameters I described. That certainly is  
10 significant information, but it could be done other  
11 ways. RHR could have two pumps or six pumps or 12 pumps  
12 and still meet the commitments of the FSAR. It could  
13 actuate over different accident signals. But that  
14 information is significant and we believe that it needs  
15 to be given to the staff on a real time basis, and we  
16 believe we do that.

17           Moving on to the third level of descriptive  
18 detail, not commitments, not significant and perhaps not  
19 even relevant to the overall evaluation of the systems  
20 and of the FSAR, the descriptions which we believe  
21 should be accurate in the FSAR and which we intend to  
22 keep accurate in the FSAR are informational details on  
23 RHR such as relating to the CAT inspection, the number  
24 of bolts to insure the seismic adequacy of certain  
25 panels on the system.

1           The fact that the drain lines from the system  
2 tied together to run to a reactor building sump instead  
3 of running to those sumps individually. The fact that  
4 the actual trip setpoints for the actuation signal may  
5 be specific numbers differing at one time from the  
6 generic numbers utilized in the GE descriptive  
7 material. And items such as FSAR statements that only  
8 air-operated valves for the LPCI mode of operation are  
9 in the containment when actually we have, in addition to  
10 those valves, small bore valves for vents and drains,  
11 manual valves in the containment.

12           That level of detail, we think, falls below  
13 the previous two. That is a level of detail that the  
14 CAT inspection was dealing with in terms of differences  
15 between the as-built plant and the FSAR.

16           So I hope that puts into perspective what we  
17 consider to be a definite commitment. And I think it's  
18 important to us that that distinction be clearly drawn,  
19 and we think that we really don't have a basic  
20 disagreement with the NRC on this matter. We think that  
21 where there may have been a disagreement is in the third  
22 level of the descriptive detail, and we think that that  
23 was caused by the evolving process of what the FSAR had  
24 to contain and how current should it be kept in level  
25 three in the descriptive detailed level.

1           Our position now is that we intend to keep the  
2 FSAR at that level of detail described in the third  
3 level, and that we don't anticipate an ongoing  
4 disagreement with the staff in this area.

5           BY MR. BORDENICK (Resuming):

6           Q     In regard to your last statement, you  
7 indicated that you intend to keep the FSAR current to  
8 include what you have termed descriptive detail, or  
9 informational detail. How do you intend to go about  
10 doing this? What are the mechanics of it?

11           In other words, if there were repeat CAT  
12 inspection, and as I understand your testimony today and  
13 your testimony on October 28th, what you are asserting  
14 or contending is that it was really a lack of  
15 communication on the part of LILCO vis a vis the CAT  
16 inspection team to bring up to date the as-builts with  
17 the FSAR description. Is that correct? Is that a fair  
18 characterization of the dispute, so to speak, between  
19 LILCO and the NRC? I know I've asked two questions  
20 intertwined, but would you address that particular  
21 aspect first?

22           (Panel of witnesses conferring.)

23           A     (WITNESS MUSELER) Mr. Bordenick, to take the  
24 last part of your question first, which is I believe  
25 what you asked us to do, I believe that's a fair

1 characterization of the situation at the time of the CAT  
2 inspection and at the time of the SALP, which was, you  
3 know, which included a lot of detail of the CAT  
4 inspection.

5 JUDGE BRENNER: Excuse me, Mr. Museler. Could  
6 you move your mike slightly towards you?

7 WITNESS MUSELER: Would you like me to repeat  
8 that, Judge Brenner?

9 I said I believe that Mr. Bordenick's comments  
10 are a fair representation of the disagreement with the  
11 staff at the time of the CAT inspection, and even at the  
12 time of the SALP which, for that feature of NRC  
13 inspections, focused on the CAT inspection almost  
14 exclusively.

15 With regard to the first part of your question  
16 which I believe was how do we intend to implement what I  
17 just said in terms of keeping the FSAR current, do you  
18 still want us to answer that?

19 BY MR. BORDENICK: (Resuming)

20 Q Yes. You were correct in restating my  
21 question.

22 A (WITNESS MUSELER) We did cover in the record  
23 the SCPR program, Shoreham Configuration Plant Review  
24 program, and that is what we are currently using to  
25 bring the descriptive detail to the point of accuracy

1 that we believe the NRC requires, and which at this  
2 point we believe will be required in the future.

3 I think we said on the record what we believe  
4 the generally accepted practice was in the past in terms  
5 of the level of detail that was required in the FSAR,  
6 but that is history. And we're speaking now of where we  
7 stand today and what we intend to do relative to  
8 updating the FSAR.

9 We intend to utilize that program, the SCPR  
10 program, in order to identify all those areas of  
11 descriptive detail which need updating in the FSAR.  
12 That will result in -- I can't say if it's going to be  
13 all done in one FSAR amendment or whether it will be  
14 done in a number of amendments between now and the first  
15 quarter of 1983, but in any case, we will be doing that.

16 At the same time, the initial reports of that  
17 program as well as the dispositions of those initial  
18 reports are being sent to the NRC, at least to the I&E  
19 Division to Mr. Higgins, and right now he only has the  
20 initial reports; we have not given him any of the final  
21 disposition reports yet. But in that manner, we  
22 anticipate keeping the NRC informed of even this level  
23 of detail, where updating is required.

24 If the staff decides that for whatever reason,  
25 they would like us to embark or to schedule this update

1 in some other manner, we will certainly discuss it with  
2 them, but that's how we intend to do it. And this  
3 program spans a period of first reports coming out late  
4 last spring I believe so we will be reasonably close to  
5 the operating license stage.

6 So that's how we intend to bring the FSAR in  
7 this level of detail up to the point we consider  
8 acceptable to us and, we believe, acceptable to the  
9 staff. Mr. Eifert, I believe, can shed some light on  
10 how we go on from there in terms of following up on this  
11 effort.

12 Q Before he does that, I'd like to ask you  
13 whether you have discussed, specifically discussed with  
14 the NRC staff, Region 1, I imagine, the points you just  
15 mentioned in response to my questions. How you intend  
16 to implement this program. And if you have, what was  
17 their reaction to it?

18 A (WITNESS MUSELER) Let me say that other than  
19 in the early stages of the SCPR program and in the SALP  
20 meeting, I don't believe we have had any formal  
21 discussions with I&E in this regard. I do know that we  
22 have discussed it. I know I have discussed it with Mr.  
23 Higgins, and in general, have said the kinds of things I  
24 said here with one possible exception. And that is that  
25 we were, through the summer at least, were not clear on

1 exactly whether or not all the descriptive detail update  
2 requirements that we were identifying through the SCPR  
3 should, in fact, really be included in the FSAR. In  
4 other words, should we change all the figures in the  
5 level of detail that the SCPR program is identifying.

6           And we still need to discuss with the NRC the  
7 question of what is on a figure and what is not on a  
8 figure. So obviously, the figures in the FSAR do not  
9 show every valve in a system. And we believe that it is  
10 prudent to just leaves off things such as vents and  
11 drains and root valves.

12           But before we do that, before we modify the  
13 FSAR, we do need to have further discussions with the  
14 staff to see what their position on that is because if  
15 you -- if the position is that everything that's in the  
16 as-built plant should be in the FSAR, we would in fact  
17 be converting the FSAR to the permanent plant file, and  
18 we don't think that's the intent of the staff's concern,  
19 nor of the regulations.

20           So in general, I've discussed with Mr. Higgins  
21 the fact that we intend to update the FSAR as a result  
22 of the SCPR program, that we intend to get that done by  
23 fuel load. What that means in terms of am I going to  
24 put all the root valves on, am I going to put all the  
25 vents and drains on an FSAR figure, we do need to have

1 further discussions.

2 Q So in summary, your testimony is you have  
3 discussed this matter with the NRC staff but you really  
4 haven't gotten a final resolution from the staff as to  
5 what its position is.

6 A (WITNESS MUSELER) We haven't gotten a final  
7 agreement on the types of implementation detail that was  
8 just discussed. That is correct, sir.

9 A (WITNESS EIFERT) Mr. bordenick.

10 Q Yes, Mr. Eifert? I'm sorry, you did want to  
11 add something. Go ahead.

12 A (WITNESS EIFERT) What I wanted to add was in  
13 reference to keeping the FSAR up to date. I believe if  
14 we look at the regulations that apply after operations,  
15 they lend considerable insight into understanding what  
16 Mr. Museler has been describing here with respect to the  
17 detailed information.

18 I will refer directly to the regulations.  
19 Part 50.59 entitled "Changes, Tests and Experiments"  
20 describes what is expected of the licensee; what actions  
21 he is expected to take with respect to any changes that  
22 he might make after operations. And simply stated, the  
23 regulations provide for two mechanisms; one, that the  
24 licensee is allowed to make changes to the plant and  
25 later inform the NRC; and the second being those types



1 of changes which must inform the NRC before making  
2 changes to the plant.

3           The first example, the regulations are quite  
4 clear in defining what types of changes can be made,  
5 including defining, for example, unreviewed safety  
6 questions. The licensee can make a change that does not  
7 affect an unreviewed safety question.

8           The intent here, or the point I want to make  
9 here is that the regulations recognize, by setting it up  
10 this way for operations, that there is information in  
11 the FSAR that goes beyond that information that is  
12 needed by the licensee initially to perform his safety  
13 assessment, and goes beyond that to the detail needed by  
14 the NRC to perform their assessments.

15           And this is consistent with what Mr. Museler  
16 has described as this detail that we see that is beyond  
17 our commitments. Detail which we feel is important to  
18 keep up to date and to keep current in the FSAR, but not  
19 in the same manner as the commitments or the significant  
20 detail that he categorized.

21           Q     But you would agree, Mr. Eifert, that for  
22 purposes, for example, of a CAT inspection, it would be  
23 important for the staff to know how your as-built  
24 configurations differ from what is stated in the FSAR?  
25 Is that correct?

1 (Panel of witnesses conferring.)

2 A (WITNESS MUSELER) Mr. Bordenick, given the  
3 charter of the CAT team, I believe that it was important  
4 for them to determine what the as-built plant looked  
5 like with regard to what the FSAR -- or with regard to  
6 how the FSAR described the plant on the RHR system, for  
7 example, because that was their charter -- see if the  
8 as-built plant conformed to the FSAR.

9 And when you do that, when you want to make  
10 that kind of a comparison, to draw distinctions between  
11 levels of detail in terms of what has to be exactly the  
12 same way as the FSAR indicates would not be a prudent  
13 thing to do when you're setting up your inspection  
14 program. They were charged to go out and look at the  
15 plant and compare it exactly with the FSAR documents.

16 So I don't disagree at all with the way they  
17 went about it and with the criteria they used to  
18 determine the differences. Where I do disagree is in  
19 any characterization of those findings being violations  
20 of FSAR commitments. And that was the subject of most  
21 of this discussion so far.

22 To give you an example, the CAT team did not,  
23 in all instances, go and identify everything that's not  
24 shown on an FSAR flow diagram, because the RHR flow  
25 diagram that is the design document for the plant is

1 several pages. And the FSAR flow diagram, the diagram  
2 in the FSAR, is a much smaller diagram. I believe  
3 there's only one. There may be two pages of it  
4 containing almost an order of magnitude less detail than  
5 the design documents that the plant was built to.

6           So even the NRC recognized that their function  
7 was not to go and say does this drawing look exactly  
8 like the as-built plant, because they did determine that  
9 the as-built plant looks like the design document. I  
10 think that was a definite statement they made.

11           So the plant was built in accordance with the  
12 design documents, but the FSAR drawing doesn't look  
13 exactly like the design document because the design  
14 document contains many more features that are not shown  
15 nor are they needed to be shown for purposes of the  
16 staff's evaluation on the FSAR flow diagram.

17           So I don't disagree at all with the way they  
18 conducted the inspection. The disagreement was over  
19 this what we consider to be a rather significant  
20 definition; the definition of the words "FSAR  
21 commitment." And the discussions relative to how  
22 important the descriptive detail was and whether we were  
23 or were not going to update it -- I think those  
24 discussions you characterized in one of your previous  
25 questions, and we agree with that characterization.

1 Q Mr. Museler, do you have the CAT inspection  
2 and the LILCO response?

3 A (WITNESS MUSELER) Yes, sir, we do.

4 JUDGE BRENNER: Mr. Bordenick, I wonder if I  
5 might interject. For the last few minutes I was  
6 thinking to myself that I don't believe anybody has  
7 offered that LILCO response, which I guess is NRC Number  
8 743, into evidence. Now, I may be mistaken -- or for  
9 identification.

10 MR. BORDENICK: It was marked for  
11 identification.

12 MR. LANPHER: It is marked as Suffolk County  
13 Exhibit 70 for identification. I believe it was  
14 accepted into evidence, also.

15 JUDGE BRENNER: My apologies.

16 MR. ELLIS: I think it was an attachment. Oh,  
17 no, I'm sorry.

18 JUDGE BRENNER: Give me a moment. I will  
19 probably find it.

20 MR. LANPHER: We marked it as Suffolk County  
21 Exhibit 70, and I can check in the transcript for where.

22 JUDGE BRENNER: October 28th. We have got  
23 it. Thank you. My apologies. Proceed, Mr. Bordenick.

24 MR. BORDENICK: Thank you, Judge Brenner.

25 BY MR. BORDENICK: (Resuming)

1 Q Mr. Museler, on Item 6 of the CAT inspection  
2 and your response --

3 A (WITNESS MUSELER) Which Appendix, Mr.  
4 Bordenick?

5 Q B. You were questioned by Mr. Lanpher.  
6 Actually, I just wanted to get some clarification on  
7 your answer. This has to do with, under Item 6 -- in  
8 the CAT inspection report there are six unnumbered  
9 subparts that Mr. Lanpher questioned you about.

10 MR. LANPHER: Judge Brenner, may I ask if Mr.  
11 Bordenick has a transcript page? It would be very  
12 helpful.

13 MR. BORDENICK: Yes, I do. I'm sorry.

14 JUDGE BRENNER: Yes, I agree it would be  
15 helpful.

16 MR. BORDENICK: I am specifically looking  
17 right now at page 12,345.

18 MR. LANPHER: Thank you.

19 BY MR. BORDENICK: (Resuming)

20 Q Does the panel have a copy of the transcript?

21 A (WITNESS MUSELER) Yes, sir.

22 Q Do you see where you were saying at line 18,  
23 the second item, the answer is yes and no because the  
24 relief valves -- or the transcript has "to," but I  
25 believe it should be "do" discharge to floor drains,

1 which is the as-installed condition?

2 A (WITNESS MUSELER) Yes, sir, we see that.

3 Q Okay. My question is are you saying that those  
4 floor drains discharge directly into the floor, are are  
5 they piped out of this particular area?

6 A (WITNESS MUSELER) Sir, they are piped through  
7 embedded piping systems to the various reactor building  
8 sumps, which are tanks buried in the concrete, embedded  
9 in the concrete, which are then in turn connected to the  
10 radwaste system. So the particular discharge point may  
11 be close to the pump or close to the pipe that the  
12 relief valve is on, but it is an embedded drain that  
13 then goes via an embedded piping system to the reactor  
14 building sumps.

15 Q Thank you.

16 Mr. Museler, if you will look at page 12,349  
17 of the transcript, you indicated in response to a  
18 question from Mr. Lanpher, and I quote, "Yes, sir, I  
19 do. The responses I just went through were discussed  
20 with the staff." I wonder if you could tell us which  
21 staff member or members you were referring to at this  
22 point, if you recall.

23 [Pause.]

24 A (WITNESS MUSELER) Mr. Bordenick, I believe  
25 the discussions that I was referring to there primarily

1 occurred during the CAT inspection, during the exit  
2 interview and immediately thereafter where some  
3 discussions were held. And subsequent to that also I  
4 believe Mr. Higgins was involved in a number of those  
5 discussions. I believe Mr. Bettenhausen may have been  
6 at the time of the CAT inspection and the CAT exit, and  
7 also during the SALP meeting for 1982, the same subject,  
8 since CAT formed the basis for the NRC's conclusions in  
9 the FSAR conformance area. I believe we did discuss  
10 these issues in the context of CAT but in a general form  
11 in terms of what kinds of information needs to be  
12 updated.

13 Q Mr. Museler, you gave some testimony -- for  
14 example, at page 12,358 you were talking to the Shoreham  
15 Plant Configuration Review, and I think at one point,  
16 and that is at 12,365, Mr. Lanpher asked you whether or  
17 not that review was undertaken at the request of the  
18 staff, and your answer on that page was, "Mr. Lanpher,  
19 the NRC staff did not request us to embark upon this  
20 program."

21 I am reading correctly?

22 A (WITNESS MUSELER) Yes, sir, that is correct.

23 Q Would it be a fair characterization to say  
24 that the staff strongly urged LILCO to undertake that  
25 review?

1           A       (WITNESS MUSELER) It would certainly be true,  
2 Mr. Bordenick, that the staff strongly urged us to  
3 review and update the FSAR for the types of concerns  
4 that they had been discussing with us over the previous  
5 year. The reason I answered the question the way I did  
6 was to point out that the SPCR program was a program  
7 that we believed is somewhat unique, and to point out  
8 that the staff's concerns could have been answered, if  
9 we had so chosen, by embarking on a general FSAR update  
10 program, which we have done periodically throughout the  
11 life of this project.

12                   In other words, we had periodically had the  
13 engineering organization and the LILCO organization  
14 review specifically assigned sections of the FSAR with a  
15 direction to bring them up to the latest current  
16 as-built and/or -- and also to update the latest  
17 procedures. That was our standard method of doing  
18 things up until this point in time.

19           The staff's concern was that the FSAR in the  
20 detailed area was not satisfactory from their  
21 standpoint. Now, we could have answered that concern by  
22 embarking on at that time, and perhaps one more time  
23 before fuel load, what I would characterize as our  
24 standard ongoing method of updating the FSAR. What we  
25 decided to do instead was to embark on this SPCR



1 program, which I believe the staff concurs in  
2 conceptually. I have not seen all the results yet. The  
3 difference being that this program is sort of a third  
4 party look at the FSAR, if you will, an audit-type  
5 response to the updating or to the detailed evaluation  
6 of the FSAR.

7           It is certainly done by engineering personnel,  
8 but they are engineering personnel whose only function  
9 is to perform this audit, and we think that is a  
10 distinction that is to the credit of the SPCR program.  
11 So the only reason I said that was to make it clear  
12 that, quite franky, to throw a little bit of a rose to  
13 the people who developed this program because we think  
14 it is a good one, but not to imply that the staff didn't  
15 strongly urge us to bring the FSAR up to what they  
16 believed to be the required level of detail.

17           MR. BORDENICK: Judge Brenner, I have no  
18 further questions at this point. I understand I will  
19 have a second shot on the OQA at a later time.

20           JUDGE BRENNER: Yes, that is correct. I guess  
21 we might as well break now, then, before we take up with  
22 LILCO's redirect. We will take 15 minutes, until 10:35.

23           [Recess.]

24           JUDGE BRENNER: All right, we are ready to  
25 proceed or begin LILCO's redirect. As we discussed off

1 the record, this will be on the construction QA, and  
2 then we will have follow-up on that aspect before  
3 turning to the operational QA, beginning again with the  
4 staff questions on that aspect and then go into LILCO's  
5 redirect.

6 MR. ELLIS: Judge Brenner, the first part of  
7 LILCO's redirect will be focused on the subject of  
8 calculations. We have earlier this morning distributed  
9 to the Board and to the parties two exhibits, what we  
10 will ask to have marked as exhibits. One is "Transcript  
11 Corrections on Calculations," and the second is a  
12 four-page document entitled "Calculations" which lists a  
13 number of audit findings.

14 What I intend to do, with the Board's  
15 permission, is to use the first document I described  
16 simply to introduce into evidence some transcript  
17 changes that the witnesses wish to make and not go into  
18 those but have them there for the County or the Staff to  
19 recross if they feel that is necessary. I would like to  
20 proceed in that way by asking the witnesses and then to  
21 proceed with my redirect on the subject of calculations,  
22 which is Roman I on the redirect plan.

23 JUDGE BRENNER: All right. Let's make it an  
24 exhibit number in addition to binding it in as you  
25 suggest so that we can find it in a couple of places

1 later.

2 MR. ELLIS: Yes, sir. We will need Judge  
3 Morris' help on that.

4 JUDGE MORRIS: 23.

5 JUDGE BRENNER: All right, it will be LILCO  
6 Exhibit 23, which, given the nature of it, we will admit  
7 into evidence.

8 (The document referred to  
9 was marked LILCO Exhibit No.  
10 23 for identification and  
11 received in evidence.)

12 JUDGE BRENNER: Let's bind it in, in addition,  
13 as an added convenience. It consists of one page  
14 entitled "Transcript Corrections on Calculations," and  
15 it makes three corrections.

16 [The document referred to, LILCO Exhibit 23,  
17 entitled "Transcript Corrections on Calculations,"  
18 follows:]

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TRANSCRIPT CORRECTIONS ON CALCULATIONS

Tr. 10,322, line 16 -- change "preferable" to "in  
reference to"

Tr. 10,325, line 20 -- change "didn't" to "did"

Tr. 10,573, line 8 -- change "Stone & Webster" to  
"Shoreham"

1 REDIRECT EXAMINATION

2 BY MR. ELLIS:

3 Q Mr. Eifert, do you have before you what has  
4 been marked as LILCO Exhibit 23?

5 A (WITNESS EIFERT) Yes, I do.

6 Q Would you tell the Board what that represents,  
7 please?

8 JUDGE BRENNER: I think we have it. I am  
9 happy if you are happy.

10 WITNESS EIFERT: Well, I would just like to  
11 clarify that that may not be every editorial change that  
12 may be required. We are still looking at the testimony.

13 JUDGE BRENNER: I don't want every editorial  
14 change that may be required. We understand. Let's make  
15 it clear that as we are getting these corrections, we  
16 only want the essential ones that in LILCO's view have  
17 the potential, at least, to distort the meaning of what  
18 the witness said. I understand why you gave us only the  
19 first batch. It would be good if you could catch up in  
20 one list sometime soon so we have it all in one exhibit  
21 from now on, if you can.

22 MR. ELLIS: We will attempt to do that.

23 JUDGE BRENNER: If you can't, we will proceed  
24 this way.

25 MR. ELLIS: Shall I proceed?

1 BY MR. ELLIS: (Resuming)

2 Q Mr. Eifert, you were asked a number of  
3 questions concerning audit findings relating to  
4 calculations. Have you at my request reviewed the  
5 transcript on this subject in order to prepare a list of  
6 those audit findings that Mr. Lanpher asked you about?

7 A (WITNESS EIFERT) Yes, I have.

8 MR. ELLIS: May we have marked at this time,  
9 Judge Brenner, as LILCO Exhibit 24 the sheet, four pages  
10 stapled together, entitled "Calculations"?

11 JUDGE BRENNER: Now, the one we would mark is  
12 the one that does not say "Attachment 1;" correct?

13 MR. ELLIS: That is correct.

14 JUDGE BRENNER: Okay.

15 (The document referred to  
16 was marked LILCO Exhibit No.  
17 24 for identification.)

18 MR. LANPHER: Excuse me, Judge Brenner. I am  
19 confused. Is there something with Attachment 1?

20 JUDGE BRENNER: Let's go off the record for a  
21 minute.

22 [Discussion off the record.]

23 JUDGE BRENNER: Back on the record. All  
24 right, this will be LILCO Exhibit 24 for  
25 identification. It consists of four pages bearing the

1 heading "Calculations" on the first page. It is a  
2 listing of the various audit reports and portions  
3 thereof under different categories as summarized by  
4 LILCO for purposes of this exhibit.

5           You are going to be proceeding in the order of  
6 this exhibit?

7           MR. ELLIS: Yes, sir.

8           JUDGE BRENNER: Why don't we bind it in for  
9 convenience at this point.

10          MR. ELLIS: I think that would be appropriate.

11          [The document referred to, LILCO Exhibit 24,  
12 entitled "Calculations," follows:]

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CALCULATIONS

<u>Audit Report</u>	<u>Date</u>	<u>Item</u>	<u>Discipline(s)</u>
1. <u>Ready Traceability</u>			
A. <u>Miscellaneous Data</u>			
EA 4	2/73	Pg 1,a	Power Nuclear
EA 7	10/73	2.C.2.e	Power Nuclear
EA 21	4/77	AO-014(6)	Power Nuclear
EA 4	2/73	Pg 1,a	Electrical
EA 20	1/77	AO-002	Electrical
EA 34	9/80	AO-119(2) Pg. 2 (one line diagrams)	Electrical
EA 19	10/76	2.b.6	EMD Mech.
EA 23	11/77	AO-034(3)	EMD Mech
EA 31	12/79	AO-107(1)	EMD Mech.
EA 36	5/81	AO-131 (References)	Struct. Mech.
EA 24	2/78	AO-050 (2 & 3)	Pipe Stress
EA 28	3/79	AO-079(2)	Pipe Stress
EA 26	8/78	AO-067(6) Pg. 3 of 3	Pipe Support Design
EA 34	9/80	AO-120	Pipe Support Design
SEO 11	4/81	AO-129(4)	Pipe Support Design
EA 7	10/73	2.C.3.C	Power Mechanical
EA 21	4/77	AO-016(2)	Power Mechanical
EA 23	11/77	AO-038(4) Pg. 2	Rad. Protection



<u>Audit Report</u>	<u>Date</u>	<u>Item</u>	<u>Discipline(s)</u>
EA 14	7/75	Pg. 2, 2.C.1.a	Environmental
EA 22	7/77	AO-018(2)	Environmental
EA 23	11/77	AO-031 (1,3) Pg. 1 AO-032 (1)	Structural Steel/Conc.
EA 27	12/78	AO-072 (2,4,5)	Structural Steel/Conc.
EA 40	4/82	AO-154(2) Pg. 2, item 2	Structural Steel/Conc.
EA 20	1/77	AO-007(3)	Hydraulic
EA 23	11/77	AO-030 (1,2) Pg. 1	Facilities Design
EA 5	5/73	Pg 1, note at bottom of pg.	Follow-up on audit 4

B. Computer Program Identification

EA 22	7/77	AO-018(3)	Environmental
EA 25	5/78	AO-058(1)	Hydraulic
SEO 11	4/81	AO-129 (1 & 5)	Pipe Support

2. Inadequate Documentation of Review

EA 4	2/73	Pg 1,C	Mechanical
EA 9	4/74	Pg 2, 2.C.2.a	Bldg. Service
		Pg. 2, 2.C.1.b	Struct. Steel
EA 10	7/74	Pg 1,2.C Pg. 2 (chart)	Pipe Stress (Eng.)
		Pg. 1,2.C Pg. 2 (chart)	Electrical
		Pg. 1,2.C Pg. 2 (chart)	Vessels

<u>Audit Report</u>	<u>Date</u>	<u>Item</u>	<u>Discipline(s)</u>
EA 14	7/75	Pg. 2, 2.C.2	Environmental
EA 30	9/79	AO-101(1)	Power Nuclear
3. <u>Miscellaneous Important Concerns</u>			
EA 14	7/75	Pg 2, 3d	Environmental
EA 28	3/79	AO-080 (1)	EMD Struct. Mech.
EA 30	9/79	AO-101 (3)	Power Nuclear
EA 31	12/79	AO-107 (2)	EMD Mech.
( EA 34	9/80	AO-120 (4)	Pipe Support )
(			)
( EA 38	10/81	AO-142	Follow-up on AO-120 )
4. <u>SAR Related</u>			
EA 27	12/78	AO-072 (1)	Structural Steel
		AO-072 (6)	Structural Steel
EA 40	4/82	AO-154 (3)	Structural
		Pg. 2, item 3	
5. <u>Indexing/Filing</u>			
EA 10	7/74	Pg. 1, 2C and pg. 2 Chart " " " " "	Pipe Stress (Index) Vessels (Index) Pipe Stress (Fire File) Electrical (Fire File)
EA 17	4/76	2.B.1.b	EMD Struct. Mech.
EA 19	10/76	2.b.6.2	EMD Mech.
EA 26	8/78	AO-067, Pg. 1 (item 2, 2nd & 3rd bullet) Pg. 2, (item 3, 1st & 3rd bullet)	Pipe Support
EA 28	3/79	AO-079 (1)	Pipe Stress Design
SEO 11	4/81	AO-129 (7)	Pipe Support
EA 40	6/82	AO-159	Structural Mechanics

<u>Audit Report</u>	<u>Date</u>	<u>Item</u>	<u>Discipline(s)</u>
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6. Other

A. Computer Program Related

EA 34	9/80	AO-119, Pg. 2, item 2	Electrical
EA 36	5/81	AO-131	Struct. Mech. Calcs.
EA 39	1/82	AO-NT-007 (third bullet, last item)	Nuclear Tech.
SEO 11	4/81	AO-129(1)	Pipe Support

B. Timeliness

EA 16	1/76	2.B.2.a	EMD Mechanical
EA 20	1/77	AO-001	Facilities
EA 21	4/77	AO-014(9)	Power Nuclear

C. Miscellaneous

EA 7	10/73	2.C.1.c & 2.C.1.d	Pipe Stress Design
EA 10	7/74	Pg. 1 2C & Pg. 2 chart	Pipe Stress Eng. Electrical
EA 18	7/76	2.b.7 Pg. 3	Vessel
EA 23	11/77	AO-038 Pg. 2, item 4	Rad. Protection
EA 26	8/78	AO-067 (Pg. 2, item 3, 2d bullet)	Pipe Support
EA 40	4/82	AO-154(1) (3d sentence, 1st para, pg. 1 of AO)	Structural
		AO-Struct-023	(Not specific to Shoreham)

1 JUDGE BRENNER: I would like to say thank  
2 you. This makes it easy to follow and we appreciate it.

3 BY MR. ELLIS: (Resuming)

4 Q Mr. Eifert, is LILCO Exhibit 24 the list that  
5 you prepared as a result of your review of the  
6 transcript?

7 A (WITNESS EIFERT) Yes, it is. This list  
8 includes all of the audit observations which the County  
9 discussed in Engineering Assurance Audits 2 through 40,  
10 and in Engineering Assurance SEO Audit 11. I should  
11 point out that this list does not include the  
12 information from Engineering Assurance Audits 000 and  
13 1. These were the first EA audits that we performed  
14 back in 1970.

15 As Mr. Burns indicated and described these  
16 audits on cross-examination, these were in essence pilot  
17 audits used for the primary purpose of formulating the  
18 audit program. For example, Mr. Burns described that in  
19 many cases during these audits we were auditing work  
20 that was in process not yet completed, in some cases  
21 because that was the only work that was available at  
22 that time, the only information that was available to be  
23 audited.

24 For these reasons, we find it impossible to  
25 really correlate the observations and discussions

1 described in these reports to the observations in EA  
2 Audits 2 through 40 and SEO 11. In these latter audits  
3 we have very specific information with respect to what  
4 the audit observation was and what the basis of the  
5 audit observation was, and to correlate these early  
6 audits to those is impossible, in my judgment, and we  
7 have not tried to include them in this breakdown.

8 Q Mr. Eifert, I note that LILCO Exhibit 24  
9 contains a number of categories and subcategories. What  
10 is the basis for these categories and subcategories?

11 A (WITNESS EIFERT) I won't try to list them  
12 all. I think we can read them readily off the exhibit.  
13 What I did was -- and I think you can recall from the  
14 cross-examination. We especially the third day in  
15 discussing calculations, we were able to have a lot of  
16 detailed information about the observations available.  
17 In the first couple of days of the cross-examination, we  
18 didn't have that information available.

19 What we have done is we have gone back and  
20 tried to discover everything we could about these audit  
21 observations to first be able to fill in the additional  
22 detail that we didn't have. So we knew everything about  
23 these observations. Then we looked at the types of  
24 problems they were, we looked at the significance of the  
25 problems, talked more with my own staff as well as

1 project engineering people about the specific problems  
2 so that I could put them in categories in a way that  
3 would put them in perspective.

4 Q Mr. Eifert, let's look at each of the  
5 categories separately, one at a time, beginning with  
6 ready traceability, "A. Miscellaneous Data." What  
7 generally, or can you generally characterize what these  
8 observations reflect as a group?

9 A (WITNESS EIFERT) Yes, I can characterize  
10 that. The entire group, based on looking in detail now  
11 at all of these, we can put into a general descriptive  
12 category of detailed administrative concerns. The  
13 concerns deal with the specific detail, documentation of  
14 sources of the input data that we at Stone and Webster  
15 expect our engineers to put in the calculation  
16 documentation to ensure that this information is readily  
17 available and to make it such that an engineer in the  
18 future could readily review and understand that  
19 calculation.

20 As we described in the cross-examination  
21 earlier, we had imposed very stringent requirements over  
22 the years. The requirement is contained in EAP 5.3  
23 today. For example, it indicates very clearly that for  
24 technical documents, the source must be referenced by  
25 document number and/or title, the issue date, revision

1 number and section, page or table numbers, and this is  
2 what we describe as the very stringent requirement. All  
3 the a dit observations in this category reflect where  
4 our auditors identify that we were not meeting that  
5 stringent requirement.

6 Q To put it a little bit more in context, can  
7 you give us some examples of the types of observations  
8 -- or I beg your pardon, the types of input data and  
9 sources involved in these observations?

10 A (WITNESS EIFERT) Yes. What I was able to do  
11 is to go back and look at some specific calculations,  
12 and in talking with my engineering assurance staff  
13 people in the various disciplines, have come up with  
14 some further examples to characterize what we are  
15 talking about and characterize why I am not concerned  
16 that there is a lack of traceability. There is  
17 traceability, and I think I can put this in a little  
18 more perspective.

19 As you recall, on cross-examination I did  
20 describe a couple of examples, specifically on pipe  
21 support calcs, I believe, but I have a couple of  
22 additional examples that would probably be helpful.  
23 There was one electrical calculation that we were able  
24 to look at, and the calculation dealt with a transformer  
25 impedance, and just to outline here some of the input

1 data and the sources, the input data with respect to the  
2 winding actual impedance of the transformer, and if that  
3 data wasn't in the calculation, if the source of that  
4 data was not in the calculation, it is clear to anyone  
5 at any time in the future that you have to go to the  
6 vendors technical data that he supplies with respect to  
7 his transformer and get that information.

8           Another input information that was in that  
9 calculation was a horsepower rating for a crane. Within  
10 the Stone and Webster process, that information normally  
11 comes from the motor and load list which our electrical  
12 people maintain. Clearly, anyone involved in the Stone  
13 and Webster process understands that and would go to  
14 that location to verify that source even if the  
15 calculation did not specifically reference the motor and  
16 load list.

17           In addition, the motor and load list is based  
18 on the vendor data and horsepower ratings obviously have  
19 to come specifically from the vendor in relation to the  
20 specific component being procured.

21           MR. LANPHER: Judge Brenner, could I ask for a  
22 clarification? If they are referring to one of the  
23 specific observations, it would be very helpful to be  
24 able to follow along. Maybe this is just an example not  
25 related to any of these.



1 JUDGE BRENNER: I think that is a good  
2 suggestion. Do you agree, Mr. Ellis?

3 MR. ELLIS: Yes, I agree.

4 JUDGE BRENNER: Do you want to ask about that  
5 one, Mr. Ellis?

6 BY MR. ELLIS: (Resuming)

7 Q Mr. Eifert, in going through these examples,  
8 would you indicate whether they are related to any  
9 observation or whether these are examples that you  
10 picked at random?

11 A (WITNESS EIFERT) These are specific examples  
12 that were picked at random. We didn't try to link  
13 specific audit observations and findings to the  
14 examples. The situation is representative as we took  
15 the random sample. Where I later, in going through the  
16 further discussion on this topic where we do reference  
17 specific audit observations, I will try to be very  
18 specific.

19 JUDGE BRENNER: Do you think what you are  
20 saying is applicable to all of them that you would put  
21 into the category unless you otherwise state? Is that  
22 it?

23 WITNESS EIFERT: The way I gathered this data  
24 was to talk in this particular case with electrical  
25 engineers on the engineering assurance staff and ask

1 them specifically to give me an example of any  
2 calculation, tell me what the input data was and what  
3 the source is. I then took that information and was  
4 able to draw my conclusions with respect to how that  
5 data would be traceable had the specific source not been  
6 referenced.

7           In the context of all the engineering  
8 assurance audits, many of those findings dealt with not  
9 meeting the total stringent requirement, for example,  
10 that we might have had a reference to the source but not  
11 in the detailed specific reference form that our  
12 procedure requires. What I am trying to do here is show  
13 examples where, had the source not been referenced at  
14 all, an experienced engineer in that discipline would  
15 have been able to trace it although not as readily.

16           JUDGE BRENNER: Okay, I understand that. Why  
17 don't you just proceed the way you want to on the  
18 redirect, Mr. Ellis. When there are particular examples  
19 being talked about, we expect that they will be  
20 referenced, and we will leave it to follow-up  
21 questioning if anyone wants to make any points about  
22 lack of connections to the examples discussed of some of  
23 the explanations.

24           MR. ELLIS: Yes, sir. A number of specific  
25 findings will be discussed as we go on.

1 BY MR. ELLIS: (Resuming)

2 Q Mr. Eifert, you were discussing examples of --  
3 to put these in the context, you were giving examples of  
4 calculations where, if no reference was made to input  
5 data, there would still be traceability. Had you  
6 finished that?

7 A (WITNESS EIFERT) I had one more example on  
8 the electrical transformer impedance calc, and I was  
9 going to do the same for a structural and a pipe support  
10 calculation. I had indicated earlier what was, for  
11 example, in a pipe support calc, but I now have a  
12 complete understanding of what is the input data to a  
13 pipe support calculation. So I would like to give those.

14 Q Go ahead.

15 A (WITNESS EIFERT) Going back to the  
16 transformer impedance calculation, the last input data  
17 that the engineer would need in that particular  
18 calculation is the specific loading information that is  
19 indicated on the Stone and Webster one-line diagram,  
20 which defines the basic component loading electrically  
21 for the system. So those were the input sources for  
22 this type of calculation, and all of those were specific  
23 Stone and Webster source documents which, had they not  
24 been referenced, would have clearly been available and  
25 recognizable by another engineer in that discipline.

1           The structural calculation that my people  
2 selected to demonstrate to me what the inputs were was a  
3 calculation dealing with assessing the effects on a  
4 structural floor of an increase -- or of a pipe break  
5 where the floor would be flooded with water. And the  
6 particular calculation was being performed at the  
7 request of the power people to determine if the  
8 arrangement that they were proposing for a series of  
9 weirs to direct that water and disburse that water would  
10 be acceptable to the structural design.

11           So the specific calculation, then, referenced  
12 the existing equipment deadload assumption for that  
13 floor, which is contained in another structural  
14 calculation as well as the floor capacity, which was  
15 also in another calculation. And I would point out that  
16 the structural calculations in format are contained in  
17 one series of calculations for a particular building.  
18 So we were talking here of an additional calculation  
19 that would be made part of that one set of  
20 calculations. So those two sources are in the same  
21 books that the engineer is working with.

22           The other two input sources in this case were,  
23 one, the amount of water postulated from the pipe break,  
24 and when the calc was initially prepared, the input  
25 source for that was an internal office correspondence,

1 an IOC, from the Power Division to the Structural  
2 Division, where at that time they had some preliminary  
3 data that the floor would be flooded to a level of 12  
4 inches and were asking Structural to confirm that it  
5 would be acceptable.

6           The calculation initially indicated that that  
7 confirmation of that particular parameter would be  
8 required at a later date, and the revision that we were  
9 looking at indicated all of this and indicated that it  
10 had been confirmed and made reference to the specific  
11 pipe break analysis calculation that gave that volume of  
12 water.

13           The last input was the floor design itself.  
14 This is the structural drawing for that floor.  
15 Therefore, all of those inputs, even if the calculations  
16 hadn't been referenced, the IOC hadn't been referenced  
17 from the other division, we could have traceability to  
18 that calculation. It included the design drawings.  
19 Without question, they are retrievable.

20           I think on cross-examination I indicated one  
21 or two comments about the pipe support calculation and  
22 typically what goes into that with respect to input data  
23 very quickly to identify that, the specific computer  
24 program. We will talk about some difficulties a little  
25 later here this morning with respect to identification

1 of version and level, so I won't go into that detail  
2 now. The forces, moments and deflections and rotations  
3 that the pipe supports must be designed to accommodate  
4 comes from the pipe stress analysis. There is just no  
5 question that, if someone had failed to identify at all  
6 where he got forces, moments, deflections and rotations,  
7 that he would know he has to go to pipe stress analysis  
8 to get that data.

9 The pipe support drawing itself and this particular  
10 calculation that the individual on my staff pulled out  
11 also involved an integral welded attachment to the  
12 pipe. To do that portion of the analysis, he would have  
13 had to have used one of our Stone and Webster technical  
14 standards, and again, that is something that is clearly  
15 referenced and clearly known to the engineers doing this  
16 type of work.

17 Q All right. For the record, all of those  
18 examples were examples chosen at random rather than  
19 specifically relating to audit observations Mr. Lanpher  
20 asked you about; is that correct?

21 A (WITNESS EIFERT) That is correct.

22 Q But are they representative generally of the  
23 kinds of input data that go into the calculations of the  
24 sort discussed in your cross-examination by Mr. Lanpher?

25 A (WITNESS EIFERT) Yes. I had the samples

1 taken randomly to basically support what I was  
2 indicating on cross-examination, that this is the  
3 situation and it does represent the calculations that  
4 Stone and Webster typically prepares for the design of a  
5 power plant, and I believe they are representative.

6 Q Mr. Eifert, on page 2 of LILCO Exhibit 24,  
7 there is a subgroup entitled "Computer Program  
8 Identification." Can you describe generally what the  
9 observations in that subsection represent?

10 A (WITNESS EIFERT) Yes. These essentially  
11 represent the audit observations where we specifically  
12 indicated that the reference in the calculation to the  
13 computer program that was used to perform that analysis  
14 was not complete as required by our engineering  
15 assurance procedure, EAP 5.3. Our procedure requires  
16 that the reference include the program name, version and  
17 level, so that there is specific reference on the  
18 calculation to the version and level of the program that  
19 was used.

20 In the three audit observations in this  
21 category, all three -- and I will identify those three  
22 -- EA Audit 22, Audit Observation 0-18, Subpart 3; EA  
23 Audit 25, Audit Observation 0-58, Subpart 1; and in SEO  
24 Audit 11, AO-129, Subparts 1 and 5 -- in all three of  
25 these examples the situation was that the version and

1 level of the program had not been identified.

2           In the case of EA Audit 25, Audit Observation  
3 0-58, Subpart 1, the computer program name also was not  
4 listed on the calculation. This, as I indicated, is  
5 lack of the detail that we require in the engineering  
6 assurance procedure, but it is also an example of a  
7 problem with ready traceability because we can --  
8 through what is called a computer run number and date,  
9 which is automatically printed on the computer output  
10 which is a part of that calculation -- take that  
11 information and go back to the computer department  
12 records with respect to what programs are on the  
13 computer at any point in time and identify the specific  
14 version and level of the computer program that was used  
15 for those calculations.

16           So the situation here again is how readily you  
17 can establish which version and level that program that  
18 was used in that calculation, and it is not a question  
19 of in any way having lack of identification of that  
20 program.

21           Q       Was there actual traceability, then, in  
22 connection with those audit observations that you have  
23 just described?

24           A       (WITNESS EIFERT) Yes, that is precisely what  
25 I am indicating. In fact, in the early days that was



1 the standard Stone and Webster mechanism for providing  
2 that traceability. I believe it was approximately 1975  
3 when we changed procedure and added the more stringent  
4 requirement, identified the version and level directly  
5 on the calculation, so that we now have double  
6 traceability, if you will, through the computer  
7 department records and directly from the calculation.

8 Q Was there actual traceability also with  
9 respect to the audit observations that are listed in  
10 Subpart A of Number 1 on LILCO Exhibit 24, entitled  
11 "Miscellaneous Data"?

12 A (WITNESS EIFERT) Yes. That is precisely what  
13 I am indicating. These findings deal with Stone and  
14 Webster's stringent requirements and not with a lack of  
15 traceability to the source of that input data.

16 Q Mr. Eifert, with respect to the entire ready  
17 traceability group on LILCO Exhibit 24 -- that is, the  
18 Subpart A, Miscellaneous Data, and the Subpart B,  
19 Computer Program Identification Subgroup -- in your  
20 opinion, are these observations significant in terms of  
21 the integrity of the plant design?

22 A (WITNESS EIFERT) Not at all.

23 Q Why not?

24 A (WITNESS EIFERT) First, simply on the basis  
25 that we are talking, administrative problem and not a

1 question of technical adequacy. The audit process that  
2 we instituted at Stone and Webster also checks for the  
3 accuracy of the input data. I believe on  
4 cross-examination, and I believe it begins on our  
5 transcript page 10,694, I at some length described that  
6 in the audit process, we not only audit to the stringent  
7 documentation requirements that we impose on our  
8 engineers --

9 Q Excuse me a minute, Mr. Eifert. We may want to  
10 give Mr. Lanpher a chance to get his transcript out.

11 MR. LANPHER: Thank you. What date is that?  
12 Is that the 18th?

13 MR. ELLIS: It is the 21st.

14 MR. LANPHER: Thank you, Mr. Ellis.

15 BY MR. ELLIS: (Resuming)

16 Q Mr. Eifert, you may continue now. Why don't  
17 you begin at the point where you were referring to a  
18 transcript page number. I think you referred me to  
19 10,694.

20 A (WITNESS EIFERT) Yes, that is the correct  
21 page that I was referring to. What I did on  
22 cross-examination was discuss many of, or several, I  
23 should say, references to support my statement that in  
24 our auditing, we not only look at the administrative  
25 requirement with respect to how the source of input data

1 has been identified in the calculation, but we also look  
2 in many of our audits specifically to identify that the  
3 engineers have used the correct and the current input  
4 data.

5 I won't take the time to go through and  
6 identify all of those specific references again. I  
7 believe it is fairly concise in this original  
8 testimony. But I have indicated many times that we  
9 don't simply have an administrative audit process at  
10 Stone and Webster. We do look at the administrative  
11 detail but we also convince ourselves that the design  
12 process is working through review of actual data.

13 And that is one of the primary bases that I  
14 have for having confidence that these input  
15 identification problems or concerns, if you will, that  
16 we have discussed in this traceability category have no  
17 impact on the adequacy of the design because the audit  
18 process has not found difficulties with respect to the  
19 engineers' not using the current or correct data; they  
20 have used the current and correct data. We are simply  
21 talking about the administrative detail of how they  
22 documented the input source.

23 Therefore, with specific reference to your  
24 question, these findings in no way would have an effect  
25 on the adequacy of the plant design.

1           Q     Mr. Eifert, you have indicated your views with  
2 regard to the first group and two subgroups on the  
3 adequacy of plant design, but what significance, if any,  
4 do you attach to the fact that there are a number of  
5 audit observations relating to ready traceability under  
6 the Miscellaneous Data Subgroup A?

7                     Do you understand my question?

8           A     (WITNESS EIFERT) Yes. I think that we have  
9 seen -- I think there are two reasons why we have seen  
10 this problem the number of times that we have. The first  
11 deals with the fact that our Stone and Webster procedure  
12 has changed over the years with respect to what we  
13 required the engineers to put in their calculations with  
14 respect to identification of input sources. In EAP 5.3,  
15 Rev. 0, for example, which was issued in February of  
16 1972, the requirement which we imposed on the engineers  
17 was that sources of input data, factors, equations and  
18 codes shall be identified and referenced to the extent  
19 necessary to provide traceability.

20                     The EAP was not changed until 1979 to provide  
21 the extremely stringent requirements that I have  
22 described earlier. The audit observations that we have  
23 seen over the years reflect to some degree those  
24 changes, in that in the early years the audit  
25 observations for the most part reflect, or certainly in

1 some cases reflect simply the difference of opinion  
2 between an auditor and an engineer on what was necessary  
3 to be in the calculation with respect to the procedural  
4 requirement that contained the words "to the extent  
5 necessary."

6           So there has been some interpretation of the  
7 requirement over the years, is what I'm indicating, and  
8 that has been cause for the findings.

9           The second reason that I believe that the  
10 number of observations is as is indicated is that  
11 engineers put their primary emphasis on ensuring the  
12 technical adequacy of the analysis, and this is why we  
13 have not found problems with adequacy of analysis, we  
14 have not found problems with engineers not using the  
15 current and applicable input data, because by nature  
16 that is their primary concern and they are very expert  
17 in implementing that aspect of the analysis.

18           The administrative detailed documentation in  
19 many cases is not there, simply because the engineer  
20 knows and judges that he has traceability, clear  
21 traceability without that information, and that is not  
22 what we now require at Stone and Webster in our  
23 calculation documentation.

24           To repeat again, we require more stringent,  
25 now, primarily for the future, reference to those

1 calculations so that another engineer can readily  
2 understand that analysis.

3 [Counsel for LILCO conferring.]

4 Q Well, in light of the number of findings in  
5 the ready traceability area as reflected in LILCO  
6 Exhibit 24, has your audit program been effective, in  
7 your view, and if so, how?

8 A (WITNESS EIFERT) Without question, I am  
9 confident that our audit program has been very  
10 effective. First, we have an audit program, it is  
11 designed to ensure that our design process is effective  
12 and it is designed to monitor the implementation of that  
13 process. The audit program has identified the problem,  
14 the concern with the identification and how well the  
15 source of input data has been identified.

16 The audit process has ensured that appropriate  
17 corrective action was taken when this concern was  
18 identified. In addition, Stone and Webster has taken  
19 preventive action over the years with respect to  
20 identification of input sources.

21 Q While you are doing this, would you tell us  
22 what the preventive action was?

23 A (WITNESS EIFERT) The preventive action I  
24 think I can best describe two ways. The expected  
25 preventive action with respect to this type of audit

1 observation which we expect to be implemented at Stone  
2 and Webster is the immediate supervised reaction. In  
3 Stone and Webster's case, the lead engineers are  
4 responsible for their function, taking steps to ensure  
5 that the people on their staffs clearly understand the  
6 Stone and Webster requirement and the need to implement  
7 that. And that has been the primary thrust of what we  
8 have looked for and expected to find even on these what  
9 I will call minor administrative concerns.

10           In addition, Stone and Webster presents a  
11 formal training program with respect to calculations.  
12 We have implemented that training program since 1972. I  
13 recall when I first joined Stone and Webster, that was  
14 the first training session I went to. But we modified  
15 that training session over the years to emphasize the  
16 reason for the Stone and Webster stringent requirements,  
17 to emphasize to the engineers and maybe to sympathize  
18 with them a little bit to explain that we understand  
19 that you see there is traceability and you don't  
20 understand why we want you to document it to this  
21 detail, but try to convince them that what we are  
22 talking about here is the future, five years from now,  
23 where another engineer will need to use that calculation  
24 or understand that calculation and you can make his job  
25 a lot easier, and then remind him that he might be that

1 engineer on another job. And thinking in those terms,  
2 we can motivate them to be more precise in their source  
3 identification.

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1           The last part of answering your question with  
2 respect to do I feel that our audit program has been  
3 effective --

4           Q     My question was in light of the number of  
5 these findings.

6           A     (WITNESS EIFERT) Yes. In light of the number  
7 of these findings. The audit program has been effective  
8 because we continue to follow up. We don't see this as  
9 in any way an important finding with respect to the  
10 integrity of the plant design; but we still follow up  
11 even on this type of concern, including re-audit of  
12 deficient areas, because we want to follow up and ensure  
13 that we meet this requirement. And in the context of  
14 criterion 18 that's precisely what they're looking for;  
15 that you have followup action, including re-audit of  
16 deficient areas shall be taken where indicated.

17                 So for all those reasons I'm very confident  
18 that our audit program has been very effective, and I'm  
19 also very confident that the calculations that we have  
20 for Stone and Webster for the Shoreham project have in  
21 them ready traceability to the input sources, and we  
22 have that package that will be available to the  
23 engineers and the LILCO engineers during the operation  
24 of the Shoreham plant.

25           Q     Mr. Eifert, you mentioned criterion 18. What

1 about the effectiveness of the program with respect to  
2 criterion 16 relating to corrective action of Appendix  
3 B? Is it, in light of the ready traceability  
4 observations, is it also effective in that context?

5 A (WITNESS EIFERT) Yes, it is. And I would  
6 like to refer directly to criterion 16; and it can be --  
7 well, let me begin, but I think I put criterion 16 in  
8 perspective on cross examination with respect to it  
9 being in essence an upper level criterion, especially  
10 with respect to criterion 18 or criterion 15 where  
11 criterion 16 is a criterion that comes into play  
12 primarily when you have identified significant  
13 conditions adverse to quality, and it imposes additional  
14 requirements on that with respect to such things as  
15 notifying management and ensuring that you do look  
16 seriously at the cause of the problem.

17 But criterion 16 is really two parts. The  
18 first part indicates -- and let me quickly read it --  
19 "Measures shall be established to assure that conditions  
20 adverse to quality such as failures, malfunctions,  
21 deficiencies, deviations, defective material and  
22 equipment and nonconformances are properly identified  
23 and corrected."

24 And stopping there for a moment, that's  
25 precisely what our audit program has done. We have

1 identified conditions that we felt needed to be  
2 corrected, and we achieved that objective of getting  
3 those corrected.

4           The second part of criterion 16 reads, "In the  
5 case of significant conditions adverse to quality, the  
6 measures shall assure that the cause of the condition is  
7 determined and corrective action taken to preclude  
8 repetition. The identification of the significant  
9 condition adverse to quality, the cause of the condition,  
10 and the corrective action taken should be documented and  
11 reported to appropriate levels of management."

12           In the case of the concerns that we have been  
13 discussion on ready traceability, my answer is simply  
14 that this is not a significant condition adverse to  
15 quality that would in any way come into play with  
16 respect to criterion 16. So there is no applicability  
17 of that aspect of criterion 16 because there is no  
18 significant condition adverse to quality present in the  
19 concerns on ready traceability.

20           I would point out, however, we did talk about  
21 preventive measures, the training program as an  
22 example. So we at Stone and Webster, although you could  
23 interpret that Appendix B doesn't look specifically  
24 there for preventive action because this is not a  
25 significant condition, under the audit program

1 preventive action is appropriate for this type of  
2 deficiency as part of the followup action that is  
3 required by Appendix B. And we have applied those  
4 measures at Stone and Webster.

5 Q Mr. Eifert, you've talked about criterion 18  
6 and 16. Would criterion 3 also be pertinent in  
7 connection with the observations on ready traceability?

8 A (WITNESS EIFERT) Yes and no, okay. Criterion  
9 3, okay, requires that we establish a design control  
10 program, and we have done just that. We have a very  
11 detailed procedure on calculation that fully describes  
12 the process and the design review and so forth as  
13 required by criterion 3.

14 The concerns that we have with the ready  
15 traceability would not be in any way an indication of  
16 failure to have established a design control program;  
17 and, therefore, with respect to any violation, clearly  
18 criterion 3 would not be applicable for that reason.

19 We had a program. The concerns were some  
20 minor implementation problems with the ready  
21 traceability, and, therefore, those do not in any way  
22 relate to criterion 3 of Appendix B.

23 (Counsel for LILCO conferring.)

24 Q Did you have something further?

25 A (WITNESS EIFERT) Yes. One point that I would

1 like to add with respect to the problem we were talking  
2 about with the audit program -- and I think it also  
3 relates to why I have confidence that our program in  
4 general is effective and that it provides some insight  
5 into why our engineers have done a good job with respect  
6 to actually using the latest and correct input data --  
7 if you look at programs to implement Appendix B and you  
8 look at the level of requirements in those programs, and  
9 in this case from a requirement that we have  
10 calculations and that we document them and that we  
11 review them, that we have traceability or retrievability  
12 of the data to the stringent requirement that we are  
13 talking about here on ready traceability, you see  
14 several levels of requirements.

15           The way we have audited this particular  
16 activity, and really all activities at Stone and  
17 Webster, these are detailed lowest level requirements  
18 that only have an absolutely remote possibility of  
19 having an impact on the integrity of the plant design.  
20 But we emphasize those, and we follow up an audit again  
21 on those, and what it does is it in effect keeps  
22 quality, the idea of quality and the need for quality in  
23 all aspects of the work in the minds of the people doing  
24 the work.

25           So they have been constantly reminded, for

1 example, of the need to be very specific on the  
2 identification of the input sources, and we have  
3 concentrated on that, and it serves to ensure that we do  
4 not have a problem in our meeting the requirements which  
5 are at a higher level than that lowest level detail;  
6 because people understand and they are continually  
7 reminded of the need for full implementation. And our  
8 concentration in all areas of the quality program that  
9 have been applied at LILCO demonstrate that by  
10 emphasizing that level of detail we do not have problems  
11 which are more significant.

12 Q All right, Mr. Eifert. Let's turn to the next  
13 section in LILCO Exhibit 24, the section "Documentation  
14 of Review."

15 JUDGE CARPENTER: If you are leaving  
16 calculations, may I ask a couple of questions?

17 MR. ELLIS: I'm not leaving calculations. I  
18 am leaving this particular section, and I should have  
19 indicated that. Would you like me to indicate each time  
20 I leave a section?

21 JUDGE CARPENTER: Yes.

22 MR. ELLIS: Yes. I am leaving this section  
23 and going on to section number 2 which is "Review of" --  
24 "Documentation of Review."

25 JUDGE CARPENTER: My question did have to do

1 specifically with ready traceability, so if I may,  
2 instead of coming back this afternoon and trying to  
3 recreate the thought.

4           Mr. Eifert, with respect to your review of  
5 these audits that you have listed in LILCO Exhibit 24,  
6 how many cases of error in choosing the values of the  
7 parameters that were used in the calculations for  
8 Shoreham have you identified?

9           WITNESS EIFERT: The answer is none, but let  
10 me qualify that. There is one audit observation that we  
11 discussed here that dealt with a calculation, an  
12 electrical calculation that had not used the latest  
13 input data.

14           JUDGE CARPENTER: That would definitely be  
15 within the definition of error that I am using.

16           WITNESS EIFERT: As reported, yes. But we  
17 discussed that on cross examination, and we were able to  
18 establish that the cause of that situation was a  
19 revision to the motor and load list which was the source  
20 document after the calc had been prepared and before the  
21 review had been completed.

22           So at the time the calc was prepared, the  
23 proper data had been used, and it was simply a timing  
24 situation. That calc would have been revised again on  
25 receipt of the revised motor and load list by the

1 preparing group. So it was not a case of an error with  
2 respect to identifying and using the latest source input  
3 at the time; but it was a case where the design was  
4 changing with respect to the motor and load list at the  
5 same time they were performing this calculation. So it  
6 was clearly not something that I was concerned about and  
7 not something that would occur; in fact, it was a very  
8 unusual circumstance, if you will.

9 JUDGE CARPENTER: Just one other area where I  
10 would like some help. These calculations are generally  
11 required to be reviewed by some other engineer?

12 WITNESS EIFERT: All calculations are reviewed  
13 by a second engineer, yes, sir.

14 JUDGE CARPENTER: Is he required to verify the  
15 values of the parameters used in the calculations?

16 WITNESS EIFERT: Yes, he is.

17 JUDGE CARPENTER: How is it that the reviewer  
18 can do that if the source of the values is not  
19 documented?

20 WITNESS EIFERT: He can do that because he is  
21 as familiar with the source document as the preparer  
22 is. Our reviewer understands that process, and without  
23 questioning -- he doesn't have to ask the preparer for a  
24 source. He knows that certain data comes from the motor  
25 and load list or from the vendor document or so forth.



1 He, in effect, does his review the same way the preparer  
2 prepared the calculation. He says this is the objective  
3 of the calculation; what do I need to prepare the  
4 calculation; and he does that. The reviewer in effect  
5 does the same thing, the objective of the calculation.  
6 He then looks at the method that the preparer has chosen  
7 and goes directly to the input sources and can verify  
8 them without the administrative road map of the source  
9 identification.

10 JUDGE CARPENTER: Are all these calculations  
11 of the type that are listed in LILCO Exhibit 24  
12 performed by individuals sort of sporadically over the  
13 course of the project, or is there a tendency for there  
14 to be an activity involving a supervisor and a number of  
15 people making that particular kind of calculation with  
16 that particular part of the job?

17 WITNESS EIFERT: I would characterize the  
18 overall view as -- I don't like your word "sporadic,"  
19 but we do not have specialty groups in all areas of  
20 people whose primary and only job is to prepare  
21 calculations. For example, in a particular discipline  
22 on the project, the Power Division, as an example -- and  
23 it's really all the same -- that discipline of engineers  
24 assigned to the project are responsible for the flow  
25 diagrams, the equipment specifications, the calculations

1 to support that design, the procurement of the  
2 equipment. So the engineers basically are required to  
3 perform a lot of different activities with respect to  
4 the design that they have been assigned responsibility  
5 for, including preparation of specific calculations to  
6 support that design.

7 JUDGE CARPENTER: So usually these  
8 calculations are carried out at the time some design  
9 problem is being worked on. I'm trying to get a feel  
10 for why the reviewer would also know. I'm getting the  
11 feeling that probably a number of people are in some way  
12 formed into a team that are working on some design  
13 problem for which these individual calculations are one  
14 element.

15 WITNESS EIFERT: Well, let me try to answer  
16 and give you a picture. You used the term "design  
17 problem." I'm sure that there are certain situations  
18 that come up after the design has been developed that a  
19 question will be asked, and we'll have to go back and  
20 review the design and possibly perform some confirmatory  
21 calculations to determine do we or do we not have a  
22 problem.

23 In that situation I would expect typically  
24 that the lead engineer, who is a supervisor by function,  
25 and one or two engineers on his staff would be involved

1 in doing that kind of a review. It is not the team  
2 approach, if you will, of people all working together  
3 and knowing that specific problem that provides that  
4 everyone knows the traceability source, the source of  
5 the input document. It is the general design process  
6 for that discipline. You know, an engineer assigned to  
7 another project could come into the Shoreham project,  
8 for example, and he understands the process of designing  
9 piping systems for a power plant, and he would be able  
10 to find that information the same way an engineer who  
11 was assigned to the project and possibly involved in  
12 that confirmatory review that was going on. The process  
13 is not that unique is my point.

14 JUDGE CARPENTER: It's more or less in a sense  
15 repetitive and very familiar to the individuals carrying  
16 it out?

17 WITNESS EIFERT: Yes.

18 JUDGE CARPENTER: I was trying to get some  
19 feel for how the reviewer could do the review so  
20 successfully without the documentation which your  
21 policies call for, and it seems credible to me that  
22 since it is the kind of thing that he is used to doing,  
23 he is so familiar with it.

24 These look to me to be perhaps tentatively  
25 administrative oversights. And I was curious as to how

1 they could propagate, why you're having such trouble  
2 taking remedial action.

3 I'm trying to get some feel for that, the  
4 so-called breakdown which the County alleges, in terms  
5 of a time sequence. If we look at the pipe support  
6 items in your exhibit, there are '78, '80, and '81, so  
7 for a period of three years the problem persisted.  
8 That's really the issue here, and it almost seemed like  
9 it's inherent in these people doing this kind of work  
10 for there to be a tendency to make what might be almost  
11 called administrative oversights.

12 So I'm curious to know what remedial actions  
13 you take to help that problem.

14 WITNESS EIFERT: I think your  
15 characterizations of these as administrative oversights  
16 is precisely correct. The three, for example, in the  
17 pipe support area, they involve two different  
18 organizations that were performing calculations. It was  
19 the two audit observations, one in '78 and one in '80,  
20 where the project people assigned in project  
21 headquarters at Boston. The third one was the pipe  
22 support group at the site engineering office.

23 But they are just, as you characterized, they  
24 are administrative detail, but they are detail that  
25 Stone and Webster management wants in the calculations.

1           One of the mechanisms that we are now pursuing  
2 -- and I believe I may have discussed this on cross  
3 examination, but I don't recall -- we are working now  
4 with the engineering department administrative staff  
5 which is organized as a separate division, if you will,  
6 within the engineering department with management people  
7 who staff the clerical people, administrative people who  
8 take care of many of the administrative matters on the  
9 project. And we are now working with them to come up  
10 with -- possibly come up with a mechanism by which they  
11 can assume more responsibility with respect to the  
12 specific identification and providing the ready  
13 traceability on calculations to ensure that that  
14 particular process is being met.

15           The reasons that we have had as many  
16 observations as we do is because, as I indicated, one  
17 reason is that the requirements have changed over the  
18 years. This is not seen as anything significant. The  
19 process has ensured that the bottom line of the product  
20 we are providing for Shoreham does provide the  
21 traceability. And if you look at our exhibit, Exhibit  
22 24, we have tried to group those.

23           We have grouped those audit observations in  
24 this category by discipline, and there are certainly  
25 some disciplines where the problem only occurred once.

1 We audit each of the disciplines preparing calculations  
2 every year. The pipe support area that you mentioned is  
3 probably the area that we have the highest volume of  
4 calculations concentrated in one group, and probably has  
5 the highest rate of new employees that need to be  
6 oriented to Stone and Webster's stringent requirements.

7           And I think that that is why I would see the  
8 recurrence there. I haven't personally, but my auditors  
9 have come back and indicated that in talking with some  
10 of these new employees that many of them are amazed that  
11 Stone and Webster would require that the documentation,  
12 not only in the ready traceability but in other areas,  
13 be as precise as we require.

14           So there is a learning curve throughout the  
15 life of the project with respect to new employees, and I  
16 think that some of that is reflected in the number of  
17 observations that we have had.

18           JUDGE CARPENTER: Thank you for helping me  
19 understand the relative frequency of the errors.

20           WITNESS EIFERT: Excuse me. I might clarify  
21 just for the record, when we talked about audit  
22 observation 120 and the STRUDL model, I think we talked  
23 in terms of that being input, and we clarified that,  
24 that in my terminology of the input I don't call that  
25 input. I clarified that in response to Judge Brenner's

1 questions on that. I didn't want to omit that one if  
2 that was one that in your mind fell into that category.

3 BY MR. ELLIS: (Resuming)

4 Q Mr. Eifert, the second category on  
5 "Documentation of Review," would you generally  
6 characterize the audit observations that appear in this  
7 category, giving examples if you would, please, sir?

8 A (WITNESS EIFERT) Yes, sir, I can. What we  
9 did here, again, after the cross examination we were  
10 able to go back and get more information with respect to  
11 the observations that we have put into this group which  
12 we have called inadequate documentation of review.

13 We have been able to verify that for these  
14 observations what the auditor was reporting was not a  
15 lack of review, but that the review had not been  
16 appropriately documented. This represents again an  
17 administrative problem with how reviews are documented  
18 and do not represent that the calculations were not  
19 reviewed.

20 Q Can you give me some examples? Can you give  
21 the Board some examples from LILCO Exhibit 24, Category  
22 2, some examples of those observations that reflect  
23 this, what you call the lack of documentation, rather  
24 than lack of review?

25 A (WITNESS EIFERT) Yes, I can give you some

1 examples, and I will refer to specific audit  
2 observations, and in a couple of cases I will refer to  
3 specifically where we weren't sure of what the  
4 information was during the cross examination because we  
5 just hadn't prepared for the cross examination that --  
6 the approach that was taken.

7           The first example that I will use is  
8 Engineering Assurance Audit 4, page 1, item C. This was  
9 a Power Division mechanical group calculations where the  
10 actual conditions for the calculations were that all  
11 pages of that calculation had not been initialed by an  
12 individual other than the preparer.

13           At that point in time our requirement was that  
14 the individual assigned to review the calculation  
15 initialed each and every page as he went through the  
16 calculation. We have had in that period of time  
17 incidences of audit observations with respect to that  
18 simply because he missed a page as he went through. And  
19 I can just visualize that I finish reviewing the  
20 calculation, I go through and I am initialing each page  
21 that I reviewed, and I missed some; and that is what is  
22 occurring.

23           On the cross examination with respect to this  
24 audit observation we indicated that we weren't sure what  
25 the situation would have been. The way the audit report



1 was written we said the observation could have been a  
2 lack of review, or it could have been a problem with  
3 documentation of review. But we have established in  
4 going back here that it was a documentation problem, and  
5 that's why we have put it into this category.

6 JUDGE BRENNER: Do you have a transcript handy  
7 by any chance of that cross examination that you are  
8 summarizing?

9 WITNESS EIFERT: We have traceability, but not  
10 ready traceability.

11 JUDGE BRENNER: Mr. Ellis, do you know, or at  
12 least the day?

13 MR. ELLIS: My traceability is also not ready,  
14 but I will get it for you at the lunch break. Maybe we  
15 can get it right now.

16 MR. LANPHER: I may be able to help. The  
17 document entitled "Suffolk County Designation Of Audit  
18 Data To Be Moved Into Evidence," the attachment  
19 indicates that this audit observation was discussed at  
20 10,000 -- beginning at 10,358, and it goes on for a  
21 number of pages from there.

22 JUDGE BRENNER: Okay. Very good. I have it.  
23 Thank you.

24 That motion of yours will come in handy for a  
25 lot of purposes, it appears. Thank you.

1 MR. ELLIS: May we have a moment to check  
2 that, Judge Brenner?

3 JUDGE BRENNER: No. Let's leave it. I'm  
4 satisfied that if it's grossly wrong I will find it out  
5 when I go back to that transcript page. I just wanted  
6 to attempt to get some indication now.

7 BY MR. ELLIS: (Resuming)

8 Q Mr. Eifert, you were proceeding to give  
9 examples from LILCO Exhibit 24 of the documentation of  
10 review group, and I think you talk about EA-4. There  
11 are others that are representative of the entire group,  
12 too, there?

13 A (WITNESS EIFERT) The second example I will  
14 use EA Audit 9, page 2, item II.C.2.A. And this one is  
15 an example, as we described it on the cross examination,  
16 was a situation where the checker's name was printed in  
17 rather than being signed in. And if you recall, that  
18 was a change in our procedure where the original  
19 procedures allowed for printing, and we changed that  
20 later to require the actual signature of the individuals  
21 or initials.

22 If you give me a moment, I'll give you another  
23 example.

24 (Pause.)

25 In EA Audit 10, page 1, item II.C, and in the

1 chart that is on page 2 of that audit, the situation  
2 with pipe stress engineering calculations, the actual  
3 condition was that the initials and not signatures were  
4 on the cover page. And what we had required in that  
5 procedures at that time was that you initialed the pages  
6 and signed the cover page, but they had initialed the  
7 cover page, and not all the pages had been signed. So,  
8 again, we were able to indicate that that was a  
9 situation where there had been review.

10 I believe the cross examination was accurate  
11 on that one, and it wasn't an indication that we didn't  
12 have the information.

13 On EA Audit 14, page 2, item II.C.2, this  
14 observation had to do with environmental calculations  
15 where the computer runs had not been summarized as  
16 required by the EAP and where there was no evidence that  
17 the data had been reviewed.

18 I believe we indicated on cross examination  
19 that, or we surmised or speculated on what that  
20 situation would have been, what we have been able to  
21 establish that there was a calculation prepared that had  
22 been reviewed, but the computer data which at this point  
23 in our procedure required that they take the data, the  
24 results of the computer run, summarize them into the  
25 calculation, and then that becomes part of the

1 documentation that is reviewed.

2           And what would have happened at that time is  
3 that summary sheet would have been initialed by the  
4 reviewer. In this case the basic calculation was  
5 prepared. They hadn't prepared the summary. The  
6 computer run was part of the calculation package. And,  
7 therefore, we're confident that it was reviewed, but  
8 they had not provided the specific documentation of that  
9 review in the form of the summary of the results of the  
10 computer run as we had required.

11       Q     I asked you to give me some representative  
12 examples. I think you identified four out of the five.  
13 You have described four out of the five. Without going  
14 through the fifth unless you need to, is it fair to say  
15 that this entire group is characterized by actual review  
16 having occurred but not adequate documentation of that  
17 review? Is that correct?

18       A     (WITNESS EIFERT) That is correct.

19       Q     With respect to this group, Mr. Eifert, in  
20 your opinion do you consider the findings that are in  
21 category 2 on LILCO Exhibit 24 to be significant in  
22 terms of the integrity of the design of the plant?

23       A     (WITNESS EIFERT) These observations that we  
24 are talking about with respect to category 2, which we  
25 call inadequate documentation of review, in my judgment

1 are not of any significance to the integrity of the  
2 design of the plant. In these observations we did not  
3 identify any concerns with the adequacy of the  
4 calculations. We had evidence that they were reviewed.  
5 This again is an administrative concern which very  
6 simply would not be expected to have an effect on the  
7 adequacy of the plant in an immediate sense.

8 Q Was corrective action taken in each of the  
9 instances?

10 A (WITNESS EIFERT) Yes, Mr. Ellis. The audit  
11 program at Stone and Webster provides for taking the  
12 appropriate corrective action. In the case, for  
13 example, of where pages of calculations had been missed,  
14 not initialed, the standard practice when we saw those  
15 kinds of observations back in those days was to require  
16 them to go back and correct the documentation by having  
17 the reviewer verify that yes, he did review that page  
18 and put his initials on. And that is what was done for  
19 all of the audit observations in this category.  
20 Corrective action was taken.

21 Q Do these observations in category 2 on LILCO  
22 Exhibit 24 constitute or reflect in any way a pattern in  
23 your opinion?

24 A (WITNESS EIFERT) Not in any way.

25 Q Why not?

1           A       (WITNESS EIFERT) I think we see there are  
2 five audit reports that we are talking about, and if you  
3 count the audit reports by observation, we see that  
4 there are eight observations. The observations occurred  
5 in seven different disciplines, which is one indication  
6 that with respect to the way we audit calculations that  
7 it's not a pattern, because these kinds of problems were  
8 not in any way recurring within that discipline. And I  
9 believe that is an appropriate way to look at the  
10 subject of recurrence, because a discipline is a group  
11 with a lead engineer, a functional supervisor, and the  
12 cause mechanism for this type of concern is probably  
13 directly related to his immediate attention to  
14 emphasizing this lowest level requirement of the  
15 procedures.

16                   So in each of the cases based on what we're  
17 seeing here, we haven't had recurrence, and that is  
18 indication that some additional attention was being  
19 appropriately given to the question of documentation of  
20 review.

21                   In addition, just looking at the dates of this  
22 particular grouping, they are spread well out over  
23 several years; and also, I don't see a way to describe  
24 that as in any way a pattern.

25           Q       Well, Mr. Eifert, in your opinion are these

1 observations that are in category 2 of LILCO Exhibit 24,  
2 do they reflect in any way violations of Appendix B?

3 A (WITNESS EIFERT) No, Mr. Ellis. I don't  
4 believe that these in any way reflect any violation of  
5 Appendix B.

6 Q Why not?

7 A (WITNESS EIFERT) I think that the three  
8 criteria that might be questioned with respect to this  
9 type of documentation or this type of observation would  
10 be criterion 3 and again 16 or 18. And clearly, with  
11 respect to criterion 3 we had the measures established,  
12 necessary measures to control the design. If you look  
13 at criterion 3, I think you see that.

14 To pick out a couple of examples of what those  
15 measures should include, they shall include the design  
16 review measures. Our procedures provided for the design  
17 review of analyses, and we had that program. There's no  
18 indication here that in any way we didn't have measures  
19 established to control the design process.

20 With respect to criterion 18, we have a  
21 comprehensive system of auditing. It's been implemented  
22 over the years. It is effective. I think the  
23 observations in themselves identify that we find the  
24 problems.

25 The results of our auditing have been

1 documented as required by 18, and we have followed up on  
2 deficient areas to ensure that appropriate corrective  
3 measures have been taken. So we have fully complied  
4 with criterion 18.

5           With respect to criterion 16, again, as I  
6 indicated for the traceability, problems have been  
7 corrected, and these are not in any way concerns which  
8 would be characterized as significant conditions adverse  
9 to quality. These are certainly the lowest level type  
10 of concern that we would have with implementing a  
11 quality assurance program -- items for which the  
12 probability or the potential, if you will, for having an  
13 impact on the integrity of the design is just extremely  
14 remote. And these are not the "significant adverse  
15 conditions" intended to be evaluated as required by  
16 criterion 16.

17           And, again, I would emphasize that I believe  
18 our emphasis on these detailed requirements in our  
19 procedures form a basis to keep everybody aware of their  
20 need for quality in their work. And we have been  
21 successful in that by evidence that we have not found  
22 and reported a great number of problems which would be  
23 more important than these administrative concerns.

24           MR. ELLIS: Judge Brenner, at this time I am  
25 going to go on to the third category in Exhibit 24, in



1 the event that the Board has any questions on number 2.

2 JUDGE BRENNER: I don't have any particular  
3 questions. I want to ask you one thing about the way  
4 you are proceeding. I notice that Mr. Eifert from time  
5 to time has said that he has representative samples in  
6 each group, and that's fine, and it is up to us later to  
7 see if we believe that they are truly representative, and  
8 people can follow up on examination as to focusing their  
9 views on what was representative.

10 I would think you might want to include what  
11 you think are arguably the worst offenses.

12 MR. ELLIS: We're coming to that. That's the  
13 next -- that's the next topic.

14 JUDGE BRENNER: Recognizing that people may  
15 differ in what they consider arguably the worst audit  
16 findings. But for purposes of your presentation, I  
17 don't know if you are more interested in that, not  
18 distinguish necessarily from representative but along  
19 with it.

20 MR. ELLIS: I understand, Judge Brenner.

21 WITNESS EIFERT: I would like to go back and  
22 discuss one specific example that we did overlook when  
23 you asked me to jump ahead, Mr. Ellis; and it was  
24 another one where we were able to get clear information  
25 to clarify information that we had given on cross

1 examination. And I would like to get that specific one  
2 on the record if I could.

3 BY MR. ELLIS: (Resuming)

4 Q Which group are you looking at?

5 A (WITNESS EIFERT) I am now back in the group  
6 of inadequate documentation of review, and it's the last  
7 observation in the group, EA Audit 30, Audit Observation  
8 101, part 1 of that observation.

9 Q Go ahead, Mr. Eifert.

10 A (WITNESS EIFERT) Okay. In our testimony we  
11 indicated that there was a question with respect to the  
12 adequacy of the review, and this was an observation  
13 which in the auditor's view, looking at the  
14 documentation, there was some question on whether some  
15 changes that had been made to the calculation had been  
16 reviewed.

17 And in our response on cross examination we  
18 indicated that they had not been able to -- we had not  
19 been able to establish whether or not those calcs had  
20 been reviewed, but in response to the audit the project  
21 had gone back and fully reviewed all the calculations to  
22 ensure that any such changes had been reviewed.

23 We have included that in this category now of  
24 inadequate documentation because we were able to go back  
25 and talk to the specific lead engineer at the time, and

1 he described the process that was going on at that  
2 particular time with these particular calculations, and  
3 stated that without question his knowledge on this was  
4 that the calculations had been reviewed at the time.  
5 Documentation did not reflect that, and we did go back  
6 and in effect have the reviewers reverify that they had  
7 reviewed the calculations and provide the appropriate  
8 documentation. So we did have that additional  
9 information that we were able to get since the cross  
10 examination, and I wanted to make that clear.

11 JUDGE BRENNER: You're ready to go to the next  
12 category now?

13 MR. ELLIS: Yes, sir.

14 JUDGE BRENNER: Let's stop the examination at  
15 this point because we have one or two things that we  
16 want to discuss briefly and then we will break for lunch.

17 We're going to return to the fascinating  
18 subject of emergency planning. Our purpose in returning  
19 to that now rather than at some later date, and  
20 particularly as late as potentially November 22nd when  
21 it looks like we will be discussing the subject again,  
22 is in the interest of full communication to make sure  
23 the County understands our view of its default today to  
24 give it an opportunity partially at least to cure that  
25 default.

1           The time estimates we asked for are time  
2 estimates that we need from the County and other  
3 intervenors regardless of the efficacy of the deposition  
4 approach or the authority of the deposition approach.  
5 These would be the very same time estimates -- that is,  
6 the time estimates that the intervenors would need to  
7 cross examine each of the staff's witnesses and each of  
8 LILCO's witnesses -- would be the same time estimate as  
9 if we were asking for them for hearing or the  
10 depositions we have in mind or for anything else.

11           It is true we asked for them in the context of  
12 the depositions, but we need the estimates anyway. We  
13 could have sat back and pointed out that default later  
14 and held the County to task for it. We are prepared to  
15 do that if necessary. However, we will give the County  
16 another opportunity to give us those time estimates.

17           This does not cure the default, but even if  
18 they were tied only to the depositions, the County is in  
19 default. But we point out that the County is incorrect  
20 in believing that they are tied just to that estimate.

21           It appears that SOC suffers from the same  
22 problem, but that is just based on the cover letter from  
23 LILCO. I'm not prepared to make that determination at  
24 this time.

25

1           In any event, we are ordering as of now the  
2 County and Intervenors to coordinate and provide us the  
3 time estimates, to be received by Monday, November  
4 15th. If we don't receive them, we will understand that  
5 this is indeed a full default intended by the  
6 Intervenors and we will treat it accordingly.

7           The time estimates can be presented in the  
8 same division that LILCO and the staff have supplied,  
9 its table with fair estimates. That table groups  
10 certain contentions of apparently related subject  
11 matter. If the Intervenors filing their time estimates  
12 agree with those groupings, they can present their time  
13 estimates in the same groupings. If the Intervenors  
14 would disagree that those subjects should be grouped  
15 together for evidentiary presentation, then the  
16 Intervenors should so state and accordingly provide a  
17 further breakdown of the time estimates.

18           Now, although the staff supplied time  
19 estimates for redirect, perhaps we weren't clear. We  
20 understand that such time estimates are problematical.  
21 We are interested in the time estimates for cross. We  
22 want the estimates to include an identification of which  
23 intervenor will be the lead cross-examiner. We assume  
24 that it is going to be the County on all the contentions  
25 except for EP 11, and we assume it will be the North

1 Shore Coalition on EP 11. And this is based on a filing  
2 of the contentions wherein it was indicated that SOC was  
3 a follow-on intervenor to the County and to NSC on that  
4 one, EP 11.

5           If that is not the case, that is, if any other  
6 intervenor is going to seek cross-examination other than  
7 just the possibility of a few follow-up questions, that  
8 should be so indicated. So that is our order, and we  
9 expect to see those time estimates by Monday, November  
10 15th or there will have been a default beyond the  
11 subject of the depositions.

12           We are allowing until Monday to give the  
13 County the opportunity to coordinate with the other  
14 intervenors, and we appreciate the courtesy of that  
15 coordination, and the quid pro quo is to make sure that  
16 you have enough time to go it.

17           If we had been asking just the County, we  
18 would have asked for it by Friday. The reason I say  
19 that is we could use the information on Friday if it is  
20 feasible for it to be supplied.

21           I have a question of LILCO and the Staff about  
22 one aspect of the table. I don't know if the right  
23 people are here to tell me now.

24           For Category 6 there is a "2" under the LILCO  
25 Cross-examination of County Witnesses column. I assume

1 that is two days, not to be confused with the Footnote  
2 2, but that isn't clear. I would have the same question  
3 as to the "1" appearing in that same column with the  
4 Group 7, and I guess the same question as to the "1"  
5 appearing in the LILCO Redirect column.

6 MR. ELLIS: What was the third one, on the  
7 redirect?

8 JUDGE BRENNER: Yes. I don't know if you know  
9 the answer. I assume it should be "day" or "days"  
10 following those numbers so they are not confused with  
11 the three footnotes.

12 MR. ELLIS: Yes, sir, we will check on that.  
13 The footnotes do appear to the word "issues" and  
14 "total," and NEC Cross of County Witnesses up at the top  
15 of the page.

16 [Board conferring.]

17 JUDGE BRENNER: All right. So this would  
18 replace and expand upon our earlier point that further  
19 attempts should be made to coordinate with NSC as to  
20 their time estimates. This will subsume that  
21 requirement for asking for coordination. We will get  
22 back to you on firming up the 22nd. It is only a matter  
23 of our knowing the extent of the motions to strike.

24 On a less serious subject, we are willing to  
25 run from 9:00 to 1:00 on Friday. We will probably take

1 two breaks. That should assist all of us in making  
2 arrangements to get out of here, those of you who are  
3 doing so.

4 Let's break for an hour and a half until 1:45.

5 [Whereupon, at 12:15 p.m. the hearing was  
6 recessed, to reconvene at 1:45 p.m. the same day.]

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## 1 AFTERNOON SESSION

2 [1:45 p.m.]

3 JUDGE BRENNER: All right. Good afternoon.

4 I have one brief preliminary matter before we  
5 continue the redirect examination. I want to make sure  
6 that we are going to get timely updates of the  
7 cross-examination plans. We discussed this last week,  
8 that we had received drafts. The next panel of  
9 witnesses for which that would be applicable would be  
10 the County's panel.

11 When would we receive the updated cross plan?

12 MR. ELLIS: Judge Brenner, could we have the  
13 weekend?

14 JUDGE BRENNER: Yes.

15 MR. ELLIS: We, I think, can pare it down  
16 fairly significantly if we reflect on it over the  
17 weekend.

18 JUDGE BRENNER: I think we could wait until  
19 Tuesday.

20 MR. ELLIS: That would be very nice. We would  
21 appreciate that.

22 JUDGE BRENNER: Because we are going to take  
23 the ISEG witnesses on Tuesday at the earliest, the way  
24 things are going, so the Staff panel is unlikely to take  
25 the stand before Wednesday.

1 MR. LANPHER: The County.

2 JUDGE BRENNER: If we needed any further proof  
3 that there is confusion over that, you now have it.

4 All right. If the Staff sees any change in  
5 the cross plan it has previously filed that is  
6 reasonably significant, we would appreciate their  
7 amendment also on Tuesday. And then let's try to keep  
8 pace in terms of updated cross-examination plans, I  
9 guess primarily from the County, on the Staff's  
10 testimony. If we get it a day or so before the Staff  
11 panel takes the stand, that will be sufficient.

12 Returning briefly to the subject of emergency  
13 planning, we would like to firm up that date of November  
14 22nd to handle all the procedural discussions of both  
15 motions to strike and basically how we are going to  
16 proceed with the litigation of the Phase I emergency  
17 planning issues if there is going to be such a  
18 litigation through the deposition proposal of the Board  
19 or otherwise.

20 I have seen only the motions to strike from  
21 the Staff. What is the status?

22 MR. EARLEY: Judge, we will be filing motions  
23 to strike on two of the Phase I emergency planning  
24 contentions, as well as a motion for summary  
25 disposition. I believe it is on the transportation

1 contentions, and they will be served today.

2 MR. LANPHER: We are not filing any.

3 JUDGE BRENNER: Let's do this. Let's set it  
4 for that date of November 22nd. We would request the  
5 County promptly to inform counsel for the North Shore  
6 Coalition and the Shoreham Opponents -- North Shore  
7 Committee and the Shoreham Opponents Coalition if that  
8 date is impossible for other counsel -- underlining the  
9 word "impossible" -- and they do wish to appear. We  
10 would be willing to discuss an alternate date of, I  
11 guess, either the 23rd or backing up to the 19th. But  
12 that is the order of priority. We would strongly prefer  
13 to hold it to the 22nd. If that doesn't work out, the  
14 23rd would be acceptable, the 19th would be the least  
15 acceptable because it would mean taking time out of the  
16 hearing, whereas the other dates would not have that  
17 effect.

18 MR. LANPHER: May I inquire what time that  
19 day, the 22nd, that you are intending that to be?

20 JUDGE BRENNER: We were planning to start  
21 first thing in the morning, but if it makes a  
22 difference for arriving counsel, we could certainly  
23 start a little bit later.

24 MR. LANPHER: It just occurs to me if people  
25 are coming down on the plane --

1 JUDGE BRENNER: Why don't you come back and  
2 tell us as soon as you can what the situation is.

3 MR. LANPHER: Can I have a moment? I will get  
4 some phone calls going.

5 JUDGE BRENNER: All right.

6 [Pause.]

7 Right now, responses to the motion to strike  
8 are due November 16th. I haven't seen the motion for  
9 summary disposition. Obviously I don't know how  
10 extensive it is. We would like to be able to get a  
11 response so that we can ask any necessary follow-up  
12 questions on the day we schedule the procedural session  
13 on emergency planning matters, presumably which will be  
14 on or about November 22nd. If there is a problem in  
15 responding to the motion for summary disposition on the  
16 16th, we would like to very promptly hear from the  
17 County.

18 MR. LANPHER: We will take a look at it.

19 JUDGE BRENNER: But we will assume you can  
20 respond on the 16th unless we receive a prompt motion  
21 otherwise, and then we can look at the situation and see  
22 what is involved.

23 MR. LANPHER: Well, just off the top of my  
24 head, I would prefer not to have to file a motion but  
25 just rather come in and inform you what our practical

1 problem is, since we will be here.

2 JUDGE BRENNER: That is fine.

3 MR. LANPHER: The thing that comes to my mind  
4 is affidavits. If that is the kind of summary  
5 disposition motion, there are certain logistics. Some  
6 of our witnesses are in California and that kind of  
7 thing.

8 JUDGE BRENNER: All right. I wanted to give  
9 you early notice that we would be hopeful of getting it  
10 on that same date. Once we see what it is, we may all  
11 agree that that date may not be fair. We will handle it  
12 orally after we see it. Bring it back before us in the  
13 next few days.

14 MR. ELLIS: Judge Brenner, I have a couple of  
15 preliminary matters, if I may. First, on the matter of  
16 emergency planning, so that I am clear, and I did want  
17 the Board to know that LILCO does intend to file its  
18 memorandum relating to the appropriateness and the  
19 justification of using depositions, as the Board  
20 suggested on Friday of this week. I believe that was  
21 the date set by the Board. While I am not directly  
22 involved in that, I am advised that our preliminary  
23 research indicates that it is a permissible tool.

24 I would also like to advise the Board that  
25 there has been an exchange of correspondence, all of

1 which I have not seen, relating to whether or not the  
2 deposition should be public or private, and it is  
3 LILCO's position, and I don't know that it was ever  
4 otherwise by anyone, that these depositions that have  
5 been suggested by the Board may certainly be held  
6 publicly. There is no desire by LILCO and, I am sure,  
7 by the Board or anyone that they be private depositions,  
8 and the only proviso that we would attach to that is  
9 that the deposition process would have to be controlled  
10 in some way and perhaps become private if it became  
11 disruptive. But other than that, we certainly  
12 contemplate and contemplated that the depositions be  
13 public.

14           JUDGE BRENNER: I don't want to get into a  
15 full discussion of it now. We will get into a full  
16 discussion on or about the 22nd. I will answer your  
17 narrow point, though, in agreement. We always assumed  
18 it would be public. In fact, one advantage of our being  
19 here, we thought, was that the County hearing room would  
20 be available in River Head for the depositions, which is  
21 as public a place as you can get.

22           We have considered the possibility, and have  
23 not yet among ourselves and have never rejected it, of  
24 using a special master as an adjunct to the deposition  
25 processs. We didn't think a special master was

1 necessary given the sophistication of the parties in  
2 this proceeding, and what we would envision the special  
3 master would do, we did not envision a report by the  
4 special master; we rather envisioned merely receiving  
5 the deposition transcripts.

6           The special master being present has the  
7 advantage of maintaining order and making evidentiary  
8 rulings. However, those evidentiary rulings are  
9 appealable to us, in any event, and we thought, given  
10 the sophistication of the parties and the fact that we  
11 would rule on the motions to strike in advance of the  
12 depositions, that it would really not be a very useful  
13 use of such a special master's time. The parties'  
14 consent would probably be necessary for a special  
15 master. Certainly the parties would have the right to  
16 object to a particular proposed special master. We just  
17 didn't think it was necessary.

18           Suffice it to say that we think that the  
19 County's filings have badly misconstrued our proposal,  
20 but we are not prepared to go into it now, and we will  
21 do so when the right counsel is before us, in fairness  
22 to Mr. Lanpher.

23           MR. ELLIS: My second point, Judge Brenner,  
24 relates to QA, and I simply wanted to note for the  
25 record and with the Board's permission that Mr. Kelly is

1 absent not because of a recurrence of illness but  
2 because his time might be put to better use. He is not  
3 involved in these areas that are currently being focused  
4 on.

5 JUDGE BRENNER: All right. I want to make  
6 sure that all counsel cooperate with the reporter at all  
7 times off the record in making sure that when there are  
8 changes in the panel, it is noted after recesses. We  
9 have allowed you, as you know, the flexibility of doing  
10 that with a panel this large, especially on redirect  
11 when you will be controlling the sequence of subjects.

12 MR. ELLIS: I hope there will be some tangible  
13 benefits to his absence -- later, not now, of course.

14 JUDGE BRENNER: I was going to let you explain  
15 what you meant to him.

16 All right, we are proceeding within LILCO's  
17 plan for its redirect examination of its witnesses. We  
18 are up to Category 3, which bears the intriguing title  
19 of "Miscellaneous Important Concerns," and we will let  
20 you proceed.

21 MR. ELLIS: Thank you, Judge Brenner.  
22 Whereupon,

23 T. TRACY ARRINGTON,  
24 FREDERICK B. BALDWIN,  
25 WILLIAM M. EIFERT,



1 T. FRANK GERECKE,  
2 JOSEPH M. KELLY,  
3 DONALD G. LONG,  
4 WILLIAM J. MUSELER and  
5 ROBERT G. BURNS,

6 the witnesses on the stand at the time of recess,  
7 resumed the stand and were examined and testified  
8 further as follows:

9 REDIRECT EXAMINATION -- Resumed

10 BY MR. ELLIS:

11 Q Prior to the lunch break, panel members, you  
12 were discussing, and I think chiefly Mr. Eifert,  
13 discussing Sections 1 and 2, which you denominated  
14 administrative concerns, or I think administrative  
15 oversight. So turning to the third category, which is  
16 labeled "Miscellaneous Important Concerns," can you  
17 characterize generally the observations in this  
18 category, please, sir, giving examples where appropriate?

19 A (WITNESS EIFERT) Yes, Mr. Ellis. What we did  
20 in going back and looking at additional information and  
21 having additional discussions with the people on these --

22 JUDGE BRENNER: Excuse me, Mr. Eifert. You  
23 are going to have to bring the mike a little closer.

24 WITNESS EIFERT: As I indicated this morning,  
25 what we did to prepare for today's hearing was go back  
and look further at information and take a harder look

1 at many of these particular audit observations. After  
2 reviewing these five that we put in this grouping -- and  
3 just to clarify, there are six audits listed, but the  
4 last one, Engineering Assurance Audit 38, AO 142, was  
5 the follow-up on Audit 120. So I am identifying five  
6 separate concerns in this Category 3 of Miscellaneous  
7 Important Concerns.

8           What we did was we identified that these were  
9 more than just administrative problems. If you recall,  
10 I would characterize this morning's observations that we  
11 discussed as discussions of concerns or difficulties  
12 with implementing our program, which would only have an  
13 extremely remote possibility of having any impact at all  
14 on quality of design. The items that I have grouped in  
15 this category are items which in themselves are not  
16 significant but which have more than, let's say, a  
17 remote possibility. They need to be looked at to  
18 determine if there is some more important problem behind  
19 the conditions specifically reported in the audit  
20 observations.

21           So the items I have categorized in this  
22 grouping are those which have more than that extremely  
23 remote possibility of having an impact. However, we  
24 have been able to go even further into exactly the  
25 circumstances surrounding each of these and have been

1 able to identify that for all of them, complete  
2 corrective and preventive action was taken, and in  
3 addition, we have been able to establish that the  
4 conditions that we have reported here would not have had  
5 any impact or would have not gone undetected had the  
6 audit program not identified these problems.

7           So in that respect, we would not have had an  
8 adverse impact on the integrity of the plant design. I  
9 think what that indicates is that our audit program was  
10 finding this kind of what I will call an important  
11 concern early, ensuring that it was corrected, and we  
12 avoided development of any kind of a significant problem.

13           Q     Mr. Eifert, with respect to the last part of  
14 your answer, you indicated that in your view these  
15 findings in Category 3 of LILCO Exhibit 24 did not have  
16 any significant impact on the integrity of the design or  
17 construction of the plant. Would you explain to the  
18 Board, please, your basis for that statement with regard  
19 to each of the items in this category?

20           A     (WITNESS EIFERT) Yes, I will, and I would  
21 like to begin with Engineering Assurance Audit 14, page  
22 2, Item 3d. The first point I would like to clarify is  
23 that on cross-examination, on transcript page 10,428, we  
24 indicated that it was not clear from the documentation  
25 that we were looking at at that time during

1 cross-examination whether or not this was an  
2 administratiave problem or not.

3           Having had the opportunity to go back now and  
4 look further, we are classifying this as more than just  
5 an administrative problem, for two reasons. One, the  
6 calculations that were audited in this case have not  
7 received the review. It wasn't a question of lack of  
8 documentation review. In addition, we have not been  
9 able to establish that the calculations were indexed.  
10 They had been prepared but at this point in time -- this  
11 audit was conducted seven years ago -- we can establish  
12 that at the time of the audit, they were indexed. And  
13 some of the calculations had been used, the result of  
14 these calculations had been used. So with that  
15 information, we then put this into the category which I  
16 would call Important Concerns.

17           With respect to having an impact on the plant,  
18 these calculations are important for assessing the  
19 ecological impact of the plant, but they were not  
20 calculations which were specific calculations that were  
21 the basis of the design of the plant. So in one  
22 respect, they wouldn't have had an impact on design, but  
23 we consider all calculations important whether they are  
24 specific design calculations or whether they are what we  
25 call QA Category 1 or other aspects of the plant.

1           As a result, and that is why this particular  
2 set of calculations had been audited, as a result of  
3 this audit observation, the calculations were reviewed  
4 and it was established that the calculations were  
5 correct as prepared. The review did not change the  
6 conclusion of those calculations.

7           So it is with that information that I can with  
8 confidence indicate that this condition, had it gone  
9 uncorrected, would not have had an impact on the  
10 Shoreham project, the plant design or any other aspect.

11           JUDGE BRENNER: Even if they had gone  
12 uncorrected, you say?

13           WITNESS EIFERT: Yes, because when they did  
14 document the review, they found that the calculations as  
15 prepared were correct, the conclusions were correct.

16           JUDGE BRENNER: Then you are telling me that  
17 in fact they were correct.

18           WITNESS EIFERT: Yes. They calculations were  
19 correct. They had not been reviewed.

20           JUDGE BRENNER: I thought you said even if  
21 they had been incorrect, they would not have had an  
22 effect on the design?

23           WITNESS EIFERT: No. I may have said that,  
24 but I certainly did not intend that.

25           JUDGE BRENNER: Maybe I misheard you.

1 MR. ELLIS: I think if I ask a clarifying  
2 question.

3 BY MR. ELLIS: (Resuming)

4 Q Mr. Eifert, given that these particular  
5 calculations dealt with the ecological impact, would  
6 they have had, whether correct or otherwise, any direct  
7 impact on the design or construction of the plant, or  
8 the safety of the design of the plant?

9 A (WITNESS EIFERT) They would not have had an  
10 impact, whether correct or incorrect, but that is not  
11 relevant. In this particular case they were correct as  
12 prepared, and that was verified when they were reviewed  
13 subsequent to the audit.

14 JUDGE BRENNER: I don't want to belabor it.  
15 That was a compound question. I think we know what  
16 these calculations are from the audit report. These  
17 were the calculations used for the 316 exemption  
18 presentation to the EPA or its designee; correct?

19 WITNESS EIFERT: I'm not sure of that, Your  
20 Honor.

21 JUDGE BRENNER: I'm looking at the audit  
22 report, Item 3. I'm looking at 3a, which appears to be  
23 related to the 3d one you are talking about.

24

25

1           The problem with your question, Mr. Ellis, is  
2 that it asked about safety design as part of it, but the  
3 other part of it asked about design in general.

4           MR. ELLIS: I agree, Judge Brenner.

5           JUDGE BRENNER: I think you're asking a  
6 witness who may not be cognizant of certain aspects of  
7 the plant or the legal ramification of a successful 316  
8 exemption.

9           MR. ELLIS: Yes, I think that's right, Your  
10 Honor.

11          WITNESS EIFERT: Yes, Judge Brenner, the audit  
12 observation does characterize it. These audits have  
13 been used in the Federal Water Pollution Control Act,  
14 Clause 16, Demonstration, and in the Environmental  
15 Report. This is the subject we're talking about.

16          JUDGE BRENNER: My point is if the  
17 calculations had been incorrect, which I recognize is an  
18 "if" in your view given the testimony, you might not  
19 have had approval to have a once-through plant, in which  
20 case the design of the plant might have been different.  
21 So I suggest you were responding to Mr. Ellis's point  
22 about nuclear safety related as distinguished from  
23 design in general. Am I correct?

24          WITNESS EIFERT: Yes, sir.

25          BY MR. ELLIS (Resuming):

1           Q     Mr. Eifert, you have just told us about the  
2 first of the six. Would you now explain your basis for  
3 saying that there is no impact with respect to the  
4 remainder of the findings in Category 3 in LILCO Exhibit  
5 24?

6           A     (WITNESS EIFERT) Okay. Going next to  
7 Engineering Assurance Audit 28, Audit Observation 080,  
8 Part 1 with respect to the Engineering Mechanics  
9 Division structural mechanics group, this audit reported  
10 that there were preliminary calculations available in  
11 the engineering mechanics -- structural mechanics group  
12 that had not been checked; one of which had been used in  
13 some manner in the design process.

14                     The follow-up activity that was conducted as a  
15 result of the audit first involved the structural  
16 mechanics group determining whether or not the condition  
17 of use of the results of the preliminary calculations  
18 went beyond the one calculation, and they did establish  
19 that four additional calculations existed which were  
20 preliminary where the results have not been used.

21                     I think as we described on cross examination,  
22 this is clearly not the intent of Stone & Webster  
23 policy. Our policy is that all calculations be properly  
24 reviewed prior to the results being used even though we  
25 do have mechanisms to control the use of preliminary



1 data when it's appropriate. But the first policy is  
2 that the results be reviewed.

3           The basis for my confidence that these would  
4 not have an impact is the result of the corrective  
5 action that was taken. Of the five calculations, then,  
6 that were used prior to review of the calculations, two  
7 of those were reviewed subsequent to the audit and found  
8 to be correct. The results or conclusions of those two  
9 calculations did not change.

10           With respect to the other three, the situation  
11 was that they were revised and reviewed subsequent to  
12 the audit. These were, as I appropriately described on  
13 cross examination, a situation where the structural  
14 mechanics group was awaiting information, latest  
15 approved information, if you will, as input to their  
16 calculations. And recognize that that was a situation  
17 and that is why they had, at that point in time, put a  
18 lower priority on reviewing these particular  
19 calculations. They received that additional input at  
20 approximately the same time as the audit, used that  
21 revised data and revised the calculations and reviewed  
22 them.

23           So to go back, for those three I cannot  
24 establish what the effect was of the unreviewed  
25 calculation. You can't reconstruct that particular

1 calculation. However, I'm confident that this would not  
2 have had an impact on the plant because the normal  
3 design process of insuring that individuals who need  
4 data and revised data to perform their analysis is also  
5 in our process and was working. The particular group in  
6 this case recognized that, and in part, that's why they  
7 hadn't put the manpower on reviewing this particular set  
8 of calculations, although that is contrary to the intent  
9 of our policies.

10           So for two of them, clearly no, the record  
11 shows that there would have been no change because of  
12 the unreviewed nature. For three of them, I'm extremely  
13 confident that there would have been no effect because  
14 the revised data would have and did come to the  
15 engineering mechanic, structural mechanics group. They  
16 revised the design accordingly.

17           Q     All right. Would you go to the third one now,  
18 please, Mr. Eifert? That is, the third observation in  
19 Category 3 of LILCO Exhibit 24?

20           A     (WITNESS EIFERT) The third observation  
21 involves the situation in the nuclear group where the  
22 audit identified that they had used a computer program  
23 that was not qualified. The corrective action review on  
24 this identified that the use of this program was limited  
25 to two calculations. Subsequent to the audit, the

1 particular version level of the computer program that  
2 had been used was qualified without changing the  
3 computer program. It was documentation and the  
4 qualification step verified that the computer program,  
5 as it had been developed and used, was a qualified  
6 program.

7           This particular computer program had been  
8 qualified in its prior version and level and the changes  
9 were apparently -- although I haven't been able to  
10 establish specifically what the changes were --  
11 apparently were not significant. And therefore, it is  
12 reasonable to believe that the qualification would have  
13 verified that modification of that computer program did  
14 not significantly change the result. We weren't talking  
15 of a situation of developing a completely new computer  
16 program that had been untested.

17           So, the result -- what happened with respect  
18 to this audit is as a result of the audit, the preparing  
19 group marked the particular calculations to indicate  
20 that the computer program use had been unqualified.  
21 They marked it that confirmation was required upon  
22 receipt of information that the program was or was not  
23 qualified. Subsequently, the programs were shown to be  
24 qualified and the identification was removed from the  
25 calculations without any impact on the conclusions of

1 those calculations.

2           Again, we have included this in the important  
3 concerns because it's very important that we use  
4 qualified computer programs. And this is the only  
5 instance in all the audit observations that we're  
6 discussing here -- this is the only instance where we  
7 have identified a situation where we used an unqualified  
8 computer program. It's the only instance in any of the  
9 engineering assurance audits at the Shoreham project  
10 where we have identified the use of an unqualified  
11 computer program.

12           JUDGE BRENNER: Just for the record, you're  
13 talking about Engineering Assurance Audit 30,  
14 Observation 101, Item 3, correct?

15           WITNESS EIFERT: Yes, sir.

16           JUDGE BRENNER: Instead of just referring to  
17 "the item on the list," let's do that, to save me some  
18 trouble and presumably everyone else when we read the  
19 record.

20           BY MR. ELLIS (Resuming):

21           Q     Mr. Eifert, would you now explain your basis  
22 with respect to Audit Observation 107, Part 2 of  
23 Engineering Assurance Audit 31? That is, your basis for  
24 saying that it has no impact on the integrity of the  
25 design or construction of the plant?

1           A       (WITNESS EIFERT) Audit Observation from  
2 Engineering Assurance 31, Audit Observation 107, subpart  
3 2 was an audit observation that we issued with respect  
4 to the Engineering Mechanics Division Mechanical Group,  
5 which is a different group than the Structural Mechanics  
6 Group within the Engineering Mechanics Division.

7           In this particular audit, we did not identify  
8 any problems with the calculations with respect to the  
9 adequacy of the calculation or the correctness of the  
10 data used in the calculation, but what we did identify  
11 is that they have used some data which was preliminary  
12 and they had not followed the administrative practice of  
13 identifying on the calculation and in the index that  
14 confirmation of that data was required at a later date.

15           This is considered in the more important  
16 category because we use that mechanism to add an extra  
17 layer of control with respect to where we have to use  
18 preliminary data. And in this particular case, they had  
19 neither marked the calculation nor the index. If one or  
20 the other had been marked, I would not have put this in  
21 the important category.

22           However, the basis for my statement with  
23 respect to not being of significance is, again,  
24 understanding of the calculations involved with this,  
25 the typical calculations performed by the Engineering

1 Mechanics Division Mechanical Group, which involved data  
2 where they -- involved analysis where they must proceed  
3 based on assumptions with respect to vendor data. And  
4 that was the situation with these calculations; that the  
5 information which was required to be confirmed at a  
6 later date dealt with equipment manufacturers' data  
7 which is received and is normal in our process, that we  
8 have to receive and evaluate the effects of the specific  
9 equipment data for the specific equipment that is being  
10 purchased for the plant.

11           So I'm confident that the design process, as  
12 we know it and as it works at Stone & Webster would have  
13 insured that these particular calculations would have  
14 been updated upon receipt of that specific vendor data.  
15 So this is really an administrative problem with the  
16 calculations as compared with the other items that we've  
17 discussed in this category. But I raise this to  
18 something a little bit more important because of the  
19 reasons I have already described.

20           Q     All right, Mr. Eifert. Would you also explain  
21 the basis for your answer on impact with respect to the  
22 last two observations in Category 3 of LILCO Exhibit 24;  
23 that is, EA 34, Audit Observation 120, Part 4, and  
24 Engineering Assurance Audit 38, Audit Observation 142?

25           A     (WITNESS EIFERT) I believe, Mr. Ellis, that we

1 fully described this particular situation on cross  
2 examination. We've gone back and looked at that  
3 testimony and feel that it is a complete description of  
4 the circumstances surrounding this audit, and the basis  
5 for our conclusions with respect to impact on the  
6 integrity of the plant.

7 JUDGE BRENNER: And here I thought I was going  
8 to hear more about STRUDL.

9 WITNESS EIFERT: I will discuss more about  
10 STRUDL on the documentation problem.

11 BY MR. ELLIS (Resuming):

12 Q Mr. Eifert, in your opinion, do you place any  
13 significance or attach any significance in terms of the  
14 integrity of the design and construction of the plant on  
15 a number of the audit observations contained in Section  
16 3 of LILCO Exhibit 24?

17 A (WITNESS EIFERT) No, I don't.

18 Q Why not?

19 A (WITNESS EIFERT) In looking at these  
20 observations, we're talking about five observations in  
21 five different organizations within Stone & Webster's  
22 engineering organization. The problems are essentially  
23 different problems. At least, there's four different  
24 problems in the five topics. There's two problems with  
25 respect to review being performed; the one problem with

1 respect to identification or marking of confirmation  
2 required; the one problem with respect to an unqualified  
3 computer program; and the last being Observation 120.  
4 So we have four different problems.

5 In addition, I did have one of my people go  
6 back and try to go back to look at all the Engineering  
7 Assurance Audits that we've done over the years for the  
8 Shoreham project, and these are the only instances of  
9 these types of problems being identified.

10 The situation -- well, what is reflected in  
11 this is that where we did identify these problems which  
12 I classify as important concerns, we did not only  
13 correct the situation, but we were effective in insuring  
14 that it did not recur.

15 Q Well, Mr. Eifert, in your opinion, do the  
16 findings or observations that appear in Section 3 of  
17 LILCO Exhibit 24 reflect or constitute in any way  
18 violations of Appendix B?

19 A (WITNESS EIFERT) No, Mr. Ellis, they don't,  
20 and for essentially the same reasons that I have  
21 discussed before with respect to the other categories.

22 Q When you say "for essentially the same  
23 reasons," you mean the reasons that you discussed with  
24 criteria 3, 16 and 18?

25 A (WITNESS EIFERT) Yes, with respect to those



1 criteria. I described in the other categories that they  
2 were not violations of those criteria, and the same  
3 reasons apply to these cases.

4 I would like to add for clarification with  
5 respect to criterion 16 -- as I discussed earlier,  
6 criterion 16 includes, in essence, -- the second part of  
7 criterion 16 includes the requirement that significant  
8 conditions adverse to quality must be handled in a  
9 special manner. Extra caution with respect to informing  
10 management and so forth.

11 We have called these concerns in this category  
12 important concerns. I have referred to these as  
13 important, yet they are concerns which in themselves are  
14 not significant. But had such concerns been left  
15 unidentified, they could have grown, if you will, into  
16 something more significant. We caught these problems  
17 before they became significant.

18 The audit follow-up activity, as I indicated,  
19 insured that we did not have any recurrence of these;  
20 therefore, we never got to the point where we had a  
21 significant condition adverse to quality. And  
22 therefore, the criterion 16 portion which reflects two  
23 significant condition adverse to quality did not really  
24 apply to these situations which I have called important  
25 concerns.

1           JUDGE BRENNER: Let's say for the sake of  
2 discussion that it did apply; that is, that these were  
3 significant conditions adverse to quality. As I  
4 understood your testimony -- and I want to make sure  
5 because part of what you're saying is by reference to  
6 what you have previously said as to the others -- you  
7 have, nevertheless, in your view, followed the steps  
8 required of criterion 16. Is that what you're  
9 testifying to?

10           WITNESS EIFERT: Yes, sir. That is precisely  
11 how I would answer that; on the assumption that  
12 criterion 16 applied, because we considered it to be  
13 significant. They were reported to management via the  
14 audit program; we took preventive measures and prevented  
15 recurrence. So in that context, if we made that  
16 assumption with respect to criterion 16 it would have  
17 been satisfied.

18           MR. ELLIS: Judge Brenner, at this point I  
19 intend to go on to the next section of LILCO Exhibit 24.

20           BY MR. ELLIS (Resuming):

21           Q     Mr. Eifert, let's turn now to category 4 in  
22 LILCO Exhibit 24, the category entitled "SAR related."  
23 Is that Safety Analysis Report? Is that what the SAR  
24 stands for?

25           A     (WITNESS EIFERT) Yes, it is.

1 Q All right. Can you generally characterize the  
2 findings that you have placed into this category? Well,  
3 since there are only two, giving examples, if you would,  
4 please.

5 A (WITNESS EIFERT) Could I have one moment,  
6 please?

7 Q Yes.

8 (Pause.)

9 I think I misspoke; there are only two audits  
10 but there are three items.

11 A (WITNESS EIFERT) Mr. Ellis, having had the  
12 opportunity to go back further, as we have with all the  
13 audit observations, I am now in a position where I can  
14 characterize all three of these as essentially  
15 administrative concerns with the particular calculations  
16 that we audited in these two audits.

17 I would like to make a few comments about each  
18 of the audit observations to add to the testimony that  
19 we did give on cross examination.

20 Q All right. Start with the first one, Audit  
21 Observation 072, Part 1 of Engineering Assurance Audit  
22 27. Is that the one you want to start with?

23 A (WITNESS EIFERT) Yes. With respect to Audit  
24 27, Audit Observation 072, Part 2, we indicated on cross  
25 examination that there was a concern here and that as a

1 result of this concern, the calculation was reworked,  
2 implying change in some way. But the conclusions of  
3 that calculation have not changed, and therefore, the  
4 design, the drawings, had not changed. And in essence,  
5 that's precisely correct, but I believe I lend some  
6 clarification to that testimony.

7           The situation with these particular  
8 calculations were that the SAR -- FSAR in this case  
9 provided that the structural design be based on the same  
10 shutdown earthquake. The calculations did not clearly  
11 indicate whether the loads used in the calculation were  
12 based on the safe shutdown earthquake or the operating  
13 basis earthquake.

14           In addition, the FSAR provides that when using  
15 the safe shutdown earthquake, the allowable stress is  
16 equal to 60 percent -- it's 1.6 of allowable -- 60  
17 percent over the specified allowable for the material.  
18 In following up subsequent to this audit, we were able  
19 to verify that the calculations had, indeed, used the  
20 proper loads for a safe shutdown earthquake. What the  
21 engineers had assumed in judging the acceptability of  
22 the design was that a 30 percent factor was the accepted  
23 criterion for assessing the adequacy of the design, such  
24 that the stresses would have to be in a 1.3 times the  
25 allowable.

1           So that being the case, the assumption that  
2 they had made with respect to 1.3 was more conservative  
3 than that which was allowed by the FSAR. The rework of  
4 the calculations that I referred to on cross examination  
5 was, very simply, to identify that the proper allowable  
6 for the application which was a safe shutdown earthquake  
7 analysis was the 1.6. So in effect, it was an  
8 administrative change to make sure that there wasn't any  
9 misunderstanding with respect to which loading mechanism  
10 was being used in the analysis.

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1 Q Then did that use of the 30 percent rather  
2 than the 60 percent have any impact on the integrity of  
3 the design or construction of the plant?

4 A (WITNESS EIFERT) Absolutely none. Maybe I  
5 can clarify so everyone understands. In effect, and I  
6 don't know what the specific numbers were, but the  
7 engineer performed his analysis assuming that he could  
8 have no stress over 50,000 -- well, let's say 28,000,  
9 when in fact the actual allowable was 32,000. And  
10 therefore, there was no way that there could have been  
11 an effect on the plant. The design was in essence  
12 another step conservative than what was required by the  
13 SAR.

14 Q All right, Mr. Eifert. Would you proceed,  
15 then, with audit observation 0-72, Part 6, of  
16 Engineering Assurance Audit 27 as listed in Part 4 of  
17 LILCO Exhibit 24?

18 A (WITNESS EIFERT) I have been able to get  
19 additional informatio with respect to this audit  
20 observation as well. The audit observation indicated  
21 that the calculations, the structural steel calculations  
22 had been performed using a two-dimensional earthquake,  
23 whereas the SAR had stated that a three-dimensional  
24 earthquake was the required criteria for analysis.

25 We have been able to not only go back and look

1 at the auditing information but again go back to the  
2 people who are responsible for these calculations to  
3 reconstruct the situation. I think I can clarify it  
4 slightly. I also indicated on cross-examination that we  
5 did subsequently change the FSAR. The information that  
6 I have now that I didn't have before is one that the  
7 FSAR change was not a technical change but more of a  
8 clarification. It did require 3-D earthquake and it  
9 still requires a three-dimensional earthquake.

10           The auditor in reviewing the calculations did  
11 not understand the particular analytical method that was  
12 being used to produce a design that was based on the  
13 three-dimensional earthquake. My understanding is that  
14 the method being used was different than my auditor at  
15 this point in time had been used to seeing, and he did  
16 not recognize it as including the third component, if  
17 you will, of the earthquake.

18           Subsequent to the audit, the structural group,  
19 the project engineering people, were able to describe  
20 that to the auditor to his understanding, and they did  
21 agree to change the FSAR section to provide some  
22 clarification of that particular analytical technique.  
23 So the point here is that although the audit  
24 observation reads that they were not meeting the FSAR  
25 three-dimensional earthquake criteria, they in fact

1 were, and for clarity we subsequently changed the FSAR  
2 to avoid any future confusion.

3 Q All right, Mr. Eifert.

4 JUDGE BRENNER: Just a second. Obviously, as  
5 you stated expressly, in fact, you went back and checked  
6 with the people involved because you have now been able  
7 to give us information beyond the written audit. I  
8 think I heard you say you talked to the people  
9 responsible for the calculations and they said the  
10 auditor didn't know what he was talking about. Did you  
11 talk to the auditor or people involved in the audit?

12 A (WITNESS EIFERT) I did not talk to the  
13 auditor. My audit supervisor may have. I don't think  
14 it was as black and white as the auditor didn't know  
15 what he was talking about. The FSAR needed a  
16 clarification. They were designing using the proper  
17 three-dimensional earthquake, but I think all agreed  
18 that the specific description in the FSAR with respect  
19 to how that was intended to be done needed clarification.

20 JUDGE BRENNER: All right. But the auditor in  
21 looking at the calculations thought that they were being  
22 performed for a two-dimensional earthquake, and the  
23 auditor was incorrect in that regard?

24 WITNESS EIFERT: That is correct.

25 JUDGE BRENNER: This is an auditor within your



1 organization?

2 WITNESS EIFERT: Yes, sir.

3 JUDGE BRENNER: Now that you have had a chance  
4 to look at the problem, are you in a position with your  
5 own expertise to agree that in fact the calculations  
6 were for a three-dimensional earthquake?

7 WITNESS EIFERT: I have to say that within my  
8 own expertise, no, but within the expertise of the  
9 people in my organization today who have experience in  
10 such structural design -- I'm sorry, I forgot the  
11 question I was answering.

12 JUDGE BRENNER: I think you wanted to say yes  
13 at the end, because you kept nodding. The question was  
14 whether you yourself knew. What I am looking for is  
15 someone within the audit organization to confirm that  
16 what occurred is what you just said as distinguished  
17 from the organization being audited, which organization  
18 understandably or at least potentially might have a  
19 different view.

20 WITNESS EIFERT: I think I can --

21 JUDGE BRENNER: I'm not dismissing their view; .  
22 I'm just inquiring further.

23 WITNESS EIFERT: The audit process in this  
24 case, the audit observation response that we received  
25 from the project, as well as the additional discussions

1 between the auditor and my audit supervisor and the  
2 group preparing, they agreed with the project position  
3 that they were indeed designing to a three-dimensional  
4 earthquake. That would not have been something that my  
5 organization, the auditing organization would have  
6 accepted simply on the basis of a response from the  
7 project stating that that was the case.

8 My people would have been convinced that the  
9 project was indeed correct before accepting that  
10 observation.

11 JUDGE BRENNER: You answered my question.  
12 Thank you. As you may recall, we don't have the benefit  
13 of the replies and the responses to the replies unless  
14 somebody tells us about them.

15 WITNESS MUSELER: Judge Brenner, I have some  
16 familiarity with this particular problem when it  
17 occurred, not necessarily this particular audit  
18 observation, but at the time this work was going on, my  
19 understanding of why there might possibly have been some  
20 confusion and that the auditor may possibly have  
21 understood what he saw correctly but not have been able  
22 to interpret it correctly because, and I'm not a seismic  
23 expert, but there is a way to -- depending on the  
24 development of the treatment of the earthquake, which  
25 has undergone quite a bit of state-of-the-art

1 calculational development over the years -- there is a  
2 way to treat a two-dimensional earthquake and then apply  
3 that data to the newer techniques of the  
4 three-dimensional calculations.

5 I believe that is what was being done on the  
6 project at this time, whereas there is a way to start  
7 from scratch as with a three-dimensional model, so that  
8 it could look to the auditor, could look like, at first  
9 glance, certainly, that only the two-dimensional aspects  
10 were being considered, whereas in fact it was really a  
11 combination of the two-dimensional model, which is how  
12 Shoreham was first analyzed, being upgraded to the  
13 three-dimensional criteria. And I believe that is what  
14 was going on at this time. So it is not really  
15 surprising that the auditor probably thought what he was  
16 looking at was only a two-dimensional model.

17 JUDGE BRENNER: We now see that not only was  
18 Mr. Eifert quick to defend the auditor when I purposely  
19 loaded the question to oversimplify the position, but  
20 you did just that, Mr. Museler.

21 WITNESS EIFERT: For what it is worth, that is  
22 the way it was explained to me by my audit supervisor,  
23 and I chose not to attempt to explain something that I  
24 did not clearly understand. So that is the situation  
25 that was happening at this point in time.

1           JUDGE BRENNER: Well, from time to time we are  
2 checking on how you checked on the background of this,  
3 so thank you.

4           BY MR. ELLIS: (Resuming)

5           Q     Mr. Eifert, would you now turn to Engineering  
6 Assurance Audit 40, Audit Observation 154, page 2, Item  
7 3, and describe that if you would, please, sir.

8           A     (WITNESS EIFERT) This was an audit of the  
9 structural design, and I believe we fully discussed this  
10 on cross-examination, and just to remind people at this  
11 point, this was the situation where, yes, the audit was  
12 right, the loading combinations being considered and  
13 used in the structural design at this time were not  
14 consistent with the loading combinations described in  
15 the FSAR. However, this was a situation where the  
16 loading combinations had been changed and had been fully  
17 described in the design assessment report which had been  
18 submitted and accepted by the NRC, and therefore it is  
19 on that basis that we are confident that everyone  
20 involved was apprised of the situation and was aware of  
21 the loading combinations being used. The correct ones  
22 were being used, and this observation does not in any  
23 way indicate any reason to have any concern with respect  
24 to the integrity of the Shoreham plant design.

25          Q     Mr. Eifert, do the audit observations that you

1 have just described that are in Part 4 of LILCO Exhibit  
2 24, do you attach any significance to the number of  
3 these in terms of the integrity of the design or  
4 construction of the plant?

5 A (WITNESS EIFERT) No, Mr. Ellis, there is no  
6 significance in each one of these situations. The  
7 situations are unique. And the causes for the situation  
8 is unique. They don't relate to each other. I see no  
9 significance in the number of "3" as we see here related  
10 to SAR.

11 [Counsel for LILCO conferring.]

12 Q Mr. Eifert, with respect to the audit  
13 observations in Part 4 of LILCO Exhibit 24, in your  
14 opinion, do these findings constitute or reflect in any  
15 way violations of any of the criteria of Appendix B?

16 A (WITNESS EIFERT) My opinion is that none of  
17 these in any way reflect violation of Appendix B,  
18 Criterion 3, Criterion 16 or Criterion 18, as we have  
19 discussed earlier and in essence for the same reasons  
20 that we have described before, and I won't repeat them  
21 again here.

22 I would add again that in this particular  
23 situation I also asked my people to go back and  
24 determine by looking at all of the engineering assurance  
25 audits with respect to calculations if there were

1 additional audit observations with respect to  
2 SAR-related concerns, and they were able to identify for  
3 me that these were the only three audit observations in  
4 all the calculations audits that we performed that  
5 identify any concern with respect to the FSAR.

6 MR. ELLIS: Judge Brenner, I intend now to  
7 proceed to the Category No. 5, in the event that the  
8 Board has any questions.

9 JUDGE BRENNER: Go ahead.

10 BY MR. ELLIS: (Resuming)

11 Q Mr. Eifert, turn if you would, please, to  
12 Category 5 on LILCO Exhibit 24, entitled  
13 "Indexing/Filing." Would you characterize generally the  
14 audit observations that you have placed into this  
15 category, please, sir, giving examples where appropriate?

16 A (WITNESS EIFERT) Mr. Ellis, I would  
17 characterize all of these findings in this category as  
18 administrative concerns for which the potential impact  
19 on the quality is extremely remote, and other  
20 administrative matters which clearly would not have had  
21 any impact on quality in any case.

22 Q Which are those items that would not have had  
23 an impact on quality in any case? Describe them, if you  
24 would, please.

25 A (WITNESS EIFERT) The items which I believe

1 clearly would not have had any impact in any case are EA  
2 Audit 10, page 1, 2c, and the chart on page 2, and EA  
3 Audit 19, Item 2.B.6.2.

4 Q Would you tell the Board why those would not  
5 have had any impact on quality?

6 A (WITNESS EIFERT) With respect to --  
7 [Pause.]

8 Mr. Ellis, I would like to add one additional  
9 observation to that grouping, EA Audit 26, O-67. But if  
10 you are looking at Exhibit 24, it is only going to be  
11 part of that. It is page 1, Item 2, the third bullet.  
12 And I will explain the three items. With respect to EA  
13 Audit 10, the situation as we discussed that on  
14 cross-examination was that this was an indexing problem  
15 where the index indicated that the calcs had been  
16 prepared -- excuse me -- the calcs had been prepared but  
17 they had not yet been indicated on the index.

18 As a result of being able to go back and look  
19 at the situation and assess it, it was clearly a  
20 situation where the calculations were in the preparation  
21 process, that the auditor was commenting with respect to  
22 the use of the index as a management tool for the lead  
23 engineer to know what work was in process, and it was  
24 not a situation where the calculations had in any way  
25 been used. The calculations would be put on the index

1 when they were completed, and therefore it was not a  
2 situation where it would have had any impact on quality  
3 at all.

4           With respect to Engineering Assurance Audit  
5 19, this was the situation that we discussed with  
6 respect to the fuel pool calculation where the audit  
7 identified a nomenclature problem. I think we discussed  
8 it quite thoroughly on cross-examination, where the  
9 actual value used in the calculation was correct; it  
10 was, however, mislabeled with respect to the value as  
11 described in the FSAR. So that was purely an  
12 administrative error.

13           With respect to Engineering Assurance Audit  
14 26, page 1, Item 2, the third bullet in the audit  
15 observation, that portion of the audit observation is  
16 reporting that the calculation had not been entered in  
17 the index using a new line entry, and that there had not  
18 been marking on the index to indicate which calcs had  
19 been superseded.

20           And in going back, this is one of those audit  
21 observations where we really question why we wrote the  
22 observation at all. The practice that the people were  
23 doing was when they revised a calculation, rather than  
24 to enter it as a new line item on the index, they were  
25 simply marking the index to indicate that it was a



1 revision, using a revision and an alpha indicator in the  
2 "remarks" column of the index.

3           This is not the normal practice, but it was  
4 ensuring that the latest calculation was identified on  
5 the index and the calculation that it was in effect  
6 superseding was the entry where they were marking the  
7 revision audit. It is not clear why we wrote the audit  
8 observation. The practice that they were implementing  
9 would clearly not have had an impact on quality.

10       Q     Are you through, Mr. Eifert?

11           [Pause.]

12       A     (WITNESS EIFERT) I think I have too many  
13 notes. I believe I made a mistake here. Let me go back  
14 to Audit 19, Item 2.B.6.2. That was not the calculation  
15 that we discussed with respect to the value and the  
16 labeling of the value in the FSAR. This was a different  
17 situation. The situation that we have been able to  
18 establish here, the audit observation reported that  
19 there was not a calculation to support the design of the  
20 fuel pool liner, and in going back and talking with the  
21 auditors and looking at additional information, we were  
22 able to establish here that the calculation was found  
23 and put in the file, so it was an observation that  
24 looked on the surface that there was not a calculation  
25 to support the design, but that it was found and put in

1 the file. There was no possible impact on quality  
2 because the calculation had been prepared and reviewed  
3 and the design was correct. It was a filing problem.  
4 I'm sorry.

5 JUDGE BRENNER: The one you thought you were  
6 talking about the first time you discussed this just  
7 before also involves -- well, it involved when we find  
8 the audit, it discusses a difference in dimensions, and  
9 that difference in dimensions was traced to a difference  
10 in terminology, and the auditor picked up the difference  
11 in terminology in the FSAR but applied it to the other  
12 dimension, and I forget now -- it was a portion of the  
13 suppression pool, I believe, but when we get to it, we  
14 will know it.

15 In any event, it was thoroughly talked about  
16 on cross-examination. And when you look at the  
17 observation, you will see a statement to the effect that  
18 there is a discrepancy between two numerical values.  
19 That is my vague recollection.

20 Go ahead.

21 BY MR. ELLIS: (Resuming)

22 Q Mr. Eifert, you have just given your basis for  
23 your conclusion that three of the findings or audit  
24 observations in Group 5 of LILCO Exhibit 24 had no  
25 impact on quality, and you have characterized the

1 remainder as audit observations for which the potential  
2 impact on quality is extremely remote.

3           Would you give the Board your basis for that,  
4 please?

5           A       (WITNESS EIFERT) I have been using that  
6 terminology of concerns for which the potential impact  
7 could be extremely remote to describe concerns with  
8 respect to implementation of our program that are at the  
9 lowest level of implementation detail, and it is in that  
10 category that I would place the remaining observations  
11 that are in this grouping, which we have called Indexing  
12 and Filing.

13           To illustrate that, the Observation 28, or  
14 Audit 28, Observation 0-79, Part 1, was an observation  
15 whereby the preparing group in this case was not marking  
16 the calculation index with the terminology confirmation  
17 required. They were not marking it to indicate whether  
18 or not confirmation was required.

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1           The situation in this case is that this group  
2 had not adopted the revised standard index form that we  
3 had at Stone & Webster at that point in time, and  
4 therefore, the new indexed form called for such marking,  
5 and therefore, they were not putting it on their old  
6 form. We did establish that the calculations themselves  
7 were marked appropriately, but the index form was not  
8 being used. So that is not something that would  
9 directly impact quality.

10           Another example would be Engineering Assurance  
11 Audit 17, Item 2.B.1.b. This was a situation where the  
12 Engineering Mechanics, Structural Mechanics Group, which  
13 is an off-project staff group which supports the project  
14 engineering team that is assigned to the Shoreham  
15 project team, had not been transmitting all of their  
16 calculations to the project file, which, in effect, is  
17 the redundant control file to their own file which is  
18 the primary file.

19           This is a requirement of our procedure in all  
20 cases. It, in essence, is Stone & Webster's primary  
21 fire-filing mechanism to insure that at all times, as a  
22 minimum, we have copies of calcs located on different  
23 floors in the preparing group. That's another example  
24 of a situation which is the lowest level aspect of our  
25 quality assurance but a condition which clearly has an

1 extremely remote possibility of ever having an impact on  
2 quality. The situation may have been here that if  
3 someone went to the project file to locate an analysis  
4 and couldn't find it, the impact would have been that  
5 they would have had to have gone back to the structural  
6 mechanics group.

7 I think those two will illustrate the  
8 remaining items in that category.

9 Q When you say the remaining items in that  
10 category, you are referring to Category 5 of LILCO  
11 Exhibit 24?

12 A (WITNESS EIFERT) Yes, sir.

13 Q Okay, Mr. Eifert, is there any significance,  
14 in your opinion, to the number of findings or  
15 observations that are contained in the category 5  
16 entitled "Indexing and Filing," in LILCO Exhibit 24?  
17 And again, I'm talking about significance in terms of  
18 the integrity of the design and construction of the  
19 plant.

20 A (WITNESS EIFERT) No, Mr. Ellis, in response to  
21 the first portion of the question, I do not see any  
22 significance in the particular number of findings that I  
23 have placed in this Indexing and Filing category.

24 The problems, as I have indicated, are not all  
25 similar; they are all at the lowest level of potential

1 impact or lower. The problems are all in the grouping  
2 which are such that the possibility would be extremely  
3 remote of their having any impact on quality.

4 Q Mr. Eifert, in your opinion and based on your  
5 review of these audit observations, do they or any of  
6 them represent or reflect failures to comply with  
7 Appendix B?

8 A (WITNESS EIFERT) No, Mr. Ellis. And again,  
9 for essentially the same reasons that I have discussed  
10 earlier with respect to Appendix B, criteria 3, 16 and  
11 18. However, I would comment further with respect to  
12 this indexing and filing category with respect to  
13 criterion 6, which involves document control. Criterion  
14 6 requires that we establish -- measures shall be  
15 established to control the issuance of documents such as  
16 instructions, procedures and drawings including changes  
17 thereto which prescribe all activities affecting quality.

18 These measures shall assure that documents  
19 including changes are reviewed for adequacy and approved  
20 for release by authorized personnel and are distributed  
21 to and used at the location where the prescribed  
22 activity is performed. That is a part of criterion 6  
23 with respect to -- that would come into play with  
24 respect to what we're talking about with respect to  
25 indexing and filing of these calculations.

1           And the findings reflect here not a failure to  
2 have had established the measures necessary to provide  
3 the controls required by Appendix B. The Stone &  
4 Webster procedures -- specifically, again, engineering  
5 assurance procedure 5.3 on calculations -- provides  
6 fully for the measures required by Appendix B, Criterion  
7 6.

8           We have had some implementation problems which  
9 we have identified in our audits and have corrected, and  
10 none of them have been significant conditions adverse to  
11 quality in any way.

12         Q     Are you finished with your answer, Mr. Eifert?

13         A     (WITNESS EIFERT) Yes, sir.

14           MR. ELLIS: Judge Brenner, I propose now to  
15 leave Section 5 of LILCO Exhibit 24 and proceed to  
16 Section 6.

17           JUDGE BRENNER: Why don't we take the  
18 mid-afternoon break at this point, then, and we will  
19 come back at 3:30.

20           (A short recess was taken.)

21           JUDGE BRENNER: All right, we're back on the  
22 record and ready to proceed. Mr. Lanpher, do you have  
23 something?

24           MR. LANPHER: I was informed during the break  
25 by my office that Mr. Shapiro has been contacted and

1 that he intends to be here. He can make it on the 22nd  
2 and he intends to be here, but would request starting at  
3 10:00 a.m. because of transportation requirements.

4 JUDGE BRENNER: Fine, that's no problem.  
5 We're glad to do that.

6 MR. LANPHER: Mr. Latham has been contacted  
7 and he will inform us tomorrow of his intentions, so I  
8 will follow up on that.

9 JUDGE BRENNER: All right. I guess the  
10 follow-up should be that since Mr. Shapiro has indicated  
11 first that he intends to be here, that would be the time  
12 to shoot for; that is, 10:00 a.m. on the 22nd. If they  
13 both want to be here and Mr. Latham can't make that day,  
14 I'll leave it up to the three parties to work it out and  
15 get back to us.

16 MR. LANPHER: I haven't talked to any of that.

17 JUDGE BRENNER: I know you are carrying the  
18 messages, and we appreciate that. That's why I desisted  
19 from saying anything else about the subject today.

20 Let's turn back to this subject. Thank you  
21 for that information. So tentatively, we will be  
22 thinking of that and get back to us at 10:00 o'clock on  
23 the 22nd. But if it turns out to be a problem with the  
24 other parties, get back to us. Or better yet, let us  
25 know either way when you know.



1 Mr. Ellis?

2 BY MR. ELLIS (Resuming):

3 Q Mr. Eifert, let me direct your attention, sir,  
4 to category 6 in LILCO Exhibit 24 which is labeled  
5 "Other." Would you characterize these audit  
6 observations that you have in this section generally for  
7 the Board, please, sir?

8 A (WITNESS EIFERT) Yes, sir, I will. What  
9 remains in this category are all the audit observations  
10 that the county asked questions of us on cross  
11 examination which we have not discussed thus far today.

12 Q When you say what remains, you mean in the  
13 subject of calculations?

14 A (WITNESS EIFERT) On the subject of  
15 calculations.

16 Q Go ahead, please, sir.

17 A (WITNESS EIFERT) The items in this category  
18 are all items which do not relate to any of the other  
19 categories we've discussed. There are three items in  
20 this category which relate to the apparent use of  
21 unqualified programs.

22 Q Is that 6A in LILCO Exhibit 24?

23 A (WITNESS EIFERT) Let me identify those for you  
24 right now, then. In Exhibit 24 under the category --  
25 the copy I have calls it "Miscellaneous." You referred

1 to it as "Other"?

2 Q Yes.

3 A (WITNESS EIFERT) On Exhibit 24 -- do I have  
4 the latest copy of Exhibit 24?

5 JUDGE BRENNER: Mr. Ellis only asks the  
6 questions. Let's go off the record for a minute.

7 (Discussion off the record.)

8 JUDGE BRENNER: Let's go back on.

9 BY MR. ELLIS (Resuming):

10 Q Mr. Eifert, I was referring to the category  
11 number 6 labeled "Other" in LILCO Exhibit 24, and I  
12 asked if you would, please, sir, to characterize  
13 generally the audit observations that you have placed in  
14 this general category.

15 A (WITNESS EIFERT) Yes. And I would  
16 characterize, as I did, though not related to the other  
17 categories we have discussed on calculations, we have  
18 items here that relate to the apparent lack of -- the  
19 apparent use of unqualified programs, items that relate  
20 to the timeliness with respect to preparation of  
21 calculations, and then a miscellaneous category which  
22 are items that do not relate to computer program, the  
23 apparent use of unqualified computer programs or  
24 timeliness or to any of the other categories or to each  
25 other in any way.

1 Q Let's take the first one, Mr. Eifert, 6A. I  
2 believe you characterized that as category relating to  
3 the apparent use of unqualified programs. Is that  
4 correct?

5 A (WITNESS EIFERT) Yes, that is correct.

6 Q Would you explain your basis for that  
7 characterization, please, sir?

8 (Pause.)

9 A (WITNESS EIFERT) Mr. Ellis, I believe we have  
10 an error in that listing. The first item, EA Audit 34,  
11 Audit Observation 119, page 2, item 2, belongs under  
12 "Miscellaneous."

13 Q All right, we will come to that, Mr. Eifert.

14 MR. LANPHER: Judge Brenner, can we get a  
15 clarification? Looking at that audit observation when  
16 he says page 2, item 2, I'd like the record to be clear  
17 which item 2 he is referring to. There are two item 2s  
18 on that page 2.

19 BY MR. ELLIS (Resuming):

20 Q Go ahead, Mr. Eifert, would you clear that up?

21 A (WITNESS EIFERT) At the bottom of page 2 under  
22 the heading, "one-line diagrams," the item 2. That was  
23 the portion of that audit which Mr. Lanpher questioned  
24 us on on cross examination.

25 JUDGE BRENNER: You didn't ask him about the

1 other item 2; not that I recall. Well, we have the  
2 answer anyway. It's been a long time since you last  
3 asked him.

4 BY MR. ELLIS (Resuming):

5 Q All right, Mr. Eifert, would you go ahead now  
6 with reference to the remaining items in 6A of LILCO  
7 Exhibit 24. Explain, please, to the Board your basis  
8 for characterizing those in the way that you have.

9 A (WITNESS EIFERT) Yes, sir, I will. With  
10 respect to Engineering Assurance Audit 36, Audit  
11 Observation 131, this audit observation identified that  
12 the subject calculations were not being marked with the  
13 reference to confirmation required with respect to the  
14 apparent use of ICES STRUDL.

15 At the time on cross examination, I was asked  
16 with respect to this program, ICES STRUDL, was it a  
17 different program than STRUDL-2. And I've been able to  
18 verify that it was, indeed, the same program that we  
19 have discussed with respect to and called STRUDL-2. And  
20 that is the program that is referenced in SEO Audit 11,  
21 Audit, Observation 129, part 1 which also references the  
22 use of the STRUDL computer program without identifying  
23 on the calculations that confirmation was required.

24 The situation -- and I believe that I  
25 discussed this thoroughly on cross examination -- but to

1 summarize briefly, the situation involved that Stone &  
2 Webster had changed its administrative practices with  
3 respect to documentation of computer programs. The  
4 administrative change that is most relevant here is that  
5 a decision was made to centralize the library function  
6 and status keeping function for identifying which  
7 programs were qualified in the computer department.

8           It was in this time period of change that  
9 these audit observations occurred. The situation was  
10 that this computer program, this STRUDL program, had  
11 been fully tested and qualified under Stone & Webster's  
12 program, but that this particular program had not yet  
13 been fully filed in our library and indicated on the  
14 computer department reports as a qualified program.  
15 Because the computer department library did not yet have  
16 the documentation, it was in fact identified on their  
17 reports as an unqualified computer program.

18           There was some delay in updating the computer  
19 department library, and I also described the basis for  
20 that as being that we had undertaken to develop a new  
21 version of the STRUDL program which we now call STRUDL  
22 SW, which was being documented and qualified at that  
23 point in time. And a decision was made not to send the  
24 STRUDL-2 documentation to the file. It was kept within  
25 the Engineering Mechanics Division until they completed

1 the benchmarking of STRUDL-2 against the new version,  
2 STRUDL-SW. And it was that time delay where we had the  
3 apparent use of unqualified programs in the  
4 documentation sense but where, indeed, the programs had  
5 been and always were qualified in their use at Stone &  
6 Webster.

7           The other observation dealing with the  
8 apparent use of unqualified programs was in Engineering  
9 Assurance Audit 39, Audit Observation NT007, the third  
10 bullet, the last item of that, and this I also fully  
11 described on cross examination as being a one-time  
12 application of a computer program which our procedures  
13 allow, provided that the program is fully documented and  
14 qualified as part of the calculation, which it had been  
15 in this particular case.

16       Q     Mr. Eifert, in your opinion, did any of these  
17 three findings that you have just described in category  
18 6A of LILCO Exhibit 24 have any impact on the integrity  
19 of the design and construction of the plant?

20       A     (WITNESS EIFERT) None of these concerns had  
21 the potential for having an impact on the plant because  
22 the actual situation that existed is the programs used  
23 to perform this analysis were indeed qualified.

24       Q     Turning your attention, Mr. Eifert, to the  
25 second subgroup under 6 in LILCO Exhibit 24 entitled,

1 "Timeliness," would you characterize these generally,  
2 please, giving examples, or describing all three if you  
3 wish?

4 A (WITNESS EIFERT) Yes, sir, I will. We have,  
5 again, been able to go back and insure that we have all  
6 the facts regarding these observations. And we are now  
7 in a position to tell the Board that these findings are  
8 all within the category of timeliness of completing  
9 calculations, as distinct from the situation where we  
10 had lack of review of calculation and use of results.

11 These three findings that we have included in  
12 this category all fall into the general category where  
13 the calculations had been prepared or were in the  
14 process of being prepared, and the auditor was  
15 identifying that in his judgment from a general  
16 management standpoint only, the judgment was that the  
17 work should be progressing on these particular areas in  
18 a more timely fashion. But the results of these  
19 calculations had not been used.

20 I could illustrate that in Engineering  
21 Assurance Audit 20, Audit Observation 001, the situation  
22 there was that the preparing group had maintained a  
23 file, a separate file of these calculations that had not  
24 yet been completed. The file was separate from the file  
25 which contained their completed and approved

1 calculations.

2           In Engineering Assurance Audit 21, Audit  
3 Observation 014, Part 9, it was a situation where the  
4 subject calculations had been identified on the index  
5 but they had not yet been completed. And again, we have  
6 been able to identify that this was a general management  
7 concern and not a concern with lack of review, as we  
8 discussed in what we categorized are more important  
9 categories.

10       Q     Based on your review, then, Mr. Eifert, in  
11 your opinion do the three items that are in 6B of LILCO  
12 Exhibit 24, three audit observations, do they have any  
13 effect or impact on the integrity of the design and  
14 construction of the plant?

15       A     (WITNESS EIFERT) My opinion is that these  
16 would not, in any way, have had any impact on the  
17 integrity of the design of the Shoreham plant.

18       Q     All right. Look if you would please now, Mr.  
19 Eifert, to the subgroup entitled "Miscellaneous." Can  
20 you characterize this group or tell us why you listed it  
21 as "Miscellaneous"?

22       A     (WITNESS EIFERT) The reason that I entitled  
23 this "Miscellaneous" is because these items do not  
24 relate to the other two groups in our category 6 of  
25 "Other," nor do they relate to any of the other



1 categories that we have discussed on calculations. And  
2 I believe that each of these are different, each of the  
3 items in 6C under "Miscellaneous" are different from  
4 each other.

5           Maybe I could briefly, on a couple of them at  
6 least, describe what they were, to give a feel for  
7 that. On EA Audit 40, Audit Observation 154, Item 1,  
8 this was a situation where clearly, the calculations had  
9 been reviewed. I believe we discussed this one, again,  
10 at some length on cross examination. The audit  
11 observation was that the checker had apparently made  
12 some changes to the calculations which there was no  
13 evidence that he had gone back to the reviewer -- excuse  
14 me -- gone back to the preparer and obtained his  
15 concurrence with those changes.

16           The additional information that I now have  
17 with respect to that particular audit observation is  
18 that as a result of that audit, they did go back and  
19 have the preparers of those calculations look at those  
20 changes to assure that they had, indeed, agreed with  
21 those changes. And the result of that check was that  
22 there were no changes needed to the design.

23           The conclusions of those calculations were not  
24 changed at all by that check to assure that we had,  
25 indeed, had the review.

1 Q Do you have another example?

2 A (WITNESS EIFERT) Yes. I wanted to use  
3 Engineering Assurance Audit 7 --

4 JUDGE BRENNER: Can I go back to 44 for a  
5 moment? I'm sorry if I'm a little slow. I'm looking at  
6 your reference on LILCO Exhibit 24 and want to make sure  
7 that I am considering the full scope of what you are  
8 considering in Audit Observation 154, Item 1.

9 You say third sentence, first paragraph. Do  
10 you mean all the bullets under Item 1?

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1 [Pause.]

2 JUDGE BRENNER: Which one were you addressing,  
3 or were you addressing all of them? I apologize. I got  
4 lost between reading and your explanation.

5 WITNESS EIFERT: The reference that we have  
6 indicated on Exhibit 24, LILCO Exhibit 24, identifies  
7 the specific sentence that reads, "The magnitude of the  
8 changes made demonstrates that a review of the following  
9 calculations is not performed." We have identified it  
10 this way because this is the specific reference that the  
11 County directed us to in asking us to comment on this  
12 observation on cross-examination. So it is in that  
13 context that I am talking about the question of the  
14 documentation of the review that was subject to that  
15 audit.

16 JUDGE BRENNER: Don't repeat your whole  
17 answer, but could you summarize again for me the results  
18 of the follow-up? And I take it that applies to all of  
19 the bullets under that Item 1.

20 WITNESS EIFERT: Yes. The corrective action  
21 for the portion of that Audit Observation 154, Item 1 --  
22 and I will qualify limited to Item 1 because that is how  
23 I specifically asked the question, but I believe it  
24 applies to the entire audit observation, but I will  
25 limit my remarks to Audit Observation 154, Subpart 1,

1 the entire paragraph including four subparagraphs. The  
2 corrective action was to have those particular  
3 calculations looked at by the preparing group to ensure  
4 that there were not any changes made by the checker of  
5 the calculations which would have affected the  
6 conclusions of the calculations.

7           The result of that was that there were no  
8 instances where any changes had been made which affected  
9 the conclusions of the calculations, and therefore there  
10 was no impact on the design of the plant.

11           JUDGE BRENNER: But there were errors in the  
12 calculations in some cases, either originally made or  
13 compounded by the checker?

14           WITNESS EIFERT: As originally reported in the  
15 audit, yes, sir. But these were minor errors. Even the  
16 items that we reported in the audit did not affect the  
17 conclusions of the calculations, and I believe we  
18 reported that in this audit.

19           JUDGE BRENNER: Why didn't you put those where  
20 there were errors in the calculations in this Audit  
21 Observation 154, Item 1, within your Miscellaneous  
22 Important Concern category because of the potential,  
23 keeping in mind some of what you said about the ones you  
24 would put in that category?

25           WITNESS EIFERT: Because at the time of this

1 audit, at the exit critique, which I attended, the  
2 position of the project people was that our assertion  
3 that apparently there is a lack of review was not  
4 correct. They were confident that the calcs had been  
5 appropriately reviewed, and it was a question of  
6 documentation of that review. It was a question of  
7 whether or not the reviewer had gone back to the  
8 preparer to get his concurrence on anything that was  
9 changed as a result of the checking process. They were  
10 confident that he had gone back to the preparer, but the  
11 documentation did not reflect that.

12           At that time, although we all agreed that the  
13 corrective action should be prepared, we were confident  
14 that it was not of an important concern primarily  
15 because the auditor was able to pursue the individual  
16 very minor mathematical discrepancies within the  
17 calculation and give me high degree of confidence that  
18 -- well, give me a statement of fact with respect to the  
19 calculations that he audited that the discrepancies  
20 would not affect the conclusions of the calculations,  
21 and a high degree of confidence that any other changes,  
22 any other concerns that might exist in other  
23 calculations other than the ones he looked at in the  
24 audit would be similarly insignificant with respect to  
25 having no impact on the conclusions in the calculations.

1           So it was that knowledge and understanding and  
2 belief at the time why I didn't categorize this  
3 particular discrepancy as overly important.

4           [Board conferring.]

5           JUDGE BRENNER: Okay, thank you. I will pass  
6 for now, at least.

7           BY MR. ELLIS: (Resuming)

8           Q     Mr. Eifert, I think you were in the process of  
9 giving another example in the Miscellaneous category.  
10 Did you want to give another example? I think you  
11 mentioned EA 7 is what you were talking about. I didn't  
12 get the full reference to it.

13          A     (WITNESS EIFERT) Yes. I would like to use EA  
14 7, both parts of that particular audit observation,  
15 Observation 2.C.1.C and D. And this was, again, one of  
16 the observations that we discussed on cross-examination  
17 where the audit identified some inconsistencies and  
18 omissions in the work sketches that were used in the  
19 performance of the pipe stress analysis.

20                 The second part indicated some discrepancy  
21 between the data on the work sketch and the data on the  
22 MSK. The additional information that I was able to  
23 obtain with respect to this was, first, a very brief  
24 description of the purpose of the work sketch. The work  
25 sketch is an informal document, if you will, that is

1 used by the pipe stress analyst to take the piping  
2 configuration and model it so that he can put the  
3 information in a form so that it can be entered into the  
4 computer analysis.

5           In the time frame of these audits it was  
6 common practice that the work sketch was retained and  
7 kept as part of the calculation. Today's practice is  
8 not to keep those. It is in essence a tool that the  
9 pipe stress analyst uses once he has completed the  
10 information. That is on the computer output in a way  
11 that is readily interpretable, and we do not keep these  
12 work sketches any longer in our process.

13           The second piece of information that I have  
14 with respect to these audits, the backup data for these  
15 particular audits did identify the specific  
16 inconsistencies and omissions that were involved, and we  
17 would be able to have one of our people who is  
18 experienced in pipe stress analysis take those and go  
19 back and verify that these inconsistencies and omissions  
20 in no way affected the pipe stress analyses involved.

21           Therefore, I would characterize these as  
22 problems with or concerns with this documentation,  
23 concerns with the work sketch and how it was used and  
24 what information was and was not on that work sketch,  
25 but in the proper context of understanding the work

1 sketch and understand that we no longer keep that work  
2 sketch because it is not a primary design document.  
3 That clearly falls into an insignificant category.

4 Q Are you done, Mr. Eifert?

5 A (WITNESS EIFERT) Yes. Those were the two  
6 examples that I wanted to present here because I believe  
7 in both cases I had additional information with respect  
8 to the information that I had presented on  
9 cross-examination.

10 Q Have you reviewed, then, the audit  
11 observations shown in 6.C of Exhibit 24, including EA  
12 34, Audit Observation 119, which you previously moved  
13 from 6.A to 6.C in order to reach a conclusion as to  
14 whether any of these matters referred to in these audit  
15 observations had an impact on the integrity of the  
16 design and construction of the plant?

17 A (WITNESS EIFERT) Yes, sir, I have.

18 Q Did they?

19 A (WITNESS EIFERT) They did not. I have been  
20 able to conclude that these were items which at best  
21 there was only a very remote possibility of having any  
22 impact on the plant, and it is on that basis that I have  
23 characterized them as such.

24 Q Mr. Eifert, referring to the same audit  
25 observations in 6.C, including Audit Observation 119 of



1 Engineering Assurance Audit 34, do these findings, in  
2 your view, constitute or reflect in any way violations  
3 of Appendix B?

4 A (WITNESS EIFERT) No, sir.

5 Q Why not?

6 A (WITNESS EIFERT) Basically for these same  
7 reasons that I had previously described in the various  
8 calculation categories that we have discussed today.

9 Q Are you referring there to the answers you  
10 have given today with respect to Criteria 3, 6, 16 and  
11 18?

12 A (WITNESS EIFERT) Yes, sir.

13 Q Mr. Eifert, with respect to calculations, does  
14 Stone and Webster treat and control all calculations in  
15 the same manner whether or not those calculations refer  
16 to or deal with safety-related or nonsafety-related  
17 matters?

18 A (WITNESS EIFERT) Yes, sir. All calculations  
19 that we have prepared for the Shoreham project have been  
20 prepared under a program with one engineering assurance  
21 procedure, EAP 5.3, without providing any lessening of  
22 requirements, if you will, for whether the calculation  
23 was for a QA Category 1 portion of the plant or for any  
24 other portion of the plant.

25 I would also add that the audit program

1 initially does not distinguish QA categories. We do  
2 make an effort to ensure that when we take our audit  
3 sample, we always, where work has been done in the QA  
4 Category 1 area, we include in our sample some of that,  
5 and we also very often sample calculations which are not  
6 in the QA Category 1 category. So we have a  
7 comprehensive program that we apply to the entire design.

8 MR. ELLIS: Judge Brenner, I propose now to  
9 leave the subject of calculations and proceed to the  
10 next item on our redirect plan, entitled "Drawings."

11 JUDGE BRENNER: All right, why don't you  
12 proceed.

13 BY MR. ELLIS: (Resuming)

14 Q Mr. Eifert, in your cross-examination you were  
15 asked a number of questions concerning audit  
16 observations relating to drawings. Have you at my  
17 request reviewed the transcript for the purpose of  
18 preparing a list of the audit observations that Mr.  
19 Lanpher asked you about concerning drawings?

20 A (WITNESS EIFERT) Yes, I have, sir.

21 MR. ELLIS: Judge Brenner, earlier we  
22 distributed to the Board and to the parties a  
23 single-page sheet entitled "Drawings," which lists a  
24 number of audit observations divided into separate  
25 categories. I would like to have that marked, if I may,

1 LILCO Exhibit No. 25.

2 JUDGE BRENNER: That is fine. One very minor  
3 thing occurs to me. One purpose of your categorizing  
4 them in writing, in addition to giving the Board and the  
5 parties the sequence on what you are going to do on your  
6 redirect, is also to avoid having to ask the witness to  
7 list each and every one of these for each category.  
8 Now, in some cases he has gone through each one in the  
9 category anyway, but in other cases he has not.

10 I take it you want some evidentiary basis for  
11 saying that all of these are in that category, and this  
12 is probably just a nit, but maybe something like Exhibit  
13 24 should be in evidence given that use, just merely for  
14 the minor purpose of avoiding your having to ask the  
15 witness to put all those in. I think we probably have  
16 it in evidence anyway, but I don't recall exactly how  
17 you worded your overall question.

18 Mr. Lanpher, do you have any objection to  
19 that? He is going to want to write a finding that all  
20 these items in Mr. Eifert's testimony fit within a given  
21 category. I don't want him to have to say, I don't want  
22 him to list all the items. He may have said do you  
23 agree all the items are in that category, but even that  
24 is an unnecessary question.

25 MR. LANPHER: I have no objection to LILCO

1 Exhibit 24 being in evidence for what I understand to be  
2 a ready reference purpose when Mr. Eifert says all the  
3 rest of the items in Category 6.C fall into the same  
4 category and we can make reference to LILCO Exhibit 24  
5 and find out what those are. I don't know if that has  
6 to be in evidence for that purpose or not. I think  
7 binding it in probably accomplishes the same purpose,  
8 but whatever the Board wants.

9 JUDGE BRENNER: All right. With that  
10 understanding, let's just leave it in the current status  
11 and there will be no problems later in using it for that  
12 purpose.

13 MR. LANPHER: I understand it to be a  
14 reference purpose, similar to some exhibits that the  
15 County marked purely for reference reasons also.

16 JUDGE BRENNER: It is very slightly more than  
17 a reference in the sense that he would have said these,  
18 as if he orally stated each and every one of those, are  
19 in this category. So as long as the County has no  
20 problem with that.

21 MR. LANPHER: I have no problem with that  
22 shorthand.

23 JUDGE BRENNER: As I said, it was probably a  
24 nit. Let's just leave it for identification, then, with  
25 the understanding that you can use it for that in case

1 you ever forget to ask him do you agree that all of  
2 these are in that category, and for those where he  
3 doesn't go through each and every one of those. And we  
4 have LILCO Exhibit 25 for identification.

5 Let's bind a copy in for convenience at this  
6 point.

7 (The document referred to  
8 was marked LILCO Exhibit  
9 No. 25 for identification.)

10 [The document referred to, LILCO Exhibit No.  
11 25 for identification, entitled "Drawings," follows:]

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DRAWINGS

<u>Audit Report</u>	<u>Date</u>	<u>Item</u>	<u>Discipline(s)</u>
1. <u>Early Pilot Audits</u>			
EA 00	4/70	N/A	N/A
EA 1	9/70	N/A	N/A
EA 2	3/71	N/A	N/A
EA 4	2/73	N/A	N/A
2. <u>Important Concerns</u>			
EA 29	7/79	AO-093	Power
3. <u>Checking Concerns (not design review)</u>			
EA 13	4/75	2.C.3 (a & b)	Power Nuclear
EA 34	11/80	AO-121	Pipe Support
EA 37	9/81	AO-137 (2a)	Electrical
4. <u>Misc. Unrelated</u>			
EA 8	2/74	Pg 2 (C2 & C4)	Structural & Power
EA 40	6/82	AO-156	Electrical
EA 30	10/79	AO-103	Electrical
EA 33	6/80	AO-115 (1)	Power
EA 13	4/75	2.C.3 (c)	Power Nuclear
EA 37	9/81	AO-137 (2b)	Electrical

1 JUDGE BRENNER: We are talking about a  
2 one-page document entitled "Drawings," and it has four  
3 categories with various audit reports listed under each  
4 category.

5 BY MR. ELLIS: (Resuming)

6 Q Mr. Eifert, do you have before you what has  
7 been marked LILCO Exhibit No. 25, a single-page  
8 typewritten document entitled "Drawings"?

9 A (WITNESS EIFERT) Yes, sir, I do.

10 Q Is this the list that you had prepared as a  
11 result of your review of the transcript for audit  
12 observations relating to drawings that you were asked  
13 about by Mr. Lanpher?

14 A (WITNESS EIFERT) Yes, it is.

15 Q It appears in LILCO Exhibit No. 25 that you  
16 have arranged the audit observations in categories.  
17 What is your basis for these categories?

18 A (WITNESS EIFERT) Mr. Ellis, similar to what  
19 we did on calculations, we made the effort to go back  
20 and ensure that we knew everything about these audit  
21 observations relating to the general topic of drawings.  
22 We took that information then and put them into logical  
23 groupings with respect to cause mechanisms and  
24 importance.

25 Q Mr. Eifert, your first category, Category 1,

1 is entitled "Early Pilot Audits." Would you explain,  
2 please, this title and the significance of the audit  
3 observations or generally characterize the audit  
4 observations in this category, please?

5 A (WITNESS EIFERT) Yes. I would like to first  
6 explain that this is as I described it on  
7 cross-examination with respect to these early audits. I  
8 described that we saw that these audits should be looked  
9 at as a group, if you will, because of the nature of the  
10 audits in the very early stages of implementing our  
11 engineering assurance program.

12 I also had indicated that we were able to go  
13 back and identify specific concerns that had been  
14 identified in those early audits from a technical aspect  
15 as well as from a programmatic aspect. From a  
16 programmatic standpoint is where these audits give us  
17 difficulty.

18 What we are able to see is two significant  
19 things: one, that those early audits were indeed  
20 auditing work that was not yet complete, not work that  
21 had not yet been completely through the drawing,  
22 checkin; and interview process; and second, still from a  
23 programmatic standpoint, that -- let me clarify.

24 First, from a programmatic standpoint that we  
25 were auditing work that was not yet complete, that we



1 were auditing in many cases work that was in process;  
2 and second, from a technical standpoint that the types  
3 of concerns reported by these audits were of a nature  
4 that the findings indicated that information was missing  
5 for the most part, partially missing or in some cases  
6 not completely correct.

7           And the drawings in this stage were first  
8 issue drawings or drawings in process which were being  
9 prepared for a specific conceptual purpose, and the  
10 auditors at that time were auditing them as complete  
11 drawings that would have -- auditing them to standards  
12 as completed drawings that would have been released for  
13 construction.

14           So the process was the pilot process of audits  
15 where we were developing the engineering assurance audit  
16 program, and I think the program was formulated on that  
17 basis, but the specific discrepancies were not of such a  
18 nature that we can compare them to other drawing  
19 problems that we have had since those early days.

20           I did indicate on cross-examination that in  
21 looking back at the specific technical concerns and  
22 looking at it in light of the purpose of the drawing, we  
23 had identified two items which I would have  
24 characterized as design related as compared to a  
25 checking type of discrepancy or a lack of -- missing

1 information because it was not yet needed. And those  
2 two instances involved, first, valves that were not  
3 shown on one drawing, and we have clearly established  
4 that this apparent design concern was of a nature of  
5 detail that would not have been needed on these  
6 particular flow diagrams for the purpose of the  
7 conceptual issue. The second one involved a pH  
8 indicator on one of the diagrams, which the auditor  
9 identified as having been shown incorrectly on the  
10 design.

11           That particular pH indicator is no longer a  
12 part of that design. So the situation is that had the  
13 audit not identified it, it would have been resolved in  
14 the design development stage regardless.

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1 Q Mr. Eifert, were the remarks you just made  
2 concerning the valves and pH indicator, did they relate  
3 to that category one, early pilot audits?

4 A (WITNESS EIFERT) Yes, sir, they did.

5 Q Have you reviewed the early pilot audits about  
6 which you were asked to reach a conclusion as to whether  
7 the observations that appear there were significant in  
8 terms of the integrity of the design and construction of  
9 the plant?

10 A (WITNESS EIFERT) Yes, and it was my opinion  
11 that the discrepancies were not significant when you  
12 understand the time frame and the purpose for which  
13 those early drawings were issued.

14 MR. ELLIS: Judge Brenner, I intend to go to  
15 the second category, entitled "Important Concerns."

16 JUDGE BRENNER: Let me ask one question.

17 I take it your characterization of these  
18 audits as early pilot audits depends on the subject of  
19 the particular observation in the audit, in this case  
20 the drawings that you were talking about, and your view  
21 of the status of the drawings at that point in time.  
22 For example, and we take the newest of the four that you  
23 discuss here -- I'm not saying you might not also call  
24 some later one an early pilot audit for a particular  
25 purpose, but putting that aside, audit 4, EA-4 over

1 here, would be an early pilot audit, but in the context  
2 of some other observations in EA-4 which are listed  
3 under calculations you might not so categorize it  
4 depending on the status of what work was being done and  
5 what was being audited, am I right?

6           WITNESS EIFERT: Yes, sir. The primary reason  
7 I am categorizing it in the subject drawings is because  
8 we were still auditing at that point drawings in the  
9 context that they should be complete and ready for  
10 construction, when in fact we should have been auditing  
11 them as a conceptual design.

12           In fact, since that time in the early  
13 seventies, what the company has adopted is a practice of  
14 identifying on the drawing schedule and progress chart  
15 percent complete with respect to drawings, to identify  
16 that mechanism.

17           In addition, with respect to flow diagrams, we  
18 have clearly established a process by which the early  
19 issue or maybe two issues of a flow diagram is clearly  
20 labeled and marked as a conceptual issue so that people  
21 understand the purpose for which they have been issued.  
22 On the other hand, calculations -- when we got to EA  
23 audit 4 and looking at the information, I feel that it  
24 is relevant and at that point in time we understood, and  
25 the data is there so that I can assess it with respect

1 to the other audits.

2 JUDGE BRENNER: Okay, thank you.

3 BY MR. ELLIS: (Resuming)

4 Q Mr. Eifert, let me turn your attention to the  
5 second category on LILCO Exhibit No. 25, entitled  
6 "Important Concerns." Is there only one item in this  
7 category as a result of your review?

8 A (WITNESS EIFERT) Yes, sir. I have reviewed  
9 all the items in the County's group relating to drawings  
10 and schedules and find that this is the only one which I  
11 would categorize as more than a minor item for which the  
12 potential is extremely remote, the potential effect on  
13 quality being extremely remote. This particular finding  
14 I think is somewhat more than that, yet one which the  
15 potential is unlikely but more than remote, as I would  
16 characterize the others.

17 Q What is your basis for that conclusion?

18 A (WITNESS EIFERT) The situation involving  
19 engineering assurance audit 29, audit observation O-93,  
20 concerns the project flow diagrams. The flow diagrams  
21 are fully prepared, checked and reviewed, as any  
22 drawing, through our design process. The checking  
23 aspect of that involves a check, a drafting type check  
24 by the group who is responsible for the preparing that,  
25 the piping group in the design organization, as well as

1 an interface check with respect to other interfacing  
2 design disciplines as the checking process.

3           The flow diagram would then go to the design  
4 engineers, who would perform the initial design review,  
5 as distinguished from a design checking. The diagram  
6 then goes to the project engineering staff, where it is  
7 reviewed again by the responsible engineer for that  
8 particular system, his lead engineer as well as a final  
9 approval of the flow diagram by the project engineer.

10           This process was being carried out for all  
11 flow diagrams on the Shoreham project. This audit  
12 observation reflects that an additional review that we  
13 require over and above the checking and design review  
14 process that I have just described, an additional review  
15 that we require be performed by our operational design  
16 review group, had been omitted for three of the 20  
17 drawings that we sampled in this particular audit.

18           I emphasize that this is an additional review  
19 that our management has imposed for the purpose of  
20 having an added layer of assurance with respect to some  
21 specific operability, maintainability concerns. So it  
22 is this additional review that was omitted on certain of  
23 the drawings.

24           Q     Are you finished, Mr. Eifert?

25           A     (WITNESS EIFERT) Yes.

1 Q Was corrective and preventive action taken  
2 with respect to audit observation O-93 in engineering  
3 assurance audit 29, which is in number 2 of LILCO  
4 Exhibit 25?

5 A (WITNESS EIFERT) Yes, sir, it was.

6 Q Would you describe that generally, please?

7 A (WITNESS EIFERT) As a result of this audit  
8 the project did go back and identify -- they went back  
9 and did a complete review of flow diagrams, as well as  
10 revisions, to determine to what extent they had omitted  
11 the operational design review and ensure that in all  
12 such cases where the review had been so omitted the  
13 diagrams were sent to the operational design review  
14 group and the review was conducted.

15 The preventive action was also taken, again  
16 specifically and primarily the direct supervisory type  
17 of preventive action where the project engineer made  
18 certain that the people on the project who were involved  
19 in the preparation and review of flow diagrams clearly  
20 understood that the operational design review could not  
21 be omitted.

22 The primary cause that we believe created this  
23 particular situation was the belief on some individuals'  
24 parts that some minor changes to flow diagrams which  
25 clearly could not affect the function of the system or

1 the operability or maintainability of the system in any  
2 way did not require that operational design review. And  
3 our procedure did not give them that flexibility.

4           So it was the changes that had not been  
5 submitted to the operational design review group that  
6 were not significant changes. However, we did insist  
7 and the project performed a complete backfit check and  
8 we obtained the required review and approval.

9           I might also add that this drawing -- we  
10 identified this problem in 1979, and again we audit flow  
11 diagrams on an annual basis and this particular problem  
12 has not recurred since that time.

13         Q     Mr. Eifert, based on your review of this audit  
14 drawing in category two of Exhibit 25, in your opinion  
15 did the situation referred to there have an impact on  
16 the integrity of the design or construction of the  
17 plant?

18         A     (WITNESS EIFERT) Based on the information  
19 that I'm aware of, that the cause mechanism was with  
20 respect to minor changes and that this was not in any  
21 way a widespread problem, basic designs were properly  
22 reviewed, all changes have been reviewed through the  
23 normal process, it is on that basis that I can say with  
24 confidence that there was no impact here on the  
25 integrity of the design.



1 MR. ELLIS: Judge Brenner, I propose now to  
2 proceed to the third category on LILCO Exhibit 25.

3 JUDGE BRENNER: Okay, why don't you proceed.

4 BY MR. ELLIS: (Resuming)

5 Q Mr. Eifert, turning your attention to the  
6 third category in LILCO Exhibit 25, which is entitled  
7 "Checking Concerns (Not Design Review)," would you  
8 describe what this category consists of and  
9 characterize, if you would, please, the audit  
10 observations in this section?

11 A (WITNESS EIFERT) Yes, Mr. Ellis. A few  
12 moments ago I described the drawing checking and the  
13 design review process that all drawings go through,  
14 checking being the drafting and design standards type  
15 check as compared to the design review that drawings  
16 subsequently go through.

17 In looking at the information that we've been  
18 able to get to with respect to the three audit drawings  
19 in the category "checking concerns," we've been able to  
20 establish that all of these problems relate to problems  
21 or concerns with the drawings that should have or would  
22 have been expected to have been caught in that checking  
23 process. And none of the specific concerns relate to  
24 what I would expect the design review process to  
25 specifically identify.

1           To say it in another way, all the problems are  
2 minor in nature and none of them in themselves affected  
3 the adequacy of the designs themselves. To give you  
4 some examples of the types of problems that were  
5 reported in these three audits, we saw problems with  
6 mistakes in symbols, for example the use of outdated  
7 symbols. We saw drafting difficulties with respect to  
8 line weight not being up to what Stone & Webster's  
9 standards for line weights in drawings are.

10       Q     What do you mean by line weights in drawings?

11       A     (WITNESS EIFERT) It is the width of the line  
12 as drafted and the density, if you will, of the line on  
13 the paper. So we did identify examples of drawings that  
14 did not meet Stone & Webster standards in that sense for  
15 line weight.

16           We did identify spelling errors that we would  
17 expect to find in the drafting, and there was one case  
18 where we had identified an item that involved a  
19 reference to an outdated Stone & Webster standard.

20           I'd like to give you the specific reference to  
21 that audit observation, because that was one that we  
22 discussed on cross-examination. That was in EA audit  
23 observation, audit report 37, audit observation 137,  
24 item 2.A. And in that particular case we referenced a  
25 standard which was ME-1-8, which we identified in the

1 audit was an outdated standard.

2           We've been able to go back and get additional  
3 information with respect to that because initially  
4 looking at that it was not obvious to me that that was a  
5 drafting concern. The mechanism by which these design  
6 standards are updated includes when they revise the  
7 standard also reissuing the existing standard to  
8 indicate that it had been superseded by another  
9 standard, and that was the practice and that is what had  
10 been done with respect to this particular standard.

11           Therefore, the fact that the old standard was  
12 still being referenced on drawings is not a problem,  
13 because when people would go to that standard to use it  
14 in conjunction with the drawing they would find a  
15 reference that clearly would direct them to the new  
16 standard. So that additional information we were able  
17 to get, and therefore I can categorize that as a  
18 checking problem as compared with a design adequacy or  
19 design review type problem.

20           Q     Mr. Eifert, your testimony remarks relating to  
21 mistakes and symbols, drafting line weight, spelling and  
22 the referencing of an outdated standard, was that all in  
23 connection with category -- the audit observations in  
24 category 3 of LILCO Exhibit No. 25?

25           A     (WITNESS EIFERT) Yes, sir, it was.

1 Q And have you reviewed those audit observations  
2 in order to determine whether the circumstances referred  
3 to in those audit observations had any impact on the  
4 integrity of the design and construction of the plant?

5 A (WITNESS EIFERT) Yes, sir, I have. And I've  
6 been able to conclude that the only impact that these  
7 particular concerns would have had would have been that  
8 individuals who would be using those particular drawings  
9 may have had to go back to the originating group to get  
10 a clarification or to get additional information, and in  
11 no way would it have reflected on the adequacy or  
12 integrity of the plant design.

13 MR. ELLIS: Judge Brenner, I propose now to  
14 proceed now to the final category in LILCO Exhibit 25,  
15 entitled "Miscellaneous Unrelated."

16 BY MR. ELLIS: (Resuming)

17 Q Mr. Eifert, directing your attention now to  
18 the category number 4 on LILCO Exhibit No. 25, entitled  
19 "Miscellaneous Unrelated." Can you explain, please, why  
20 you have put these audit observations under this  
21 category, and characterize them if you would, please,  
22 sir?

23 A (WITNESS EIFERT) I listed these in this  
24 category because they are, just as we have called them,  
25 they are miscellaneous. They don't really relate to the

1 items we've already discussed, or as a group they do not  
2 relate together. But I can quickly go through very  
3 quickly on each one and identify what they were.

4           With respect to EA audit number 8, page 2,  
5 items C.2 and C.4 -- and this one I explained on  
6 cross-examination was an unusual circumstance where we  
7 had at this late date in the auditing process, had  
8 audited a structural drawing that had not yet been  
9 completed. There was a drawing that had been used for a  
10 bidding purpose but had not been completely through the  
11 checking process.

12           The only significance to this particular  
13 situation would be that Stone & Webster may have been  
14 taking some commercial risk with respect to having a bid  
15 made on what in effect was an incomplete design. And  
16 I'm not saying that that was the case, but there may  
17 have been some commercial risk in doing that, allowing  
18 an unchecked drawing to be used as a bid basis.

19           That same audit also included a flow diagram  
20 that was audited which was in the review process, and  
21 again I couldn't explain that. That was a circumstance  
22 and of no significance to plant design in any way would  
23 I would characterize those.

24           Engineering assurance audit 40, item 156, we  
25 discussed completely, I believe, and that was the

1 situation with cable block diagrams, which are  
2 uncontrolled design documents. I believe we fully  
3 described that.

4           EA audit 30, audit observation 103, and EA 33,  
5 audit observation 115, again I believe I fully  
6 characterized these on cross-examination. Both of these  
7 involved the reasons for changes, the documentation of  
8 the reasons for changes on drawings. The one was  
9 electrical drawings and one was flow diagrams, the  
10 situation being that the reasons were being documented,  
11 but at this point in time engineering assurance felt  
12 that a more detailed description of the change, of the  
13 reason for the change, would be more appropriate. And  
14 it does not reflect in any way in the strict sense a  
15 violation of our procedures.

16           And the last two audit observations, which are  
17 EA audit 13, item 2.C.3, subpart C, and EA audit 37,  
18 audit observation 137, part 2.B, both involved not the  
19 adequacy of the checking or design review process, but  
20 rather the situation of an inadequate documentation, if  
21 you will, of a drawing review checklist that is used in  
22 the checking process.

23           In the case of EA audit 13, the situation was  
24 that the checklists had not been signed. The check had  
25 been completed, but the checker had failed to initial

1 the checklist to indicate that he had completed it. The  
2 second audit, involving EA audit 37, involved a similar  
3 situation with the checklist not signed. I believe the  
4 audit observation -- I'm not sure without looking at it  
5 -- I believe it also indicated that the checklist had  
6 not been used, and it was a situation where the  
7 checklist was missing. It had been used, it was  
8 missing, and it was found subsequent to the audit and  
9 put in the file.

10           So these as a group represent in essence  
11 unrelated concerns, all of which are -- well, all of  
12 which are detailed administrative matters which would  
13 only remotely have the possibility of having an impact  
14 on the design, except for EA 40, which belongs in even a  
15 less significant category than that. And by their  
16 nature, knowing what is involved here, I am very  
17 confident that these discrepancies in no way have an  
18 impact on the integrity of the plant design.

19           Q     Mr. Eifert, with regard to all of the audit  
20 observations on LILCO Exhibit No. 25, that is in  
21 categories 1, 2, 3 and 4, do any or all of these  
22 findings reflect or constitute violations of Appendix B  
23 in your opinion?

24           A     (WITNESS EIFERT) No. I have considered that,  
25 and specifically in light of criterion 3 on design

1 control, criterion 6 with respect to document control,  
2 as well as criterion 16 and criterion 18, and I see that  
3 there is no basis in any of these findings to believe or  
4 any basis here to indicate that there has been any  
5 violation of these particular criteria.

6 MR. ELLIS: Judge Brenner, I propose now to  
7 leave the subject of drawings and proceed to the subject  
8 of document control.

9 JUDGE BRENNER: I have a question on EA 33,  
10 audit observation 115, part 1. I'm sorry, I just have  
11 no recollection of the cross-examination on this one.  
12 So I may be repeating the record.

13 But from what you just said, this one deals  
14 with changes to drawings not being adequately justified  
15 in the auditor's view, and I thought I heard you say in  
16 your summary just now that in any event that was not a  
17 violation of any of Stone & Webster's procedures. That  
18 appears to be contrary to the wording of the audit  
19 observation, which I now have in front of me. Can you  
20 explain that one a little better for me?

21 WITNESS EIFERT: Yes, I can. The procedural  
22 requirement when we make -- when our project engineering  
23 people make changes to drawings or diagrams is that they  
24 make the change and then we require that they maintain  
25 what we call a record of drawing changes, which is a



1 list of specific changes. And we also require that they  
2 add to that list a brief description of why they're  
3 making that change to the design.

4           The audit observation indicated -- well, I  
5 don't have the specific words in front of me.

6           JUDGE BRENNER: In fairness to you, let me  
7 attempt to summarize it, and I hope I'm not being  
8 misleading by doing it. The auditor said that, "The  
9 changes appear to be adequately described, however the  
10 reasons/justifications for the changes are often  
11 vague."

12           And there was another aspect, too, but that's  
13 the aspect I have in mind, because the auditor then went  
14 on to summarize that: "Some changes could not be traced  
15 back to a statement of justification or backup  
16 information, as is required by the Stone & Webster  
17 procedure cited, namely EA 5.4, and the particular  
18 paragraph therein."

19           So the auditor had no problem with the  
20 description of the changes. It was the justifications  
21 for them in the auditor's view were vague.

22           WITNESS EIFERT: The situation involving these  
23 particular audits was that the record of drawing change  
24 that I referred to was typically being used or typically  
25 describing the reason for change as design development,

1 as compared with a reason for change such as the change  
2 in vendor information, which would be more of an unusual  
3 change.

4           If they were changing something to add  
5 additional detail as the design developed in the context  
6 of the following issues of the drawing becoming more  
7 detailed to the point where you had a completed design,  
8 the practice was to indicate design development. And in  
9 that sense the auditor was identifying that you could  
10 not track to a justification or a statement of the  
11 justification for why that change was being made,  
12 because they were using the general term "design  
13 development."

14           What I explained on cross-examination was that  
15 this was the practice and had been accepted as the  
16 practice by the auditors prior to this time frame of  
17 1980. Our requirement went into effect in the  
18 mid-seventies that we clearly document the reason for  
19 changes this way, and up until about the early part of  
20 1980, in my recollection, we typically accepted design  
21 development as an adequate reason for change.

22           However, we changed our acceptance standard,  
23 if you will, in the audit program and we are looking for  
24 more specificity in the description, and that is what we  
25 were reporting in this audit.

1 JUDGE BRENNER: Okay. I should note, I guess  
2 the cross on this was after September 24th, because I  
3 couldn't use the County's motion to move audit data into  
4 evidence as a handy reference for a transcript page.  
5 And as I said, I have no recollection of the cross on  
6 this one. I don't know why, but I will take a look.

7 Thank you.

8 (Pause.)

9 JUDGE BRENNER: Mr. Ellis, am I correct that  
10 you said you completed the drawings category now?

11 MR. ELLIS: Yes, sir. I'm just looking  
12 quickly to see whether I can give you a transcript  
13 reference number. I'm not sure that I can, but if I  
14 have just a moment I might be able to.

15 JUDGE BRENNER: Okay.

16 (Pause.)

17 JUDGE BRENNER: Let's go off the record for a  
18 minute.

19 (Discussion off the record.)

20 JUDGE BRENNER: You have found the transcript  
21 reference to the cross on audit observation 115, part 1,  
22 from EA 33, and what is it again?

23 MR. ELLIS: 12,235 of October 28. That's  
24 where it is entered into evidence, though, now that I  
25 look at the index, and that may not be where it is

1 actually discussed.

2 JUDGE BRENNER: I will find it. You have  
3 saved me some time already. Thank you.

4 I don't know if it pays to go to the next  
5 category or not.

6 MR. ELLIS: I think it would, for just a  
7 moment. I think we can use the time, perhaps not get  
8 into it in any detail. But Judge Brenner, we have three  
9 pieces of paper that we distributed to the Board and to  
10 the parties. The first, which will not be introduced,  
11 is merely page references that may be used in connection  
12 with the redirect examination. It's a list of five or  
13 six transcript references, and we may, before we proceed  
14 to categorizing them, deal with some specific transcript  
15 questions. We will do that.

16 The second item is a list of three transcript  
17 changes which we do not intend to take the time to go  
18 into, but which may change to some extent the sense or  
19 the substance, and we would like to put that into  
20 evidence and do it at this time. And the County can  
21 cross-examine again on those if it sees fit to do so.

22 The third item is --

23 JUDGE BRENNER: Well, let's stay with the one  
24 you just mentioned. We'll make that LILCO Exhibit 26 in  
25 evidence.

1 (The document referred to  
2 was marked LILCO Exhibit  
3 No. 26 for identification  
4 and received in evidence.)

5 JUDGE BRENNER: And we will bind it in at this  
6 point. It is LILCO's own witness' correcting,  
7 clarifying, whatever descriptive words you want to use.

8 (The document referred to follows:)

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LILCO EX  
26

TRANSCRIPT CORRECTIONS  
DOCUMENT CONTROL

- Tr. 12,042, line 11 -- strike the first "that" and  
insert a semi-colon
- Tr. 12,043, line 8 -- change "ordering" to "order"
- Tr. 12,043, line 11 -- insert "out of date" in place  
of "--"

1 JUDGE BRENNER: I hope the second change there  
2 really did affect the meaning. It is difficult to tell  
3 looking at it here, but when we see it in context we  
4 will know. I am emphasizing restricting these to ones  
5 that have the potential to affect --

6 MR. ELLIS: That one might be closer, on the  
7 continuum closer to one that could have waited.

8 JUDGE BRENNER: All right. If it has the  
9 potential, I could understand why you would want to err  
10 in this direction. So we will bind that in for  
11 convenience.

12 MR. ELLIS: All right, sir. And I will ask a  
13 question and then move it into evidence

14 The second document which we wish to have  
15 marked is a five-page document which is entitled  
16 "Document Control" and consists of a series of  
17 categories of audit observations in this general area.  
18 We would like this marked as LILCO Exhibit No. 27, to be  
19 used in the same fashion that we have used similar  
20 documents.

21 JUDGE BRENNER: Okay, this will be LILCO  
22 Exhibit 27 for identification. It strikes me, given the  
23 time, that perhaps we will mark it now, but perhaps we  
24 should bind it in just prior to beginning the  
25 examination tomorrow, so that it is right there in the

1 same transcript, if that's acceptable.

2 MR. ELLIS: Yes, sir, I think that's better.

3 (The document referred to  
4 was marked LILCO Exhibit  
5 No. 27 for  
6 identification.)

7 JUDGE BRENNER: All right. Exhibit 26 is  
8 already in evidence, subject to your asking the right  
9 question now and getting the right answer.

10 BY MR. ELLIS: (Resuming)

11 Q I think I should address this to Mr.  
12 Arrington. Mr. Arrington, do you have before you what  
13 has been marked as LILCO Exhibit No. 27, which is a  
14 single page document entitled "Transcript Corrections,  
15 Document Control"?

16 A (WITNESS ARRINGTON) Yes.

17 Q All right. Would you tell the Board what this  
18 represents, please?

19 (Panel of witnesses conferring.)

20 A (WITNESS EIFERT) I will respond to the  
21 question, Mr. Ellis.

22 Q All right. Would you, please.

23 A (WITNESS EIFERT) These are changes to the  
24 transcript that we've been able to identify thus far  
25 that we believe are important to note for the record for



1 an understanding of the record. They may not be  
2 everything and we will add others if we see them.

3 MR. ELLIS: All right. We would move it into  
4 evidence at this time.

5 Judge Brenner, I would propose now to proceed,  
6 using what has been marked as LILCO Exhibit No. 27, and  
7 we are prepared to do so at the Board's pleasure. But I  
8 don't know whether you want us to bind it in now, do it  
9 now, or wait until tomorrow morning, given the hour.

10 JUDGE BRENNER: Let's wait. It's just three  
11 minutes before 5:00. It seems hardly worth it.

12 We have nothing else on the record for the end  
13 of the day. Does anybody else have any matters that  
14 need to be covered on the record today?

15 MR. ELLIS: LILCO has none, Judge.

16 JUDGE BRENNER: All right, we are adjourned  
17 for the day and we'll be back at 9:00 o'clock tomorrow  
18 morning.

19 (Whereupon, at 4:58 p.m., the hearing in the  
20 above-entitled matter was recessed, to reconvene at 9:00  
21 a.m. on Wednesday, November 10, 1982.)

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NUCLEAR REGULATORY COMMISSION

This is to certify that the attached proceedings before the  
ATOMIC SAFETY AND LICENSING BOARD

the matter of: LONG ISLAND LIGHTING COMPANY (Shoreham Nuclear Power  
Station)

Date of Proceeding: November 9, 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.

Susan A. Harris

Official Reporter (Typed)

*Susan A. Harris*

(SIGNATURE OF REPORTER)