

ORIGINAL

# UNITED STATES NUCLEAR REGULATORY COMMISSION

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IN THE MATTER OF:

DOCKET NO: STN 50-498-OL  
STN 50-499-OL

EVIDENTIARY HEARING  
HOUSTON LIGHTING AND POWER COMPANY,  
et al.  
(South Texas Project Units 1 and 2)

LOCATION: BAY CITY, TEXAS

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1  
2 UNITED STATES OF AMERICA  
3 NUCLEAR REGULATORY COMMISSION  
4 BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

5 -----X  
6 In the Matter of: DOCKET NO.  
7 HOUSTON LIGHTING AND POWER : STN-50-498-OL  
8 COMPANY, ET AL., : STN-50-499-OL  
9 (South Texas Project Units 1 & 2 :  
10 -----X

11 Matagorda County Courthouse  
12 Courtroom No. 2  
13 Bay City, Texas  
14  
15

16 Friday, 12 July 1985  
17

18 The hearing in the above-entitled matter was  
19 convened, pursuant to adjournment, at 9:00 a.m.,

20 BEFORE:

21 JUDGE CHARLES BECHHOEFER, Chairman,  
22 Atomic Safety and Licensing Board.  
23 JUDGE JAMES C. LAMB, Member,  
24 Atomic Safety and Licensing Board.  
25



1 JUDGE FREDERICK J. SHON, Member,  
2 Atomic Safety and Licensing Board.  
3

4 APPEARANCES:

5 On behalf of the Applicants:

6 MAURICE AXELRAD, Esq.,  
7 JACK R. NEWMAN, Esq.,  
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11 Washington, D.C.  
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14 On behalf of the Nuclear Regulatory Commission Staff:

15 EDWIN J. REIS, Esq.,  
16 ORESTE RUSS PIRFO, Esq.,  
17 Office of the Executive Legal Director  
18  
19

20 On behalf of the Intervenor:

21 LANNY ALAN SINKIN,  
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23 Washington, D.C. 20008  
24 Representative for Citizens Concerned About  
25 Nuclear Power.

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C O N T E N T S

WITNESSES	DIRECT CROSS BOARD REDIRECT RECROSS
JEROME H. GOLDBERG)	11495 11654
	11658

EXHIBITS	For Id	In Evd
CCANP Exhibit 71	11501	
CCANP Exhibit 72	11603	
CCANP Exhibit 73	11615	11620
CCANP Exhibit 74	11624	11639
Applicants Exhibit 57		11661
Applicants Exhibit 59		11662

1 JUDGE BECHHOEFER: Good morning, ladies and  
2 gentlemen. I guess you can see from the signs that we  
3 really are in session today.

4 Are there any preliminary matters before we  
5 begin the cross-examination of Mr. Goldberg?

6 MR. SINKIN: No.

7 JUDGE BECHHOEFER: Seeing none, Mr. Sinkin?

8 JEROME H. GOLDBERG,  
9 having been previously duly sworn, testified further  
10 upon his oath as follows:

11

12 CROSS EXAMINATION

13 BY MR. SINKIN:

14 Q Good morning, Mr. Goldberg.

15 A Good morning.

16 Q I think you were here for my opening  
17 statement, were you not?

18 A Yes.

19 Q Beginning on page 2 of your testimony at line  
20 15, you're talking about some of your prior  
21 experiences. You state, "I have been involved in  
22 analysis of technical questions very similar to the  
23 questions involved in application of 10CFR50.55(e)."

24 My only question is the previous involvements,  
25 were those precisely the types of questions that

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1 50.55(e) raises? You say similar. Are there any  
2 significant differences between the kinds of things you  
3 dealt with at Stone & Webster and at Quincy and a  
4 50.55(e)?

5 A At Stone & Webster my activities there were  
6 the same except I was functioning as the architect  
7 engineer. In that capacity we had the responsibility of  
8 identifying to the utility client matters that we  
9 perceived they may have a responsibility to report under  
10 50.55(e).

11 When I was associated with the Quincy  
12 Shipyard, Admiral Rickover had a requirement in his  
13 program that significant matters had to be brought to  
14 the attention of the Naval Reactors Branch through the  
15 use of problem reports. And the threshold for what  
16 constituted a problem was, of course, identified in  
17 rules promulgated by the Admiral's organization.

18 Q So, at Stone & Webster you were essentially in  
19 the same position that Brown & Root was in at STNP in  
20 1981?

21 A That is correct.

22 Q And at Quincy under Admiral Rickover, was the  
23 guidance that was provided, in other words, was that a  
24 fairly low threshold or did you have to actually do an  
25 analysis before you decided there was a problem? Do you

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1 understand my question?

2 A Yes.

3 Q Comparing it to 50.55(e), you're looking at a  
4 low threshold for having a problem or you have to  
5 actually know there was a problem?

6 A Well, I can't recall precisely what the  
7 criteria was, but you had to undertake the examination  
8 of the problem before you made your report that you had  
9 a problem.

10 Q While you were at Stone & Webster, did you  
11 make decisions on the initial notification to the NRC  
12 within twenty-four hours as provided in 50.55(e)?

13 A No.

14 Q Did you make any decisions on the actual  
15 reportability of deficiencies under 50.55(e)?

16 A We did in the context that when the Part 21  
17 rule came along, we had an obligation to ensure that  
18 certain matters were brought to the attention of the  
19 Nuclear Regulatory Commission which fell under Part 21.  
20 And under those conditions, the utility or licensee  
21 would be made aware that we were concerned about a  
22 problem that if he didn't report under 50.55(e), that we  
23 would be obligated to report under Part 21. So, there  
24 was dialogue of that type from time to time.

25 Q Because Part 21 added a special obligation to

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1 the architect engineer as opposed to the utility?

2 A Well, there was an obligation to really all  
3 the parties under the rules that any violation of the  
4 Atomic Energy Act of 1954 or the Energy Reorganization  
5 Act, as I recall, might constitute a need for a report  
6 under Part 21. So, if, for example, an architect  
7 engineer thought that something should be reported to  
8 the NRC under 50.55(e) and the utility might choose not  
9 to take that action, then the architect engineer may  
10 have to make that report under Part 21.

11 Q After coming to HL&P in October of 1980 and up  
12 to May the 7th, 1981, did you ever make the initial  
13 determination on whether to notify the Nuclear  
14 Regulatory Commission of a potentially reportable  
15 deficiency under 50.55(e)?

16 A I can't frankly recall.

17 Q Under the system in place at HL&P on May 7th,  
18 1981, did you have the responsibility for making the  
19 determinations on initial reportability of potentially  
20 reportable findings?

21 A When you say you, are you referring to me as a  
22 person, Houston Lighting & Power?

23 Q You, Mr. Goldberg.

24 A I had overall responsibility for the  
25 activities in engineering and construction and the

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1 chairman of the Incident Review Committee was a  
2 licensing engineer and he was under my charge. So, I  
3 did have responsibility for those reports.

4 Q Let me try the question again. Under the  
5 system in place at HL&P on May the 7th, 1981, did you  
6 have the responsibility to make the determination  
7 whether an initial report, an initial notification of a  
8 potentially reportable deficiency would be made to the  
9 NRC? The initial determination is the key phrase.

10 A Are you asking -- I'm not sure that I'm still  
11 clear on your question. Are you asking did I routinely  
12 have the responsibility of making the day to day working  
13 evaluations?

14 Q Let me contrast it, maybe that will help.

15 As I read your testimony, your primary  
16 responsibility was to review the decisions of others  
17 regarding what was notified to the NRC about 50.55(e)  
18 and to review the decisions of others on what was  
19 actually reportable. Is that an incorrect assessment of  
20 what your position was?

21 A That is only part of my responsibility, that  
22 is correct.

23 Q And what is the rest of your responsibility?

24 A I might initiate the matter of reportability.  
25 If in my judgment I saw a condition where I thought it

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1 might merit review, I would have initiated the review  
2 itself. I would call to the attention of the Incident  
3 Review Committee the need to review that matter.

4 Q But you don't remember ever having done that  
5 before May the 7th, 1981?

6 A I just don't recall. I've initiated a lot of  
7 reviews and I just would have great difficulty being  
8 certain of what might have occurred in that time frame.

9 Q You are not a member of the Incident Review  
10 Committee; is that correct?

11 A That is correct.

12 Q Did you ever have occasion to advise the  
13 Incident Review Committee on notification of potentially  
14 reportable items prior to the Incident Review Committee  
15 deciding to make a notification?

16 MR. AXELRAD: Mr. Chairman, may I have a  
17 clarification of the time frame of that question?

18 Q (By Mr. Sinkin) Prior to May 7th, 1981.

19 A I recall in December of 1980 coming upon  
20 information that purported the possibility that certain  
21 radiological analyses may not have been getting  
22 performed properly. When the matter came to my  
23 attention, I ordered a review in accordance with the  
24 requirements of potential reportability, either 50.55(e)  
25 or Part 21.

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1 Q On the incident of the radiological analysis,  
2 you did not actually make the determination on whether  
3 notification should be made to the NRC, did you?

4 A No.

5 Q Who did?

6 A At the time the head of the Incident Review  
7 Committee was, I believe, a gentleman -- I'm trying to  
8 recall his name. He was the licensing manager. His  
9 name will come to me. He now heads up the low-level  
10 waste facility for the State of Texas.

11 Q Rick Jacobs?

12 A Jacobs.

13 Q And he was head of the Incident Review  
14 Committee at the time?

15 A Yes.

16 Q And he made the decision himself or in  
17 consultation with the committee?

18 A In accordance with the review of the committee  
19 itself.

20 JUDGE BECHHOEFER: If my prior initial  
21 decision is right here, your next number is CCANP 71.

22 MR. SINKIN: We will ask that this document be  
23 marked as CCANP -- for identification as CCANP 71.

24 Q (By Mr. Sinkin) Mr. Goldberg, I've handed you  
25 a document that is an excerpt from the auditors handbook

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1 on deficiency reporting from Houston Lighting & Power.

2 You notice the cover is dated January 21, 1981.

3 It is my understanding -- well, let me talk  
4 about the excerpt for a second. What is excerpted is  
5 the section dealing with 50.55(e) reports. What is not  
6 here is a much larger section dealing with Part 21.

7 Do you recognize this document, Mr. Goldberg?

8 A No, I do not.

9 Q Let me ask you to turn to the fifth page. You  
10 see the heading PEP-11?

11 A Yes.

12 Q Are you familiar with PEP-11?

13 A Just vaguely. It's been a long time since  
14 I've looked at it.

15 Q Well, is it not true, Mr. Goldberg, that  
16 PEP-11 was the procedure at Houston Lighting & Power in  
17 May of 1981 for making decisions on notification to the  
18 NRC of potentially reportable deficiencies?

19 A It would appear so.

20 Q Is that not, in fact, what it says on the  
21 PEP-11 page that I called your attention to?

22 A Well, it has a date I understand of 5-16-80.  
23 And whether or not there was anything that superseded  
24 it, I frankly don't know.

25 Q Well, if you turn to the second page of this

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1 document, we have a memorandum from Mr. Barker to Mr.  
2 Robertson dated June the 12th, 1981. Do you see that?

3 I would just call your attention to the first  
4 sentence. It states, "The intent of this memorandum is  
5 to outline those specific areas in which current  
6 practice deviates from PEP-11, Revision 1, reporting  
7 design and construction deficiencies to the NRC due to  
8 instructions from either Mr. Goldberg, yourself or I."

9 As I read that line, it means that PEP-11,  
10 Revision 1, is the current practice, it is in place as  
11 of June 1981. And as I look at the first page of the  
12 PEP itself, the date 5-15-80 is Revision 1. Now, that  
13 says to me that this is the PEP that was in place in May  
14 of 1981. Do you agree to that?

15 A I said it would appear so.

16 MR. PIRFO: Objection, Your Honor. I'm not  
17 sure whether Mr. Sinkin is trying to refresh the  
18 witness' recollection with this document or if he's  
19 attempting to get it into evidence, he can offer it for  
20 the witness' recollection. But he's doing a good deal  
21 of characterizing the document. The witness has yet to  
22 say that his recollection was refreshed.

23 MR. SINKIN: I think the witness was about to  
24 say that his recollection was about to be refreshed.

25 THE WITNESS: No, I haven't said anything of 11503

1 the kind.

2 MR. PIRFO: The question is objectionable.

3 MR. SINKIN: Rather than worry about the  
4 question, I will go ahead and deal with part of the  
5 objection and move this into evidence as CCANP Exhibit  
6 71.

7 JUDGE BECHHOEFER: Any objections?

8 MR. AXELRAD: Mr. Chairman, there's yet to be  
9 any identification of the document as a document that is  
10 actually taken from HL&P files or that is an actual copy  
11 of whatever document Mr. Sinkin says it purports to be.  
12 We will have a later witness who will be testifying with  
13 respect to the procedures, both those that were in  
14 effect back in 1981 and the procedures that are in  
15 effect now. It would appear to me if Mr. Sinkin wishes  
16 to get into evidence whatever the procedure was at that  
17 time, that would be a more appropriate time to deal with  
18 that subject.

19 MR. SINKIN: Well, are you challenging the  
20 authenticity of the document?

21 MR. AXELRAD: I have not really had a chance  
22 to look at the document.

23 MR. SINKIN: I just want to know what you're  
24 saying.

25 Mr. Chairman, the document, as clearly states 11504

1 on its face, is the procedure for notifying the NRC --

2 MR. PIRFO: Objection, Your Honor. I object  
3 to Mr. Sinkin testifying as to what this document says.  
4 The document will speak for itself. If he wants --

5 JUDGE BECHHOEFER: Mr. Sinkin can argue why it  
6 should be introduced at this time or --

7 MR. SINKIN: Exactly. The witness is here to  
8 testify about the procedures for potentially reportable  
9 items being notified to the NRC. That's part of what  
10 this is all about. I think the document obviously comes  
11 in now at the beginning of this proceeding through Mr.  
12 Goldberg and that's the appropriate place.

13 MR. AXELRAD: Mr. Sinkin has indicated that  
14 this is an excerpt apparently he has prepared from some  
15 document that he obtained from some source. We do not  
16 believe it is appropriate to try to get it into evidence  
17 through an individual who has not had a chance to review  
18 it and who also has said that his recollection has not  
19 been refreshed.

20 MR. SINKIN: The document itself is a document  
21 produced by Houston Lighting & Power in discovery to the  
22 State of Texas.

23 MR. REIS: Mr. Chairman?

24 MR. SINKIN: The excerpt -- yes, Mr. Reis, go  
25 ahead.

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1 MR. REIS: The proper way was a request for  
2 admissions of the authenticity of the document before  
3 the hearing. We have this thing going on during the  
4 hearing. He wants to get it in. The thing is what  
5 procedure is to be followed to get it in to move the  
6 hearings along expeditiously. When you hand a witness a  
7 document of this nature and this extent, it is not the  
8 expeditious way. Who knows what's in the middle pages  
9 here.

10 MR. SINKIN: Mr. Chairman, we received the  
11 prefile testimony of the Applicants June the 26th and  
12 learned of what documents they introduced -- they  
13 intended to introduce or we thought they intended to  
14 introduce on June the 26th. We were then aware of what  
15 they would not be introducing. We had the opportunity  
16 to review their prefile testimony and to decide what  
17 documents we wanted to introduce.

18 I don't think there is any need -- I think  
19 what we're seeing here is what we're going to see  
20 throughout this hearing unless you cut it off real soon  
21 and that is the only way to prevent me from presenting  
22 my case is to prevent me from producing the documents.

23 MR. PIRFO: Objection, Your Honor. My  
24 objection is to his attempting to get this document into  
25 evidence through his questioning of the witness who has 11506

1 yet to say that his recollection is refreshed by this  
2 document. He has not had an opportunity to read this,  
3 nor has anybody else sitting up here. It's a lengthy  
4 document. You cannot slip this document in front of the  
5 witness and say isn't this the procedure that was in  
6 effect without giving the witness a chance to look at it  
7 or giving counsel a chance to look at it, for that  
8 matter.

9 MR. SINKIN: I'm perfectly willing to give Mr.  
10 Goldberg all the time that he needs to review this  
11 document to satisfy himself that it is exactly what I  
12 said it is.

13 MR. AXELRAD: Mr. Chairman, it is not possible  
14 for an individual to sit there and try to recall whether  
15 that was, in fact, the document that four years ago was  
16 a procedure which was in use, particularly when Mr.  
17 Sinkin has explicitly said that it is an excerpt.

18 My recollection is we have had this kind of  
19 problem in the past. We have no desire to prevent Mr.  
20 Sinkin in conducting whatever type of cross-examination  
21 he believes is necessary to further his case. However,  
22 to the extent that what we're going to have in this  
23 proceeding is an attempt -- not an attempt, but a desire  
24 on CCANP's part to introduce a lot of exhibits which  
25 presumably they believe are not controversial in any

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1 fashion.

2 It would be a lot more expeditious if Mr.  
3 Sinkin were to make available to us at a recess sometime  
4 whatever documents it is that he plans to introduce. We  
5 can have those reviewed to make sure they are authentic,  
6 no problems with it, and then the documents can be  
7 introduced quite readily. It's just the difficulty in  
8 looking over twenty or thirty pages at this point in a  
9 document that's four years old and having a witness who  
10 does not mention the specific document in his testimony  
11 try to identify it.

12 MR. PIRFO: If I could just clarify my  
13 objection, Your Honor. My objection was to the  
14 question, not to the document. I have yet to object to  
15 his using the document to attempt to refresh the  
16 witness' recollection. He can use whatever to attempt  
17 to do that, but the witness has yet to state that his  
18 recollection is refreshed by this document. Mr. Sinkin  
19 is attempting to get in substantive evidence that is  
20 contained in this document by his questioning as opposed  
21 to the witness' answers. That's my objection.

22 MR. SINKIN: Let me rephrase the question.

23 Q (By Mr. Sinkin) Actually, I want to give you  
24 as much time as you need, Mr. Goldberg, to review this  
25 document. Have you had a chance to read through it?

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1 A I'm still reading.

2 Q You're still reading? Go right ahead.

3 MR. AXELRAD: Mr. Chairman.

4 (No hiatus.)

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P.2

1           A     I've completed reading the PEP-11 Rev. No. 1  
2     dated may 16, 1980.

3           Q     Having completed reading this, is your memory  
4     now refreshed that that was the procedure at Houston  
5     Lighting & Power in May of 1981 for deciding on  
6     notification to the NRC of potentially reportable items?

7           A     I don't think it could have been

8           Q     Why is that?

9           A     Well, it contains a number of organizational  
10    discrepancies that don't match up with the organization  
11    that existed in May of 1981.

12          Q     Could you point those out?

13          A     Well, the ones that come to mind, not only the  
14    organizations but some procedural items. The ones that  
15    come to mind, there is a feet of this procedure that  
16    talks about notifying resident inspector.

17          Q     Could you give us a page reference?

18          A     Well, let's go back and find it. On page four,  
19    it would be the second paragraph where it talks about the  
20    project QA manager or team leader of the nuclear safety  
21    and licensing group shall notify the resident reactor  
22    inspectors within 24 hours of receipt of each incident  
23    considered to be possibly reportable.

24                If my memory serves me correctly, it was my  
25    view and the view of Mr. Robertson that notifying the

1 resident inspector could not constitute notifying the  
2 inspection and enforcement branch. It was our  
3 understanding that notification had to be made to the  
4 regional headquarters in Arlington.

5 Somewhere along the line, we instituted that  
6 change. But I don't see it in evidence in this document.

7 Q Let me call your attention to the third page of --  
8 excuse me, you've got the -- the third page two cover  
9 letters and then you have attachment one.

10 Do you see attachment one?

11 A I was reading from attachment two.

12 Q Okay. I know you were. But now I'm calling  
13 your attention to attachment one. Item 5.6 six, incident  
14 notification.

15 A It appears that that identifies the type of  
16 procedure or practice that I recall.

17 Q Let me return you to the memorandum from Mr.  
18 Barker to Mr. Robertson, the second document. And that  
19 first sentence that I earlier called your attention to.  
20 Just ask you to read that sentence again, please.

21 Now, you testified that you and Mr. Robertson  
22 believed that the regional office had to be notified and  
23 therefore, you instituted a procedure different from  
24 what's in PEP-11. And that procedure is indeed reflected  
25 in the attachment one, current practice description of

1 incident notification.

2 MR. AXELRAD: That's a question, Mr. Chairman?

3 Q (By Mr. Sinkin) Is that correct?

4 A What is the question specifically, please.

5 Q You and Mr. Robertson discussed the fact that  
6 it was your view that notifying the resident reactor  
7 inspector was not sufficient, that Region IV needed to be  
8 notified, and you changed the procedure to include  
9 notification of Region IV. Is that correct?

10 A That's my recollection.

11 Q So that your Page 4 representation in PEP-11 as  
12 changed by the incident notification current practice in  
13 attachment one would have been the current practice in  
14 May of 1981. Is that correct?

15 MR. AXELRAD: Mr. Chairman, the witness has yet  
16 to indicate in response to any question that he recalls  
17 the particular document dated June 12, 1981, which is  
18 inclusion one -- or which is a cover memorandum to this  
19 material, or attachment one, per se. And before Mr.  
20 Sinkin can question him as to whether or not that is in  
21 fact the document which reflects changes that he had in  
22 mind at that time, I believe he has to lay the proper  
23 foundation by asking him whether that is, in fact, a  
24 document that he remembers.

25 MR. SINKIN: Well, I'm attempting to refresh

1 Mr. Golberg's memory. He looked at the document, he said  
2 it couldn't be the procedure for notification to the NRC  
3 because they were discrepancies; we're now looking at  
4 what those discrepancies are. And perhaps through the  
5 process of looking at those discrepancies, his memory  
6 will be refreshed.

7 MR. AXELRAD: And Mr. Sinkin has properly asked  
8 him about individual discrepancies but now he's asking  
9 whether this specific document has done that.

10 JUDGE BECHHOEFER: Let me ask a question which  
11 may foul everything up. Why is a June 12, 1981  
12 memorandum, an attachment to a January 21, '81,  
13 memorandum.

14 MR. AXELRAD: To whom that's question, being  
15 addressed, Mr. Chairman?

16 JUDGE BECHHOEFER: Anybody who can answer it.  
17 Either Mr. Sinkin or Mr. Goldberg, if he knows.

18 THE WITNESS: I have never seen, to the best of  
19 my recollection, this memo dated June 12, 1981.

20 JUDGE BECHHOEFER: My further question is maybe  
21 one of the years is either 1981 or 1982 or 1980, as the  
22 case may be, because normally a January 21 transmittal  
23 memo would not be sending a June 12 --

24 MR. AXELRAD: Mr. Chairman, may I repeat the  
25 suggestion I made before in this proceeding? This

1 proceeding is going to take a very long time if we are  
2 going to be faced with having to answer questions of this  
3 kind without having seen documents beforehand.

4 If Mr. Sinkin is trying to surprise a witness  
5 in cross-examination, he's entitled to do that in some  
6 fashion. But if what Mr. Sinkin is trying to do is to  
7 get some materials into evidence, and try and get their  
8 authenticity specified, we would ask the Chairman to  
9 instruct him at the next recess to identify all those  
10 documents for us. We could have the people who are  
11 familiar with these documents if they are here, look at  
12 them, we might be able to stipulate as to their  
13 authenticity and get them admitted.

14 There are any number of ways that this  
15 proceeding can be expedited. And clearly, my  
16 recollection is that we had this kind of problem in the  
17 first phase and that we decided the way to take care of  
18 it was to have counsel cooperate beforehand.

19 In addition to which, it appears to us that  
20 even though there was no explicit order by the Chairman --  
21 by the Board in that regard, Ms. Sinkin did have an  
22 obligation to present his direct case back in June 26  
23 when all of us provided our testimony and we identified  
24 our exhibits. And if there were materials he wanted to  
25 make part of his direct case, it would have been

1 appropriate for him to notify all the parties and the  
2 Board back on June 26th what it was that he wanted to  
3 introduce as part of his case.

4 MR. SINKIN: This is hardly my direct case. I  
5 believe I'm cross examining on your direct case.

6 JUDGE BECHHOEFER: Be that as it may, documents  
7 of this type, I'd be the first to admit that I would just  
8 as soon know what the procedures were on May 7th, '81.  
9 So I think that it would be appropriate for some set of  
10 procedures to be put into evidence, whether this is --  
11 these are those procedures, I can't tell you. And for  
12 authenticity purposes, it would be desirable to, if you  
13 could, contact the Applicant beforehand on this type of  
14 document, which I would not think that whatever the  
15 procedures were should be a controversial matter.

16 Q (By Mr. Sinkin) One last time, Mr. Goldberg,  
17 have you recognized this document?

18 A I have not --

19 MR. PIRNO: Objection, Your Honor he said he  
20 never saw the June 12, 81 memo. Are we talking about  
21 this document? There are a number of attachments, and  
22 I'm not sure where one document starts and another begins  
23 and the witness has testified he's not seen the June 12  
24 1981 memo at all.

25 Q (By Mr. Sinkin) How about POP-11, Mr.



1 Goldberg, is your memory now refreshed about, PEP-11 at  
2 all?

3 A I'm not enable to give you a absolute yes or no  
4 on that, either. And let me explain why. After I  
5 arrived on the project, and Mr. Robertson arrived shortly  
6 thereafter, one of the early things we were concerned  
7 about was whether or not we had in place a good rigorous  
8 system for reporting deficiencies to the NRC. And in the  
9 course of reviewing the program that existed at the time,  
10 there were a number of changes instituted. And as I  
11 remember, some of these changes were not yet planted into  
12 a final document.

13 And I can't sit here and tell you whether  
14 what's in front of me is the paper trail that purports to  
15 identify the procedure and the changes.

16 Perhaps Mr. Robertson's memory might be better  
17 than mine on these particular points.

18 Q Thank you, Mr. Goldberg.

19 MR. SINKIN: Mr. Chairman, we are willing, I  
20 mean, at the lunch break or whatever, to submit to the  
21 Applicant the documents that we would like authenticated,  
22 make it easy for them to come in. That won't be a  
23 problem.

24 What I'd like to do is improve this one, that  
25 you're on notice that I'd like this authenticated,



1 please. And I would represent to you that the excerpt as  
2 I looked at the document, that the excerpt was the 50.55  
3 (e) section that was relevant, and was not included was a  
4 larger part 21 section which I did not think was  
5 relevant.

6 On any document where we submit an excerpt, the  
7 Applicant obviously that the option of completion, if  
8 they wish.

9 JUDGE SHON: I think the problem that the  
10 Chairman noticed with the dates on the memos stems from  
11 the fact that what has been put on the top of this stack  
12 is a cover memo for the auditors handbook which is at the  
13 bottom of this stack, a book that has apparently no page  
14 numbers or anything. And it has got a cover memo  
15 transmitting the second memo down in the stack. In other  
16 words, there's a page out of order, in effect. And I'm  
17 not suprised at that. The thing is a complex document  
18 with many parts, and they don't seem to have been  
19 assembled in necessarily the order that they were  
20 produced, chronological or otherwise.

21 The January 21st memo -- t PEP-11; either  
22 relates apparently only to the auditors handbook which is  
23 the bottom of this stack.

24 MR. SINKIN: Exept that as I look at the table  
25 of contents of the auditors handbook, one of the contents

1 is section three, reporting of defects. So I suspect  
2 that this is -- this is the actual order the document was  
3 in when I got it. So maybe it is out of order and the  
4 Applicants can cure that for us, too, in their checking  
5 of the document.

6 JUDGE BECHHOEFER: The Board thinks we will  
7 defer admission of this document for the time being, Mr.  
8 Sinkin. You may ask questions based on it. And subject  
9 to authenticating it later, we'll decide on whether it  
10 goes in or not.

11 MR. SINKIN: I'm going to move on from this  
12 document, Mr. Chairman.

13 JUDGE BECHHOEFER: Just refer to this one for  
14 the moment amount CCANP 71 for identification.

15 Q (By Mr. Sinkin) Mr. Goldberg, turning in your  
16 testimony to Page 4, you state that when you came to  
17 Houston Lighting & Power, you learned that Brown & Root  
18 had recently developed a system design assurance group.  
19 Can you tell us when Brown & Root initiated the systems  
20 design assurance group?

21 A I think it was sometime in the spring of 1980.

22 Q And what was the purpose of this group?

23 A My understanding was that the group was  
24 organized to provide a further review of the design --  
25 the design of systems to assure that the various

1 features, whether they been mechanical, electrical or  
2 instrumentation, were all compatible, one to the other.

3 Q What do you mean by compatible?

4 A That they got along well together.

5 Q I don't think this is a relationship we're  
6 describing in the sense of a human relationship?

7 A They have a technical companionship that  
8 mathces.

9 Q That were one system is required to enter act  
10 with another system, the interaction take place in an  
11 appropriate way?

12 A Or that the pumping horsepower is satisfied  
13 with appropriate motor horsepower in the event of a motor  
14 driven pump.

15 Q When you have something like this system design  
16 assurance group, is one of the purposes, to give you a  
17 view of the design and engineering without technical  
18 boundries?

19 MR. AXELRAD: Can we have that question  
20 restated or clarified? I'm not sure I was able to follow  
21 it.

22 MR. SINKIN: I will restate it. I think Mr.  
23 Goldberg knows where I'm heading. I'll try again.

24 Q (By Mr. Sinkin) When you have a system design  
25 assurance group like Brown & Root was setting up, isn't

1 that group's purpose to look at the systems engineering  
2 without being broken up into particular disciplines, to  
3 give an overview approach to systems?

4 A I think it's fair to call it an overview  
5 approach, yes.

6 Q Is it your view that having a systems group  
7 such as this is a good engineering technique?

8 A It's a very efficient way of designing systems.  
9 There are lots of ways it can be done; some ways clearly  
10 give you more efficient results; you get the results you  
11 want probably with the expenditure of a lot less  
12 manhours.

13 Q Is it your view that good design can be  
14 accomplished without such a group?

15 A Yes.

16 Q Is it not also your view, though, that in the  
17 absence of a systems group, the design organization will  
18 not tend to interface as well because they will instead  
19 tend} to be parochial, they will tend to concentrate on  
20 their own discipline rather than think of the system?

21 A I'd say that that could happen with or without  
22 a systems group. I think, you know, the interface from  
23 one technical discipline to another to a large extent is  
24 a function of the technical leadership of the project.  
25 Having a systems overview group is a tool that could

1 serve the head of that engineering project.

2 But I'm saying it's not essential that you have  
3 that in place to have good system interaction and good  
4 discipline interaction.

5 Q I guess I was seeking a comparison that you  
6 would be more likely to achieve good systems integration  
7 with this broad overview group than you would if the  
8 systems integration was the responsibility of each  
9 discipline, because the disciplines tend to be parochial  
10 in their view.

11 MR. AXELRAD: Mr. Chairman, I don't believe I  
12 heard a question.

13 Q (By Mr. Sinkin) Is that correct?

14 MR. AXELRAD: Could we have a repetition of  
15 what "that" refers to at this point, it was a very  
16 lengthy statement by Mr. Sinkin.

17 JUDGE BECHHOEFER: Do you want the reporter to  
18 read it or do you want to repeat it?

19 MR. SINKIN: I'll do it again, Mr. Chairman,  
20 but I do have the feeling that if counsel would give the  
21 witness a chance to answer the question, the witness  
22 understand what I'm trying to ask.

23 MR. AXELRAD: Mr. Chairman, I think it's going  
24 to be important for this proceeding that questions be  
25 stated succinctly and clearly so that whether or not the

1 witness believes he understands it, the record that we  
2 have established reflects something that people other  
3 than the witness and the questioner will be able to  
4 understand afterwards.

5 MR. SINKIN: Fine.

6 Q (By Mr. Sinkin) Let me try it a different way,  
7 Mr. Golberg. If you don't have a systems group, if  
8 you're doing systems engineering by relying on the  
9 technical disciplines to do it, aren't you less likely to  
10 achieve perfection, or less likely to achieve your  
11 overall goal, because the disciplines tend to be focused  
12 on their own kind of work, mechanical on mechanical,  
13 electrical on electrical, and less inclined to look at  
14 the entire system that a systems design group would?

15 MR. AXELRAD: There were two separate  
16 questions, one was with respect to achieving perfection  
17 and the other one was with respect to achieve your goals.  
18 I would like to be sure which question it is that Mr.  
19 Sinkin is asking.

20 MR. SINKIN: Either one.

21 MR. REIS: That is not sufficient. We're  
22 involved in a serious proceeding. And if that type of  
23 questioning is allowed, the staff objects to it.

24 MR. SINKIN: All I did was revise the question  
25 as it was being asked, Mr. Chairman. I said "perfection"

1 and then I said, "Well, at least achieve your goal. We  
2 can read it back if we want, I'll do the question again.

3 MR. AXELRAD: Mr. Chairman, it would be useful  
4 if Mr. Sinkin asked a shorter question and asked a number  
5 of questions, if he has a number of objectives in mind.  
6 Even if he rereads it, that is a very lengthy question.

7 MR. SINKIN: I'll try that, if it will make  
8 things easier I'll try that.

9 Q (By Mr. Sinkin) Mr. Goldberg, do engineering  
10 disciplines tend to be parochial and view their own  
11 operation be it mechanical, electrical, civil structural,  
12 whatever, as the main focus and tend to ignore systems?

13 A Partially correct. Whenever you organize a  
14 technical project, clearly you do have individual  
15 disciplines. Depending on how you organize a project and  
16 where you tie those disciplines together, could make a  
17 difference in the effectiveness of their output in terms  
18 of does one match the other. Your earlier question about  
19 whether or not you would get something less, perhaps,  
20 than desired quality level without a systems assurance or  
21 integration group, it's clearly possible and it's been  
22 demonstrated on many projects that you can get the  
23 desired level of quality without such a group

24 I said that it then places the burden on the  
25 technical leadership of the project to make sure that



1 those elements come together.

2 Q Are you more likely to achieve the desired  
3 level of quality if you have the systems group than if  
4 you don't have it?

5 A It is possible to get it both ways. I said  
6 that you'll get it more efficiently if have you a group  
7 designated to do the overview coordination.

8 Q Is the absence of the systems group more  
9 significant for a less experienced engineering  
10 organization and I mean comparing one nuclear  
11 organization to another nuclear organization, if you have  
12 less experience in organization A than you have in  
13 organization B? Is it more important to the less  
14 experienced organization that it have a systems design  
15 group?

16 A No, I don't think so. Clearly an organization  
17 that has less experience is less likely to have the  
18 resources to have systems integration group. However,  
19 under strong technical leadership, you'll have a system  
20 for getting your job done that will be adequate. So the  
21 chances are that you will be less likely to find a  
22 systems engineering group in an engineering organization  
23 that's relatively new, to this particular business.

24 Q But if the engineering organization is  
25 relatively new, then the discipline engineers in that



1 organization are relatively new, to this task. Is that  
2 correct?

3 A May be, may not be. He may be a discipline  
4 engineer with 30 years experience.

5 Q When you came to Houston Lighting & Power, did  
6 you find that the Brown & Root design engineering  
7 organization was characterized by experienced people?

8 A The man that was in charge of it was a very  
9 experienced engineer, with many years of experience.

10 Q Who was that?

11 A That was Mr. Eugene Salterelli.

12 Q And he was there when you came in October of  
13 1980?

14 A Yes, he was.

15 Q And within each discipline, was there an  
16 experienced technical leader?

17 A I would say it varied. There were some that  
18 had some very seasoned and experiences people and I'm  
19 sure there were others that were not of quite that  
20 caliber.

21 Q When you came to Houston Lighting & Power, did  
22 you shortly there after insist that Brown & Root place a  
23 systems engineer in each discipline?

24 A I don't believe that was the case at all. I  
25 think when I came to Houston Lighting & Power, I insisted

1 that we have a system engineer responsible for each  
2 system, HL&P that is.

3 Q HL&P did not have a system engineer in each  
4 discipline at that time?

5 A No. We had discipline engineers. I did not  
6 have an engineer called the cognizant system engineer. I  
7 wanted the organization structured with that concept; I  
8 felt that as the licensee with the responsibility to  
9 overview the work of the contractor, that that would put  
10 us in a more advantage us position to review his work.

11 Q Would that lead to improved review of the work  
12 over what had been done before?

13 A I believe it would have be an improvement.

14 Q As far as the Brown & Root systems design  
15 group, was it was it your opinion that this group should  
16 have been developed earlier in the project than it was?

17 A I'm not sure I can tell you whether that would  
18 have been an opinion. I'd have to have had more personal  
19 contact with the way Brown & Root was structured in years  
20 earlier. It was in place when I arrived, and given what  
21 other organizational entities existed, it struck me that  
22 it was a good way of trying to do business.

23 Q Did you look into when the group had been  
24 established?

25 A I think I answered that question earlier, I

1 thought it was in the spring of 1980.

2 Q That was your answer. But today you remembered  
3 that it was in the spring of 1980, I'm really asking you  
4 in October of '80 when you came to Houston Lighting &  
5 Power, did you inquiry as to whether Brown & Root had  
6 established a systems design group?

7 A I'm sure I inquired. But as far as what I  
8 received in response to that inquiry, it was sometime in  
9 the spring of 1980.

10 Q Do you feel that the development of a system  
11 design group at Brown & Root in the spring of 1980 was a  
12 timely act or should it have been done earlier?

13 A Mr. Sinkin, I may have misunderstood your  
14 previous question but for some strange reason, I think  
15 I've answered that question. I told you I cannot surmise  
16 whether it would have been prudent to do it earlier  
17 without having known what was in place earlier. I did  
18 not make a study of the evolution of Brown & Root's  
19 engineering organization. I saw what was there when I  
20 arrived and it seemed to me that having that systems  
21 integration group was a good feature.

22 Q Mr. Goldberg, I'm going to show you a section  
23 of your deposition give to the State of Texas and ask you  
24 to read a question and an answer for me, please.

25 MR. PIFRO: We object. Can we find out where

1 he's referring to?

2 MR. SINKIN: I don't have a copy. But I'll be  
3 happy to --

4 MR. PIFRO: Can I get a page, then?

5 MR. SINKIN: I can give you a page number, yes,  
6 Page 16, 17.

7 MR. AXELRAD: Page 16, 17.

8 MR. SINKIN: This is a xerox of the State of  
9 Texas deposition.

10 THE WITNESS: Could I see the whole document so  
11 that I could get the context of the conversation before  
12 we get to this question?

13 Q (By Mr. Sinkin) Let me get you to read the  
14 question and answer, Mr. Goldberg and if you think you  
15 need a context, I think the question and answer are  
16 fairly discrete items. But if you think you need a  
17 context, we will go back and look at the document and you  
18 can review it for any contextual remarks you wanted to  
19 make. The question that I'd like you to read is this  
20 question and the answer that follows it.

21 MR. GUTTERMAN: I wonder if he could see it so  
22 that we can understand --

23 MR. SINKIN: The question I would like you to  
24 read is question found at Page 16, Line 20, and the  
25 answer as ending on Page 17, Line 7.

1 THE WITNESS: "Q. Do you recall any particular  
2 areas which were brought to your attention by your people  
3 that caused you heightened concern about Brown & Root's  
4 performance in the design area?

5 "Well, I was concerned about the relatively few  
6 numbers of people that Brown & Root had which I viewed as  
7 having adequate experience. I was concerned about the  
8 fact that they had very recently, at that point in time,  
9 we're talking late 1980, they had recently instituted a  
10 system engineering capability. That signalled to me that  
11 there was probably considerable system design work that  
12 lie ahead for the project."

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1 Q (By Mr. Sinkin) Now, do you feel the need to  
2 see a context for that or --

3 A I don't -- I don't know. Maybe I ought to  
4 just look at a few questions before and make sure I  
5 followed where the gentleman was going.

6 Q Do you feel the need for any contextual  
7 remark?

8 A No.

9 MR. AXELRAD: Did you leave the question and  
10 answer with the witness?

11 MR. SINKIN: I'll be happy to do that.

12 Q (By Mr. Sinkin) Mr. Goldberg, turning to a  
13 different topic, was there an effective systems  
14 integration and overview function --

15 MR. AXELRAD: Mr. Chairman, I'm not sure I  
16 understand. Was the purpose of reading that particular  
17 question and answer to ask questions based upon that?

18 MR. SINKIN: The purpose was to put into the  
19 record Mr. Goldberg's answer in his deposition in the  
20 State of Texas and that's what I've done. If you'd like  
21 me to ask some more questions --

22 MR. AXELRAD: No, I just wanted to make sure I  
23 understood what the --

24 Q (By Mr. Sinkin) Well, all right, we'll go a  
25 little further with it, Mr. Goldberg. We'll go a little

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1 further with it.

2 The answer says that -- at line 5 on page 17  
3 that the recent institution of the systems engineering  
4 capability signaled to you that there was probably  
5 considerable system design work that lay ahead for the  
6 project, correct?

7 Were you concerned with the amount of system  
8 design work that lay ahead for the project? Was it an  
9 indication to you -- let me just ask you were you  
10 concerned with the amount that lay ahead of you?

11 A Yes.

12 MR. AXELRAD: Mr. Chairman, may I ask that  
13 counsel sit down?

14 Q (By Mr. Sinkin) Why were you concerned?

15 A Well, this job had been in the engineering  
16 cycle since probably about 1973 and here it was 1980,  
17 and they instituted the system design review because  
18 Brown & Root apparently felt that they needed that  
19 strength. And I just had to believe that that foretold  
20 that there was considerable work that might lie ahead.  
21 That once you put that group in place, there's a  
22 likelihood that they're going to identify a lot of  
23 additional engineering work that's going to have to be  
24 performed. It might mean that some systems will be  
25 modified because they're not in sync with other systems

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1 conceivably.

2 Q So, it would be better engineering practice,  
3 would it not, to institute such a group earlier in the  
4 project?

5 MR. AXELRAD: That question has been answered  
6 at least twice this morning, Mr. Chairman. I object.

7 MR. SINKIN: I agree that it has been  
8 answered, Mr. Chairman. But it seems that the testimony  
9 he's just given is that he was concerned they had waited  
10 so long because it was going to be a problem. I'm  
11 asking if it would have been better engineering  
12 procedure to have done it earlier.

13 MR. AXELRAD: That's not a fair  
14 characterization of the witness' answer, Mr. Chairman.

15 MR. REIS: Mr. Chairman? Mr. Chairman, I also  
16 have an objection of a different nature. I don't know  
17 whether you want to hear it now before you rule or  
18 afterwards. But it's the entire line in that the entire  
19 line isn't relevant to the issues in this part of the  
20 proceeding.

21 We are going back and looking at what Brown &  
22 Root did again. The issues here are Applicants' failure  
23 to report Quadrex under McGuire, under 50.55(e) issues B  
24 and D that are laid out in your opinion. None of this  
25 stuff, this material with Brown & Root -- unless -- now 11532



1 it is possible that Mr. Sinkin can connect it up. But  
2 he better make a statement for the record.

3 We've gone now for most of an hour on what  
4 Brown & Root did in the past and what their procedures  
5 were in the past. Now, I thought this proceeding was to  
6 deal with reportability and how the project is getting  
7 along now, not with what Brown & Root did in the past.  
8 And I object to the entire line on the grounds of  
9 relevance.

10 JUDGE BECHHOEFER: Mr. Reis, it seems that the  
11 line stems from the direct testimony, answer 7, page 4.

12 MR. SINKIN: Furthermore, Mr. Chairman, I  
13 would respond, the relevance is in the question asked by  
14 the Applicants in their direct testimony, why did HL&P  
15 decide to initiate a review of Brown & Root engineering  
16 in 1981.

17 JUDGE BECHHOEFER: That's what I just referred  
18 to. I'm saying it stems right from the direct  
19 testimony. So, unless we want to strike that, I think  
20 we'll not strike the questions on relevance at this  
21 stage.

22 The Board does think the question's been asked  
23 and answered before. We'll uphold the objection on that  
24 ground.

25 Q (By Mr. Sinkin) Mr. Goldberg, one of the

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1 problems that the Quadrex report addressed was whether  
2 or not Brown & Root had an effective systems integration  
3 and overview function. Was there an effective systems  
4 integration and overview function within the Brown &  
5 Root organization prior to creation of the systems  
6 design assurance group or do you know?

7 A I do not know.

8 Q When the Brown & Root systems design assurance  
9 group actually began operating, did their reviews  
10 disclose serious design deficiencies?

11 A Your question was when they --

12 Q After they began to perform, did their reviews  
13 disclose serious design deficiencies?

14 A I'm trying to recall whether there were any of  
15 those that occurred before the change of responsibility  
16 for the engineering of the plant.

17 MR. AXELRAD: Mr. Chairman, may I get a  
18 clarification of the question as to what time frame Mr.  
19 Sinkin is talking about, as to whether it's before Mr.  
20 Goldberg came on the job in April 1980 or after October  
21 1980?

22 Q (By Mr. Sinkin) It is entirely possible to  
23 me, Mr. Goldberg, that you would know if the systems  
24 design group had found something before you arrived and  
25 that you would also know after you arrived. So, maybe

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1 we'll divide it that way.

2 Were you aware of any serious design  
3 deficiencies found by the systems integration group  
4 before you arrived in October of 1980?

5 A I was aware of some problems that were found,  
6 but I have no way of knowing if they were found by the  
7 systems integration group. I'm not even sure in the  
8 time frame of when they were found. But they were  
9 problems that my engineers brought to my attention that  
10 were there prior to my arrival, so --

11 Q But you don't know if they were found by that  
12 particular group is what you're saying?

13 A I have no way of knowing if they were found by  
14 that group and I have no way of knowing when they were  
15 found.

16 Q After your arrival?

17 A After I arrived, I was think -- that's the  
18 context I was seeing your question. I'm not sure I can  
19 recollect with confidence whether we found any major  
20 problems during that period from late fall 1980 through  
21 late summer of 1981. I know that subsequent to the  
22 change of contractors we did find some problems.

23 Q Was there an effective systems integration  
24 group at Brown & Root at the time Quadrex did the study?

25 A The systems integration group was in place and 11535

1 the characterization from my engineers at The Light  
2 Company was that they felt that it was an effective  
3 group. I had no reason to believe that what was in  
4 place at that juncture was not adequate.

5 Q Did you later have reason to question whether  
6 they had an effective systems engineering group?

7 MR. AXELRAD: Mr. Chairman, at this point I  
8 will object to the line of questioning as being beyond  
9 the scope of this hearing and the scope of the testimony  
10 that was given here. The only reason that particular  
11 sentence appears in that answer is it's obviously a  
12 response to the question why HL&P decided to initiate a  
13 Brown & Root systems integration group in 1981. It's  
14 put in as a technical matter as to why the Quadrex  
15 review was initiated.

16 At this point Mr. Sinkin is seeking to go into  
17 additional views of the witness with respect to  
18 effective engineering of Brown & Root after this  
19 decision was made and that has no relevance to the  
20 matters before this Board at this time.

21 MR. SINKIN: Well, Mr. Chairman, obviously it  
22 has relevance if the Quadrex review itself raised a  
23 question in his mind as to whether they had an effective  
24 systems integration group, so let me ask that question  
25 instead.

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1 A I thought I just answered that.

2 Q (By Mr. Sinkin) Well, maybe you didn't  
3 understand my first question. My first question was at  
4 the time Quadrex was doing its study -- let's start --  
5 let's go day by day. When Quadrex began its study in  
6 January of 1981, did you have any reason to believe that  
7 the systems integration group at Brown & Root was not  
8 effective?

9 A I had no reason to believe that.

10 Q May 7th, 1981 when Quadrex delivered its  
11 report, by that time did you have any reason to believe  
12 that the Brown & Root systems integration group was not  
13 effective?

14 MR. AXELRAD: Mr. Chairman, I object to that  
15 question again. It is not relevant to this proceeding.  
16 This proceeding deals with the reportability of the  
17 matters that Quadrex found. If he wants to get into a  
18 particular finding in the Quadrex report which is part  
19 of the findings that the Board has identified as to  
20 their reportability, Mr. Goldberg can then answer  
21 questions pertaining to reportability of those matters.  
22 That has nothing to do with what his views may have been  
23 of the adequacy of the engineering that was being  
24 conducted at that time, it's a matter of reportability.

25 JUDGE BECHHOEFER: How about Mr. Goldberg's 11537

1 satisfaction with -- how about Mr. Goldberg's  
2 satisfaction with Brown & Root during the period of the  
3 early summer '81 hearings which is an issue?

4 MR. AXELRAD: Well, if that is Mr. Sinkin's  
5 desire to cross-examine, that's fine. My impression was  
6 Mr. Sinkin was getting into this in the context of this  
7 particular question which dealt with the Quadrex  
8 report. If that would have been his answer to my  
9 objection, I believe that the Board could then have  
10 ruled.

11 MR. SINKIN: Well, I'm taking him through a  
12 time frame, Mr. Chairman, in which the events flow  
13 together. You come up on deciding to do Quadrex, you  
14 commission Quadrex, Quadrex begins, Quadrex delivered  
15 its report, the hearings begin, Quadrex is evaluated, it  
16 begins to mesh together. I didn't see any reason to  
17 separate out. I will be asking questions in both  
18 areas. If an objection is raised, I will try and  
19 clarify which area it is I'm asking.

20 So, let me go back to the question, if that's  
21 all right.

22 JUDGE BECHHOEFER: I think we'll overrule the  
23 objection, in any event.

24 Q (By Mr. Sinkin) May 7th, 1981, Quadrex  
25 delivered its report to you. At that time do you have

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1 any concerns, doubts -- do you have any doubts about  
2 whether there is an effective systems integration  
3 program at Brown & Root?

4 A Our review of that particular finding  
5 indicated that Quadrex had not been exposed to the  
6 systems integration group and therefore we felt that  
7 that finding was not based on complete information. So,  
8 we did not believe that that in itself constituted an  
9 indictment of systems integration, but rather a lack of  
10 having and identifying all the activities that were  
11 going on.

12 Q But wasn't it a fact that Quadrex did have  
13 present at some of their meetings representatives from  
14 the systems design assurance group?

15 A I wasn't there. I can't comment on that.

16 Q At the time Quadrex did its study, was that  
17 systems design assurance group totally integrated with  
18 the ongoing design and engineering process?

19 A As far as I know, it was.

20 Q Such that there would be daily interactions  
21 between disciplines in that group?

22 A You're getting at a level of detail which I'm  
23 not personally familiar.

24 JUDGE BECHHOEFER: Mr. Sinkin?

25 MR. SINKIN: Yes.

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1 JUDGE BECHHOEFER: I don't know if you're at  
2 your next topic yet, but we are going to take a morning  
3 break at some point.

4 MR. SINKIN: One more. One more question I  
5 think and then I'll be --

6 JUDGE BECHHOEFER: Okay.

7 MR. SINKIN: Actually, Mr. Chairman, it is  
8 going to take me a few more questions to finish this  
9 line, so I'd be happy to --

10 JUDGE BECHHOEFER: That's okay.

11 MR. SINKIN: All right.

12 JUDGE BECHHOEFER: I figured when you get  
13 to when your subject matter changes.

14 Q (By Mr. Sinkin) Well, is it your testimony,  
15 Mr. Goldberg, that in the period of time that these  
16 hearings were held in 1981, let's talk about May, June,  
17 July 1981, the summer of 1981, during that period of  
18 time was there an effective systems integration at Brown  
19 & Root?

20 A As far as I am aware, yes.

21 Q Between that period of time and the time your  
22 decision was made to remove Brown & Root, which is also  
23 a topic of concern in this hearing -- I'm moving out now  
24 to the final decision, September of 1981 -- was there  
25 any significant deterioration in the performance of the

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1 Brown & Root systems integration group?

2 MR. PIRFO: Objection, Your Honor. That  
3 question is a bit vague, significant deterioration. I'm  
4 not sure -- he can give better specification of what he  
5 means.

6 Q (By Mr. Sinkin) Well, let's do it the way  
7 we've been asking. In September of 1981, was there  
8 still an effective systems integration at Brown & Root?

9 A As far as I'm aware, yes.

10 I think the important thing to keep in mind is  
11 having in place at a point in time an effective systems  
12 integration organization does not in itself say that all  
13 the systems integration that might have preceded the  
14 advent of that organization is necessarily good. I told  
15 you that I personally didn't study it going back to the  
16 historical days. The fact that Brown & Root chose to  
17 institute that form of review in the spring of 1980  
18 probably suggests that Brown & Root itself wasn't  
19 satisfied with the amount of systems integration and  
20 they introduced that group to enhance that process.

21 Q And if I understood your earlier testimony,  
22 problems were found later that systems integration  
23 should have caught; is that correct?

24 A There is no way of knowing whether or not that  
25 group would not, in fact, have caught them had Brown &

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1 Root stayed on the job. The group was formed sometime  
2 in the spring of 1980. They obviously were going back  
3 and reviewing work that was previously done by others  
4 and it's quite likely that with time that group would  
5 have uncovered the same problems that a subsequent  
6 contractor found when they came aboard.

7 Q I think the answer to my question was yes, but  
8 let me do the question again and see if we can get a yes  
9 or no.

10 Subsequently a review found design  
11 deficiencies that a systems group should have found.  
12 Are you following me?

13 A I thought I answered the question.

14 Q Your answer to the question said that when  
15 they instituted the system design group, that group  
16 might well have found the problems that were later  
17 found.

18 A I'm saying that the Brown & Root systems  
19 integration group was formed, to the best of my  
20 knowledge, in the spring of 1980. They were only in  
21 operation until the period when Brown & Root was  
22 removed.

23 What I was saying is that had Brown & Root not  
24 been removed and had that systems engineering or systems  
25 integration group been allowed to continue to perform, 11512

1 they would most likely have found the same problems that  
2 the new architect engineer uncovered after they came  
3 aboard.

4 Q Because those were the types of problems that  
5 a systems group would identify?

6 A They're also the types of problems which  
7 stronger technical leadership in the absence of a  
8 systems integration group might also have found as  
9 well.

10 Q In order to achieve effective systems  
11 integration without a systems design group, would it be  
12 correct to say that you have to have effective  
13 interdisciplinary coordination as well as a good  
14 technical leader in each discipline that you've  
15 mentioned?

16 A It's really through the latter that you  
17 achieve the former.

18 Q Through the good leadership you achieve the  
19 interdisciplinary coordination?

20 A Yes.

21 Q The Quadrex report stated that the technical  
22 disciplines were organized very tightly and that a  
23 working interface relationship among disciplines was not  
24 routine. I read that as being relevant to the concept  
25 of interdisciplinary coordination. Do you read that the

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1 same way?

2 MR. AXELRAD: Mr. Chairman, if Mr. Sinkin is  
3 going to refer to a quotation or a statement from the  
4 Quadrex report, I believe that statement should be shown  
5 to the witness.

6 MR. SINKIN: That's fine.

7 MR. AXELRAD: And identified for all of us so  
8 that we can follow.

9 Q (By Mr. Sinkin) On page 3-2 of Volume 1, I'm  
10 referring to this very beginning sentence beginning "the  
11 technical."

12 MR. AXELRAD: And I believe that the witness  
13 should be provided sufficient time to read the  
14 particular sentence in context --

15 MR. SINKIN: For the record, this is  
16 Applicants Exhibit 60 which was admitted into evidence  
17 yesterday.

18 Actually, Mr. Chairman, I can see that this  
19 line is going to be rather long. Let me go ahead and  
20 take a break and the witness can review that particular  
21 passage at his leisure.

22 JUDGE BECHHOEFER: About fifteen minutes, I  
23 guess.

24 (Recess.)

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1 JUDGE BECHHOEFER: Back on the record.

2 Q (By Mr. Sinkin) Mr. Golberg, just prior to the  
3 break, we were discussing interdisciplinary coordination  
4 as one of the prerequisites sits for achieving effective  
5 systems integration. And I pointed out to you a Quadrex  
6 finding that speaks about the technical disciplines being  
7 organized very tightly and a working interface was not  
8 routine among the disciplines. Have you had a chance to  
9 review that finding?

10 A Yes, I have.

11 Q At the time of the Quadrex report, had Brown &  
12 Root implemented effective interdisciplinary  
13 coordination?

14 A To the best of my knowledge, they had put in  
15 place this systems integration group to provide that  
16 interdisciplinary coordination that they apparently felt  
17 that group would serve to enhance.

18 Q Now, you speak of enhancing. I guess I'm  
19 trying to get a picture of whether at the time Quadrex  
20 was doing the review, you felt that the interdisciplinary  
21 coordination was effective.

22 A They had the machinery in place for effective  
23 coordination. I think I answered earlier that to the  
24 extent that they may not have had adequate system  
25 integration before that group was formed, many of those

1 difficulties, as I say, showed up much later on.

2 Q I want the record to be clear. I'm making a  
3 distinction now between systems integration and  
4 interdisciplinary coordination which is one of the  
5 prerequisites for systems integration. You understand  
6 the distinction?

7 A I do not understand the distinction. To me,  
8 they're one in the same.

9 Q Okay. Well, maybe it would -- at one point in  
10 this project, Houston Lighting & Power discovered that  
11 Brown & Root had a design which called for undersized  
12 transformers. Do you remember that?

13 A Yes.

14 Q Did HL&P discover that prior to May of 1981?

15 A Not that I'm aware of.

16 Q Had the work, itself, been done prior to 1981  
17 that was later found to be deficient?

18 A The transformers had been sized, had been  
19 purchased, had been installed, prior to the time it was  
20 discovered that the loads in which -- for which they  
21 would have to serve were greater than the capacity of the  
22 transformers.

23 This came about because of a number of  
24 increased loads as a result of regulatory change, and  
25 they had not been fed back into the system of review



1 prior to the time that the new architect engineer came  
2 aboard.

3 Q So had there been effective interdisciplinary  
4 coordination that information would have been fed back  
5 in? Is that your view?

6 A In this particular area, it could just be a  
7 simple case of slow feedback as opposed to defective  
8 feedback.

9 Q So when you use the term -- maybe we need to  
10 deal with my use of the term "effective." When I think of  
11 "effective," I think of that as including timely. Are  
12 you using it -- are you hearing the term effective as not  
13 including timely so that if something was done but not  
14 timely, it would still be effective?

15 A I think it's useful that we have a common  
16 definition.

17 Q Yes.

18 A From a quality point of view, it is possible to  
19 have effective feedback but if that feedback were slow,  
20 the consequences would be that certain equipment might be  
21 undersized and remain in that condition longer than would  
22 have otherwise been necessary. And it isn't a deficiency  
23 in practice if the reason you're equipment is undersized  
24 is because it was sized for loads that have been  
25 subsequently caused to change by regulatory change.

1           Q     I understand that. I guess what I'm trying to  
2 clear up between us is if you would still think of the  
3 interdisciplinary coordination as being effective if it  
4 allowed the sizing, purchasing and installing of  
5 transformers that were undersized, whereas had the new  
6 information been incorporated, that wouldn't have  
7 happened.

8           MR. AXELRAD: Mr. Chairman, I think there were  
9 too many assumptions in that hypothetical for the witness  
10 to be able to deal with it effectively.

11           MR. SINKIN: Okay. I'll try and simplify it.

12           Q     (By Mr. Sinkin) My main task that I see here  
13 is to try to be sure that we do have a common definition  
14 of what "effective" means, and that "effective" doesn't  
15 have simply a quality component, it also has a  
16 performance component; would that help? In other words,  
17 I'm asking you if when you say something is being done  
18 effectively, you mean both that it's being done from a  
19 quality standpoint properly and that it's being done in  
20 an efficient and timely manner.

21           A     I think it's strictly a matter of definition.  
22 If you're talking in terms of a quality frame of  
23 reference versus a commercial viability frame of  
24 reference, they may not necessarily be one and the same.

25           Q     Well, I want to have the same frame reference.

1 That's I'm saying. Can we agree -- or I don't want to  
2 put words in your mouth. Is it your view that when  
3 you're judging the effectiveness of a given design  
4 engineering organization, you will judge that  
5 effectiveness both from a quality standpoint and from a  
6 timeliness and efficient standpoint?

7 A I would much prefer the use of the word  
8 adequacy.

9 Q Adequacy to cover both?

10 A Yes.

11 Q Okay.

12 JUDGE BECHHOEFER: Mr. Goldberg, could you  
13 clarify something that you just said? I'm not sure I  
14 understood it correctly. If there is a regulatory change  
15 such as you refer to, that is, say, put into effect by  
16 the NRC, and then an organization is slow to modify its  
17 documents to put that change into effect, do you perceive  
18 that there would be any deficiency arising as a result of  
19 installing equipment that conformed to the older  
20 standards after the time a regulatory change was put into  
21 effect?

22 MR. AXELRAD: Mr. Chairman, before the witness  
23 answers that question, is the basis of your question the  
24 assumption that the regulatory change has in fact, by the  
25 regulation, has been made effective as opposed to a

1 change, which may or may not become effective to a  
2 particular project?

3 JUDGE BECHHOEFER: That's correct. I was  
4 assuming that it became effective from one of Mr.  
5 Golberg's prior answers. Maybe I misunderstood that.

6 THE WITNESS: There's a lot of difference  
7 patterns here that could occur. One pattern might be  
8 that a designer has sized, purchased and construction --  
9 and subsequently installed a piece of equipment,  
10 following the regulations that were in existence at that  
11 particular point in time. And the equipment is sitting  
12 there and along comes a regulatory change that once the  
13 designer implements that change, causes certain other  
14 things to result in this piece of equipment being now  
15 undersized.

16 I'm not conversant with whether or not there is  
17 really any significance to whether the designer reacts  
18 instantly or whether he reacts six months later. He has  
19 a certain capacity to act and he did the original work in  
20 good faith and in accordance with the regulations that  
21 prevailed. He can get caught up, I suspect, in very  
22 subjective environment. "Should he have acted sooner?"

23 What is really at stake is a commercial issue,  
24 longer he has not acted, the greater is the likely cost  
25 of having to deal with that change.

1 But there will be a clear record that what's  
2 down there is not adequate so there's no way it can be  
3 overlooked and it's just a question of whether you get to  
4 it.

5 JUDGE BECHHOEFER: Do you think that you could  
6 wait, say not six months, but five years and still later  
7 install it, not be held to any accountability to NRC, for  
8 instance?

9 THE WITNESS: I would think that we'd have to  
10 take it on a specific basis, because certainly it's  
11 possible that by having waited five years, you may have  
12 denied yourself the opportunity to be able to address  
13 that particular problem and then you're trying to  
14 negotiate with the NRC for some other form of relief,  
15 which strikes me as being not responsive to the needs of  
16 the commission. But I'll have to take it on a case  
17 basis.

18 I'd be concerned certainly from a commercial  
19 viability standpoint of any contractor that would allow  
20 known regulatory requirements, new requirements, to go  
21 unaddressed for an extensive period of time.

22 There's just no question in my mind that it is  
23 commercially unattractive to the owner utility and there  
24 would be considerable pressure on that contract to act  
25 sooner.

1 JUDGE BECHHOEFER: Well, assuming other  
2 characteristics of 50.55(e) were satisfied, would you  
3 consider the installation of, well, say an undersized  
4 transformer or whatever it was, to be a deficiency which  
5 comes under the precise terms of 50.55 (e).

6 MR. AXELRAD: I'm sorry, I don't understand  
7 your question, Mr. Chairman. You said assuming the  
8 requirements of 50.55 (e) are satisfied?

9 JUDGE BECHHOEFER: No. Assuming the  
10 requirements such as the matter amounts to a deficiency,  
11 that type of thing, assuming that it would be a  
12 deficiency, in accordance with newly adopted regulations,  
13 would there be a 50.55(e) violation if the equipment were  
14 installed -- installed, now -- after the effective -- the  
15 undersized equipment were installed after the effective  
16 date of the regulation.

17 THE WITNESS: I would think in that case, that  
18 would constitute a deficiency. Given that the engineer  
19 knew of the new requirements, that his loads were going  
20 to change, that there were serious question about the  
21 adequacy of the size of the equipment he was going to  
22 install, I think if he goes to the point of the  
23 installation, I think that does constitute reportable  
24 deficiency, given that it will have some impact on the  
25 safe operation of the plant.

1 JUDGE BECHHOEFER: Right, that's what I was  
2 assuming.

3 THE WITNESS: Yes, sir.

4 JUDGE BECHHOEFER: Okay, thank you.

5 JUDGE SHON: As long as we've interrupted you  
6 this much, Mr. Sinkin, I'd like to take one more minute.  
7 The situation you were discussing, the transformer  
8 undersized, under capacity situation, that's not a simple  
9 change, I mean the NRC didn't say you have to have bigger  
10 transformers, they said you have you had to have  
11 something else. And with all systems that are complex,  
12 the something else propagated it sends a wave out through  
13 the system. Isn't the speed with which such a wave goes  
14 through the system a measure in part of its efficiency?  
15 Isn't that an important parameter? I mean, if you can  
16 make changes in the electrical system and the people  
17 supplying the electricity don't find out about it for a  
18 long time or in the hydraulic system and the people  
19 supplying the pumps don't find out, isn't that an  
20 indication not just of untimeliness, "We just didn't get  
21 around to it," but of a lack of communication, a failure  
22 to hook up?

23 THE WITNESS: In my opinion, Judge Shon, it  
24 could possibly be either. I would say in the event that  
25 the information had been available for a considerable



1 amount of time, it would have been the responsibility of  
2 the person who knew about the load to transmit to the  
3 person supplying the power, that these loads were going  
4 up, so that that particular other discipline could take  
5 effective action.

6 In some instances, you know, it could be  
7 academic; a small load changes, these projects do  
8 communicate and there are margins available on equipment,  
9 and some changes may be reacted upon with a little less  
10 timeliness.

11 I'd say in the case of the problem at hand, it  
12 was in our view, too slow a reaction and was a problem.  
13 That was reported.

14 Q (By Mr. Sinkin) Just to clean up a few points  
15 about the transformers. At what point in the process of  
16 sizing, purchasing and installing, did the new regulation  
17 become effective; do you remember?

18 A I don't remember. But our view was that there  
19 was more than ample time to have caught this sooner. And  
20 we viewed this as a deficiency, reportable deficiency.

21 Q And as I heard your response to Judge Shon's  
22 question, the essential failure here was a failure  
23 between -- communication between disciplines.

24 MR. AXELRAD: That was --

25 MR. SINKIN: I'll try it again.

1 Q (By Mr. Sinkin) The information that led to the  
2 transformer being the need for a larger transformer was  
3 available in one sector of design and engineering but did  
4 not get communicated to another sector of design  
5 engineering. Is that correct?

6 A I do not have that knowledge. It's my  
7 understanding that the knowledge of the increased loads  
8 was available and that the reanalysis by the electrical  
9 engineers sizing the equipment had not taken place. And  
10 once that had taken place, they would realize that that  
11 equipment was undersized.

12 Q So in your view, this was essentially a failure  
13 to update calculations.

14 A Exactly.

15 Q Okay. But -- well, is it your view that this  
16 failure demonstrated a lack of interdisciplinary  
17 coordination?

18 A No. I think it demonstrated a lack of untimely  
19 upgrading of the load calculations in the electrical  
20 group.

21 Q Maybe I still don't understand. What was the  
22 propagating event, to use Judge Shon's metaphor, of  
23 something that happened and propagates waves, where did  
24 the propagation start? What was the new regulation?

25 A You had to add pumping capacity as part of the

1 revised emergency core cooling system rules. And this  
2 propagates its way back through motor control centers,  
3 load distribution systems and ultimately through  
4 transformers.

5 A And to the best of my knowledge, the increased  
6 electrical horsepower requirements had been transmitted  
7 but there was no reanalysis done by the electrical group  
8 which would have disclosed that that equipment had been  
9 purchased and installed was of inadequate capacity to  
10 handle these higher motor loads.

11 Q And who is responsible for pumping capacity;  
12 that's not electrical, right, that's somebody else?

13 MR. AXELRAD: Mr. Chairman, I would like to  
14 object to this line of questioning. We've been going on  
15 for a lengthy time with respect to something that was  
16 found by Bechtel after Bechtel took over as A/E; I don't  
17 see that that has a relationship to the Quadrex report  
18 findings; I don't see how it has a relationship to what  
19 Mr. Golberg's view was of Brown & Root's engineering  
20 performance back in May, June, of 1981. I realize that  
21 some of these questions arose out of questions asked by  
22 the Board, but I do think we've been going on quite a  
23 lengthy time with respect to a design feature which is  
24 not the subject of this proceeding.

25 MR. SINKIN: I have two more questions and they

1 were really aimed at highlighting or illustrating what  
2 interdisciplinary coordination was all about. That's --  
3 and I had two more questions on that, this being the  
4 first one.

5 Actually this can even be the last one.

6 JUDGE BECHHOEFER: We'll overrule the  
7 objection.

8 Q Do you remember the question?

9 A Frankly, no.

10 Q The the pumping capacity, the new requirement  
11 for pumping capacity, which discipline would have  
12 received that information?

13 A The information would start probably in the  
14 mechanical and engineering group. And they would  
15 transmit it to the electrical group, and what I believe  
16 was the situation, given this example, is that the  
17 information did get to the electrical group, I frankly  
18 don't know I can't recall -- what the time window was  
19 from when it left mechanical and found its way to  
20 electrical, but my recollection is that the real hard  
21 spot was that once that information got to electrical,  
22 electrical didn't do anything with it, it just sat there.

23 And it appears to us that the problem in not  
24 having more timely upgraded the size of this electrical  
25 equipment was due to the fact that re analysis of the

1 electrical loads had not taken place in a timely manner.

2 Q There was a similar finding, I believe, that by  
3 HL&P, that Brown & Root had failed to update and correct  
4 basic calculations for the DC power supply. Is that  
5 correct?

6 MR. AXELRAD: I would like to have Mr. Sinkin  
7 clarify what time frame he is now talking about.

8 MR. SINKIN: That was going to be the next  
9 question.

10 MR. AXELRAD: Well. It seems to be the first  
11 one --

12 MR. SINKIN: There was a finding. When did it  
13 take place. I can make it all one question.

14 Q (By Mr. Sinkin) At the time the Quadrex report  
15 was being prepared, up to May '81, was HL&P aware of a  
16 Brown & Root failure to update and correct basic  
17 calculations for the DC power supply?

18 A I can't recollect.

19 Q Do you remember the deficiency?

20 A No, I'm even having trouble recollecting that.

21 Q At the time Quadrex was conducting their study,  
22 up to May of 1981, was HL&P aware of Brown & Root's  
23 inability to manage and coordinate subcontractors who  
24 were carrying out the design and fabrication of piping  
25 systems, such that many interferences resulted?

1           A     I believe that the subject of Brown & Root's  
2 management of subcontractor services needs to be perhaps  
3 divided up. As far as their commercial management, it  
4 was virtually known existant. As far as the technical  
5 interface, I know there had to be room for improvement  
6 because technical interfaces between architect engineers  
7 and subcontractors is a true test of engineering  
8 management. That's the place where strong technical  
9 leadership will minimize the number of problems.

10           And Brown & Root was still in the process of  
11 strengthening their leadership. So I have to believe  
12 there was room for improvement in those interfaces.

13           Q     Are you familiar with the particular deficiency  
14 that I'm --

15           A     There have been a lot of deficiencies reported,  
16 so I'd appreciate if you'll be more specific.

17           Q     I'm talking about the piping -- I am dealing --  
18 I'm not dealing with a deficiency in a particular pipe,  
19 I'm talking with the subcontractors installation of  
20 piping systems. Do you know that many interferences  
21 resulted when they tried to install the piping systems?

22           A     There were many subcontracts. There was a  
23 contract with Southwest Piping to supply fabricated large  
24 bore alloy and carbon steel piping; there were contracts,  
25 certainly, involving Westinghouse; there were contracts

1 involving NPS for pipe supports, EDS for pipe break  
2 restraints.

3 Is there one in particular you had in mind?

4 A In.

5 Q In general, in those contractors,  
6 subcontractors, was there a problem of interferences  
7 resulting when they tried to install piping? Or was  
8 there one contractor that had that as a more particular  
9 problem?

10 A If there were interferences in installation  
11 pipe, it would strictly be a problem in the design as  
12 opposed to an interference problem with the fabricator,  
13 with one caveat. If the fabricator had some records of  
14 not fabricating his materials in accordance with designs  
15 supplied, then it's possible that it could be the  
16 fabricator's fault.

17 But I believe in more instances than not, when  
18 pipes don't fit, you can look to your engineering group  
19 for the answer, not the fabricator.

20 Q And when you look to the engineering group, is  
21 that a problem of interdisciplinary control or is there  
22 only one discipline that's responsible for that?

23 A Is only one discipline. And it's -- there's a  
24 certainly a large number of possibilities as to why you  
25 get into that situation. It could that the designer



1 didn't do a very careful job of layout, and he has pipe  
2 running into a ventilation duct or into a piece of  
3 structure.

4 That's one possibility. Another possibility is  
5 that he released an earlier design for fabrication and  
6 something has moved, maybe they had to move a ventilation  
7 duct. So now that piping design -- he has to change his  
8 design and get the information back to the fabricator.

9 Well, maybe the fabricator has finished and  
10 shipped the material and it has come into the site and  
11 you get caught up in this kind of a time situation where  
12 somebody's installing it before you catch up to the fact  
13 that the design has changed.

14 Q Well, in your answer, the part I heard that  
15 might be interdisciplinary, is its not piping that moves  
16 a ventilation -- you used a term a ventilation?

17 A Duct.

18 Q Duct. All right. It's not piping that moves  
19 that, is it; it's a difference discipline?

20 A There are people responsible for the design of  
21 ventilation and they are the ones that have to lay it  
22 out. However, there was a group of designers responsible  
23 for what was called composite design. Composite design  
24 is maintaining a set of drawings that show major pieces  
25 of hardware of all the disciplines for the purposes of

1 controlling space allegation. That's possible that an  
2 error was committed in that group and they thought it  
3 would all fit when in fact it didn't.

4 Q Are you aware of specific instances where there  
5 were interferences in the attempt to install piping?

6 A I am aware of interferences on every job I've  
7 ever worked. Yes.

8 Q The question is are you aware that at the South  
9 Texas Project prior to May 1981 of interferences that  
10 resulted when there was -- when there were efforts to  
11 install piping at the South Texas nuclear project?

12 A I don't have have a personal recollection of  
13 people telling me about it, but there had to be some  
14 because if there weren't, it would be the first plant in  
15 the history of this industry that didn't have any.

16 Q But you're not aware of any particularly?

17 A I personally can't recount people giving me any  
18 special update on interferences, no.

19 Q We talked briefly about ventilation? Is that  
20 part of the HVAC discipline?

21 A Yes.

22 Q Was there a problem in that discipline as well  
23 with the failure to update basic calculations, a problem  
24 that existed prior to May of 1981?

25 MR. PIRFO: Objection -- or clarification.

1 Seems that it was a problem that was disclosed from the  
2 Quadrex report --

3 MR. SINKIN: Problem known to HL&P.

4 Q Let me give you a little more guidance, basic  
5 calculations which result indeed extensive redesign of  
6 the HVAC system.

7 Q Failure to update those calculations.

8 MR. AXELRAD: I'm sorry, Mr. Chairman, could we  
9 have the question repeated as a whole.

10 MR. SINKIN: Sure.

11 Q (By Mr. Sinkin) As of May 1981, was HL&P aware  
12 of a failure by Brown & Root to update basic calculations  
13 in the HVAC system which resulted in extensive redesign  
14 of the HVAC system?

15 A Let me answer your question that HL&P was aware  
16 of a serious failure to take into account certain faulty  
17 conditions heat loads. Now, I have no way of knowing  
18 whether that was -- I doubt that that was fermented by  
19 somebody failing to update calculations, it was an out  
20 and out case of not taking those loads into account. And  
21 as a result, once that was addressed, it did in fact have  
22 significant impact on the design of the system.

23 Q Was that failure to take those loads into  
24 account traceable to poor interdisciplinary coordination?

25 A My belief is that it represented a failure by

1 the people designing the system to be familiar with the  
2 fact that they had those loads to take into account.

3 Q Well, did people designing the system, that's  
4 one discipline or more than one discipline?

5 A People designing, heating ventilation and air  
6 conditioning for nuclear power plant, know that they have  
7 to take into account in addition to normal loads, they  
8 have to have insight to faulty conditions heat loads. If  
9 they know they need those, then it represents a blank on  
10 their calculation sheet and if they haven't gotten any  
11 input from some other group, it would be nuclear  
12 analysis, probably, they had go ask them where were the  
13 faulty condition heat heat loads. It's my understanding  
14 that they just didn't even know they had to deal with  
15 those.

16 Q If they don't know they have to deal with them,  
17 nuclear analysis should know they have to deal with them?

18 A Nuclear analysis knew they had to deal with  
19 them. They just hadn't gotten around to supplying them.

20 Q Nuclear analysis just hadn't gotten around to  
21 giving them the data they needed?

22 A You have to understand, that there was a  
23 portion of work that hadn't been done. Quadrex report  
24 points out vividly that they hadn't gotten around to  
25 doing pipe break analysis outside of containment. That

1 would have been part of it.  
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1 Q So, in the way we've used the word adequacy  
2 rather than failure, the interdisciplinary coordination  
3 between nuclear analysis and HVAC, is there evidence in  
4 this event that it was not adequate?

5 A I think there's evidence that the work was  
6 late in getting started; therefore, they hadn't supplied  
7 the faulted heat loads to the persons designing the HVAC  
8 system and the people who were designing the HVAC system  
9 had to have been somewhat naive in not realizing that  
10 there were faulted condition loads that they had not yet  
11 factored in their analysis.

12 Q And were you aware of this problem at the time  
13 Quadrex conducted its study up to May 7 of 1981?

14 A I was alerted by Dr. Sumpter, as I recollect,  
15 that that was an area that was under some ongoing review  
16 by HL&P. So, we asked the Quadrex people to pay  
17 particular attention to that area as part of their  
18 review as it might serve to help put in full perspective  
19 just where we were in that area.

20 Q One more along this same line, Mr. Goldberg.  
21 I believe there was a problem with the river makeup  
22 pumping facility? Are you aware of that problem?

23 MR. AXELRAD: Can we have a clarification of  
24 what time frame we're talking about, Mr. Chairman?

25 MR. PIRFO: And if I may, Your Honor, it's a

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1 question of whether this is cited specifically in  
2 Quadrex.

3 MR. SINKIN: No. The question is as of May  
4 1981, was HL&P aware of a difficulty in the river makeup  
5 pumping facility created by Brown & Root's design  
6 engineering process?

7 MR. PIRFO: If it's not in Quadrex, I would  
8 object that it is irrelevant in this proceeding.

9 MR. SINKIN: Mr. Chairman, we've been  
10 discussing many things here that aren't in the Quadrex  
11 report.

12 MR. PIRFO: Yes, and we've objected before and  
13 I renew that objection.

14 MR. SINKIN: You have and you've been  
15 overruled.

16 I would ask that he be overruled again. What  
17 we're testing is samples of interdisciplinary  
18 coordination. That's been this whole line of  
19 cross-examination. There's one final example I wanted  
20 to put into the record.

21 JUDGE BECHHOEFER: We will overrule the  
22 objection as to this one, but I don't think we'll let  
23 you go on indefinitely talking about non-Quadrex  
24 specifics at least. I know systems integration is  
25 generally in Quadrex, but -- so, we'll allow you to ask 11567



1 this one anyway.

2 MR. SINKIN: Okay.

3 Q (By Mr. Sinkin) The river makeup pumping  
4 facility, are you aware of the problem in Brown & Root's  
5 design engineering?

6 MR. AXELRAD: As of May --

7 Q (By Mr. Sinkin) As of May 1981?

8 A I can't be sure. It has some kind of a ring,  
9 but I can't put my finger on it. I'd have to say no,  
10 I'm not familiar with it.

11 Q Page 4 of your testimony, Mr. Goldberg, line  
12 15, you state that you discussed Brown & Root's  
13 performance with your engineering staff. They  
14 identified a potential weakness in Brown & Root's  
15 nuclear analysis capability. What was that potential  
16 weakness?

17 A The first indication I received was going back  
18 to December of 1980 where there was a question regarding  
19 the radiation protection analysis work that Brown & Root  
20 was performing. We did undertake a thorough review of  
21 that particular concern and were not able to disclose  
22 any problems with the results that they had obtained.  
23 But that at least was the first signal that my people  
24 had some concerns.

25 I think in early spring of '81 we were aware

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1 that it had been quite a while, I think, since they had  
2 done any updates on the energy release for pipe break  
3 inside containment, so there was a possibility that it  
4 was sometime to update those calculations. They had not  
5 done any pipe break analysis outside of containment and  
6 that remained to be work still remaining. In fact, that  
7 particular signal I must say came from Quadrex. I  
8 hadn't heard about that before Quadrex.

9 There seemed to be a lot of work available for  
10 nuclear analysis to be performing and not much  
11 activity.

12 Q Any other -- I mean, the first one you  
13 mentioned had been brought to you in December 1980. The  
14 second one you said came from Quadrex. This statement  
15 is about -- on page 4 of your testimony is referring to  
16 things you were told, I believe, before you even  
17 initiated the Quadrex report.

18 A Right. I'm trying to recall any other things  
19 that occurred prior to Quadrex. I started talking about  
20 the pipe break outside containment and didn't realize  
21 that that surfaced really during Quadrex. I got the  
22 characterization that that was an area where it needed  
23 strengthening in terms of talent. That I was --

24 Q Excuse me. By that you mean the nuclear  
25 analysis --

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1           A     The nuclear analysis area was being  
2 characterized by my engineers as an area that needed  
3 additional talent.

4           Q     Anything else?

5           A     Not that I can recall.

6           Q     In terms of needing additional talent, did the  
7 nuclear analysis group get that qualified technical  
8 leader that you look for in a discipline?

9           A     They had brought in a gentleman from NUS under  
10 special contract arrangement by the name of Joseph  
11 Signorelli who was brought in there specifically to  
12 strengthen their nuclear analysis capability.

13          Q     So, they contracted with NUS to loan that NUS  
14 person to Brown & Root?

15          A     Right. And then, as I understand it, a  
16 considerable amount of nuclear analysis work was being  
17 subcontracted to NUS, but Mr. Signorelli functioned as a  
18 Brown & Root engineer.

19          Q     Do you know when Mr. Signorelli came?

20          A     He was there, to the best of my recollection,  
21 when I arrived, but I'm not -- I could be wrong about  
22 that. He was either there or he arrived shortly after I  
23 did.

24          Q     When you were considering whether to do this  
25 Quadrex evaluation, was nuclear analysis one of the

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1 disciplines you had up front in your mind as one that  
2 needed to be looked at?

3 A Not so much in my mind. It didn't have the  
4 heightened concern that I believe the Quadrex review  
5 caused when I found they hadn't done any of the pipe  
6 breaks outside containment. That struck me as a rather  
7 significant volume of work that remained to be done.

8 Q So, if I understand your answer correctly, you  
9 had a concern about nuclear analysis pre-Quadrex, but  
10 when Quadrex came in you had a much more elevated  
11 concern about whether they were producing the work they  
12 needed to produce?

13 A That's right.

14 Q When you defined for Quadrex what areas you  
15 wanted them to look at, you did include nuclear  
16 analysis, did you not?

17 A I believe nuclear analysis was definitely  
18 included. It was broken up in a discipline sense and it  
19 was also highlighted with certain specific concerns or  
20 areas of discomfort. And I think that Dr. Sumpter is  
21 very conversant about how, you know, we broke it up  
22 discipline wise since he was our coordinator who worked  
23 directly with Quadrex. And I'm sure that the specific  
24 concerns in addition to the discipline break-up was  
25 furnished by a combination of Dr. Sumpter and to some

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1 degree myself.

2 Q On page 4 at line 23, regarding your  
3 impressions about Brown & Root's performance  
4 pre-Quadrex, you say you discussed it with members of my  
5 own project team. Who are you referring to as members  
6 of your project team?

7 A Well, Dr. Sumpter was one of those persons  
8 that I discussed Brown & Root's engineering capability.  
9 Mr. Arnold Granger who then was the project engineering  
10 manager. I discussed with some of Mr. Granger's key  
11 discipline engineering leaders what their feelings were  
12 about the way the job was going, where they felt  
13 comfortable, where they had concerns or questions.  
14 That's basically it.

15 Q Well, in what specific areas did you have  
16 reason to believe Brown & Root was having difficulty?

17 A Some of the things that surfaced to my  
18 personal attention was I had attended an exit by a Brown  
19 & Root quality assurance person who indicated that they  
20 were having trouble understanding how Brown & Root could  
21 relate the particular computer code verifications  
22 against the particular versions of the computer code  
23 that were in existence. There was difficulty in  
24 identification. And that represented a question that I  
25 asked Quadrex to pursue when they undertook the review. 11572



1           Q     Let me interrupt you for a second there. Is  
2     that what is meant by disability? In other words,  
3     quality assurance could come in and see whether the  
4     computer code verification applies to a particular  
5     computer code?

6           A     Yes, I think that's a proper context. It  
7     was -- they were not able to see clear the relationship  
8     between the verification machinery and the computer code  
9     versions that were in existence. There was some  
10    question on the revision status that had been verified.

11          Q     There was some question on?

12          A     The revision status of the code. And it  
13    wasn't a very clear picture as to just what the problem  
14    was. And since Quadrex was coming in within a few weeks  
15    of when this first signal went up, I asked them to pay  
16    particular attention -- I had already asked Brown & Root  
17    to give me a report back on just what was the character  
18    of that issue, and at the same time I asked Quadrex to  
19    undertake particular attention to that area.

20          Q     And when did Brown & Root report back to you  
21    on this area?

22          A     Brown & Root's report got caught up in the  
23    Quadrex report itself because Quadrex came out with its  
24    findings and we were already embroiled in now the issue  
25    of just what did we have.

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1           So, based on the feedback I received from  
2 Quadrex, we identified that as a reportable item because  
3 there did appear to be some disconnect between the codes  
4 that were in use and visibility as to which version of  
5 the code had been verified. And as long as that  
6 uncertainly apparently existed, we felt that that  
7 constituted a serious concern on the quality of the work  
8 being performed using those codes.

9           Q     So, Brown & Root never actually brought an  
10 independent report to you. It got --

11          A     No, it got caught up in the actual fallout of  
12 Quadrex.

13          Q     Were there any other areas of concern that you  
14 communicated to Quadrex or that you put forward to be  
15 communicated to Quadrex?

16          A     I asked Quadrex as part of their broad charge  
17 to focus attention in those areas that were unique to  
18 the engineering of a nuclear plant as opposed to a power  
19 plant, per se. I felt those represented the areas of  
20 greater challenge perhaps to Brown & Root.

21                I asked Quadrex to avoid making it a  
22 democratic review. I wanted it focused on areas that  
23 were likely to be having difficulty, if any areas at all  
24 were having difficulty.

25                MR. REIS: Excuse me, Your Honor, I did not

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1 hear a word. He didn't ask Quadrex to perform any what  
2 type of review?

3 THE WITNESS: It was not a democratic review.  
4 It was not, shall we say, an unbiased review, go down  
5 there and just take a look. We were directing Quadrex  
6 to look at selected areas which we felt were likely to  
7 be good places to look for trouble. They were all  
8 related to nuclear engineering activities and we  
9 believed that those would be the likely places that  
10 Brown & Root was having its greatest difficulty.

11 A I feel it's useful to make sure that that  
12 point is understood because when one reads the Quadrex  
13 report, you rarely see anything of a positive nature  
14 because we instructed Quadrex -- in fact, I remember  
15 saying I am not interested in knowing what's right, I am  
16 only interested in understanding areas where there are  
17 some questions about what's going on.

18 Q (By Mr. Sinkin) Okay. So, you personally  
19 brought up computer codes. You personally made as part  
20 of their broad charge the unique nuclear areas. And --

21 A And I think there was another part. We asked  
22 them to focus attention on nuclear areas that were  
23 historically difficult for the whole industry as a  
24 whole. I mean, there are certain facets of engineering  
25 that are very difficult for virtually all the

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1 contractors, including the more experienced ones as  
2 well.

3 Q Which areas are those?

4 A Well, they hadn't gotten into really the pipe  
5 support area, but that clearly would have been one of  
6 them. Their pipe support design program, their pipe  
7 stress analysis program for the ASME 3 portion of the  
8 plant. Unfortunately, there wasn't very much of that  
9 work going on. But those would have been prime areas  
10 for looking.

11 Design control, design verification practices  
12 were certainly areas that we asked them to pay attention  
13 to.

14 Q Any other?

15 A Well, I am not -- I don't think we asked them  
16 to look at soil structure interaction. That was a  
17 little too complex.

18 Q That went by me too fast. Say that again.

19 A Soil structure interaction. I'm reasonably  
20 sure we didn't ask them to look at that. I don't think  
21 they could have gotten to the bottom of that in years,  
22 let alone months and days.

23 I think that between those high points and the  
24 breakdown of the disciplines that Dr. Sumpter had  
25 organized as the areas we wanted them to look pretty

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1 much covered the general scope, which were areas unique  
2 to nuclear engineering, areas that the industry as a  
3 whole was duly challenged, and then specific spots that  
4 some of our engineers were uncomfortable with. That was  
5 basically the charge.

6 Q Was the radiation protection analysis you  
7 referred to earlier, is that ALARA?

8 MR. AXELRAD: Could we have that question  
9 repeated? I couldn't hear it.

10 MR. SINKIN: Earlier Mr. Goldberg referred to  
11 a question coming up in December of 1980 about radiation  
12 protection analysis. I just want to know if that's  
13 ALARA?

14 A It's part of ALARA.

15 Q That's capital A L A R A. It's part of ALARA?

16 A Certainly it is an activity that is essential  
17 to generating numbers or results that come under ALARA.

18 Q And you stated that fortunately Brown & Root  
19 had not gotten into pipe supports very much. Why do you  
20 say fortunately?

21 A Well, as it turns out that -- you know, this  
22 is all looking backwards. We didn't know this at this  
23 time. But their failure to go forward in that area  
24 perhaps made Bechtel's job that much easier.

25 Q In that Bechtel didn't have to correct

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1 anything?

2 A And you had one basically coherent program for  
3 the safety-related pipe supports.

4 Q After the completion of the Quadrex report,  
5 did Quadrex do any other work for Houston Lighting &  
6 Power?

7 A Yes. I think within a matter of a few months  
8 thereafter we asked Quadrex to undertake a review of our  
9 Allens Creek Project.

10 Q Is that a similar kind of review, a technical  
11 adequacy review?

12 MR. AXELRAD: Mr. Chairman, I'll object to  
13 that question. I don't see what the relevance is of any  
14 additional work that was done after the Quadrex report.  
15 I don't see that it has --

16 MR. PIRFO: I would ask for a proffer rather  
17 than enter an objection.

18 MR. SINKIN: I beg your pardon?

19 MR. PIRFO: I would ask for -- I'm sorry.

20 JUDGE BECHHOEFER: We ought to know where  
21 you're going on that.

22 MR. SINKIN: I've arrived there. The question  
23 is whether they, after seeing the first report, hired  
24 them to do further work. That would be some indication  
25 that the prior work had been acceptable.

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1 MR. PIRFO: I'm not sure what he means by  
2 acceptable.

3 MR. SINKIN: Well, if the Quadrex Corporation  
4 had not performed in a manner that HL&P found  
5 satisfactory, then hiring them to do another review  
6 would be unlikely. But they did, in fact, hire them to  
7 do another review. My only question after that was was  
8 that a similar review of the kind of review they did on  
9 STNP and which is a technical adequacy review and that's  
10 the end of the question.

11 MR. AXELRAD: Mr. Chairman? Mr. Chairman, if  
12 that is where Mr. Sinkin is going, I think he should  
13 first lay a foundation for those kinds of questions by  
14 asking Mr. Goldberg about whether or not the work that  
15 had been done before was acceptable, whether there were  
16 any concerns or matters of that kind.

17 JUDGE BECHHOEFER: I think we'll let you  
18 answer. It would have been better to have the  
19 predecessor question I think, but you may answer that.

20 Q (By Mr. Sinkin) Do you remember the question?

21 A The question was --

22 Q Whether the review done at Allens Creek was  
23 similar to the review done at STNP in the sense of being  
24 a review of technical adequacy.

25 A It differed in this way: We learned that the 11579



1 type of an effort that we had tried to do on STP was a  
2 very -- it was an unreliable measure principally because  
3 we did not give Quadrex an appropriate opportunity to  
4 get things in perspective. They had too many areas  
5 where they hadn't even made contact with all the  
6 requisite persons in Brown & Root and therefore there  
7 were questions that could have been answered with  
8 additional follow-up. So, when we commissioned the  
9 Allens Creek review, we didn't hold them to an  
10 unreasonable time table.

11 And, quite frankly, in retrospect, I think we  
12 had given them too difficult a time task in the case of  
13 STP. So, to the extent that they had time to go back  
14 for what I believe was either two or three reiterations  
15 on Allens Creek, coupled with the experience, as I say,  
16 gained from STP, the Allens Creek review was a much  
17 better thought out and much better executed review.

18 Q Was the Allens Creek review similar to the  
19 review conducted of STP; in other words, a technical  
20 adequacy review?

21 A It was a review of the general state of  
22 engineering from a standpoint of where was it physically  
23 in progress, how were the programs in use, are they the  
24 kind of programs we should have in place. It covered  
25 both technical as well as the progress, technical

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1 adequacy as well as the general progress of  
2 engineering.

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1 Q So are you distinguishing that review by saying  
2 they looked for general progress but Quadrex did not?

3 A No.

4 Q No, okay.

5 Do you view the two studies basically similar  
6 with the caveat of the methodology?

7 A Yes.

8 Q But in what they were trying to do, they were  
9 similar?

10 A What they were trying to do was similar but the  
11 methodology was considerably

12 Q On page five of your testimony at line eight,  
13 let's back up and start the sentence at line three. If  
14 you would just review that sentence for a moment, going  
15 to the end of the paragraph.

16 Q Have you had a chance to do that?

17 A Yes.

18 Q What regulatory authorities did you expect to  
19 be discussing Quadrex with?

20 A I had no way of knowing. Anybody from NRC  
21 might ask me about the engineering on the job.

22 Q Did you expect to be discussing Quadrex with  
23 the licensing board that was about to hold hearings in  
24 May of 1991?

25 A That was a possibility.

1           The board has wide latitude as to where they  
2 may choose to ask their questions.

3           Q    The original deadline for the Quadrex study,  
4 what was the that original deadline?

5           A    I think I originally was hoping to get the  
6 report in March or at the latest April.

7           Q    Is it not true, Mr. Goldberg, that you sought  
8 the Quadrex study in part specifically to prepare  
9 yourself for the licensing hearings that were going to  
10 begin in May?

11          A    No. I think the main thrust of my need for  
12 that information lie in the fact that the vice-president  
13 of engineering as well as construction, I was keenly  
14 aware of the fact that the project had been seriously  
15 bogged down for quite awhile, dealing with problems  
16 associated with show cause.

17               These were problems in the construction and in  
18 construction related QA areas. Houston Lighting & Power  
19 had committed a vast amount of resources to deal with  
20 those issues, with every expectation that once they were  
21 resolved, that this project was going to go steaming off  
22 at a fairly good pace toward completion.

23               And my gut feeling was that the engineering may  
24 not be able to support such an undertaking and I had to  
25 know fairly quickly just what shape it was in. So that

1 was the driving reason for me wanting to get that  
2 assessment as quickly as I could, and the advent of the  
3 hearings did influence the schedule, because I had no  
4 time to fool with Quadrex once we got into hearings and  
5 we were going to be heavily involved in the scope of the  
6 hearings which at that time to the best of my knowledge  
7 was construction and construction related quality  
8 assurance issues.

9 Q So you are saying the licensing hearings  
10 affected the scheduling of the Quadrex report only in  
11 that you had to have it finished because you had to get  
12 ready for the hearings?

13 A I had to have it finished, I needed the  
14 information, and certainly as a side benefit, had any  
15 questions surfaced regarding any probing issues on  
16 engineering, I would have considerably more information  
17 than I might otherwise have had without that review.

18 Q Before doing this study of the technical  
19 adequacy the ones at issue here, Quadrex had done some  
20 other work for HL&P; is that not correct?

21 A A forerunner of the Quadrex Corporation called  
22 the Nuclear Services Corporation, NSC, had been retained  
23 by HL&P to do a study on manloading -- project manloading  
24 needed to support an operating nuclear reactor.

25 Q They had actually done more than one study, had

1 they not?

2 A That was the one that I was familiar with.

3 Q You were not familiar with the study they'd  
4 done on the health physics program?

5 A I don't recollect that. Do you know when that  
6 study was performed?

7 Q October, 30th, 1979. Before you came,  
8 obviously, but in the hiring of them you were not aware  
9 of that previous study?

10 A No, I don't believe so.

11 Q And you were not aware of a study on HL&P  
12 nuclear fuel division personnel requirements?

13 A I think that is related to the one I was  
14 speaking of.

15 Q Then there was a later study, nuclear division  
16 design review plan and manpower requirement, South Texas  
17 and Allens Creek.

18 A South Texas and Allens Creek? I have a feeling  
19 and it's just a feeling, that that was just a carry on of  
20 the earlier work they had done for the staffing of the  
21 fuels group. They had done manpower staffing studies. I  
22 just couldn't recollect they had done anything in the  
23 health physics area.

24 Q Did you at any time review those previous  
25 studies?

1           A     I remember perusing the one on staffing plan  
2     for plant operations and it just occurred to me that it  
3     was a bit premature with more than half the plant left to  
4     finish.

5           Q     On page six of your testimony, Mr. Goldberg,  
6     line fifteen, you state that you told Quadrex you were  
7     interested in ascertaining Brown & Root's understanding  
8     of the significant nuclear engineering technical issues  
9     of then current concern in the nuclear industry. And I  
10    believe in your earlier account of what you wanted them  
11    to look at, that was one of the things you wanted them to  
12    look at. Overall, did you find based on the Quadrex  
13    report that Brown & Root had an understanding of the  
14    significant nuclear engineering technical issues of then  
15    current concern in the industry?

16          A     I think that was a mixed bag. I think that  
17    there was a lot of indication of strengths in some areas  
18    and a number of areas that required additional attention.

19          Q     Which areas did you believe that Quadrex report  
20    revealed required additional attention?

21          A     I think they needed more resources for their  
22    nuclear analysis work.

23          Q     Any others?

24          A     I think that the advent of that systems  
25    integration group would certainly serve well to verify

1 that we did in fact have a good interface between the  
2 various disciplines and the various systems.

3 Q So you viewed that as a strength?

4 A Well, I viewed that as a strength, but I felt  
5 that it would also, you know, provide some intelligence  
6 that would be very useful.

7 Q In checking the previous work?

8 A In checking the previous work, correct.

9 Q I think we may have gone a little afield from  
10 my question. My question was: When the Quadrex report --  
11 did you find based on the Quadrex report that Brown &  
12 Root had an understanding of the significant nuclear  
13 engineering technical issues of then current concern in  
14 the industry. You stated it was mixed. They found some  
15 strengths, they found areas of where there was need for  
16 additional attention. Where did, from the Quadrex  
17 report, you find there was need for additional attention?

18 A They needed to clearly strengthen their  
19 understanding of the rigors of computer program  
20 verification. Their program was defective.

21 We also were very much concerned with the  
22 technical adequacy of the group that was designing the  
23 HVAC. They did not have good understanding of nuclear  
24 heat loads.

25 Q Any other areas that from the Quadrex report,

1 you were able to identify as needing additional goes?

2 A These where the really the high points of where  
3 they had some significant problems in my mind.

4 Q Can you give my two or three of the medium  
5 points?

6 A No, I'm not sure I can put in it that vein.  
7 I'd say those were the major problems.

8 Q Overall, did the Quadrex report indicate to you  
9 that Brown & Root was adequately planning its design  
10 activities?

11 A I think I'd have to say that it suggested that  
12 no, it wasn't an adequate plan because it lacked some of  
13 the resources to carry out a good plan. So I think it's  
14 fair to say that Quadrex flagged a weakness in the plant,  
15 that were bringing some resources to bear early enough to  
16 provide for what I would consider an efficient design  
17 program.

18 The plant had been in engineering for almost  
19 seven or eight years. And they hadn't even started some  
20 of the work that should have been started three years  
21 earlier.

22 Q I seem to remember some testimony of yours once  
23 that there was some subject that should have been started  
24 four years earlier. Were there any of them that should  
25 have been started four started four years earlier?



1           A     I might have possibly said four and now I'm  
2 saying three, but I'm pretty sure I'm talking about the  
3 same subject and that's the pipe break outside  
4 containment.

5           Q     I want to be clear with you, you're talking in  
6 one sense of the resources available allowing to you do a  
7 task or not do a task, because they're there. There's  
8 another sense of planning, which is you have specific  
9 tasks you do at specific points and you apply whatever  
10 resources you have to those tasks. My original question  
11 was whether, from Quadrex, it indicated to you that Brown  
12 & Root was adequately planning its design activities.  
13 Your answer came more from a resources perspective.

14          A     I think I said earlier that I think it  
15 demonstrated that some of the planning wasn't all that  
16 good; that there was work that had not yet been  
17 undertaken that should have been undertaken sooner. The  
18 reasons for why it wasn't being undertaken was the  
19 restriction on certain resources.

20                It wasn't that the a restriction imposed by the  
21 owner; it was the fact that they hadn't yet built up the  
22 organization to get the work done.

23          Q     Did the Quadrex report indicate to you that  
24 Brown & Root was carrying out an adequately controlled  
25 design process?

1           A     I think it indicated that the manner in which  
2 the job was going was certainly not in the same ballpark  
3 as how they probably would have be doing it had they done  
4 any number of jobs before. I characterize that Brown &  
5 Root's operation was very much like engineering  
6 operations that were quite commonplace in the '70s.  
7 People who had been doing business in the '70s and were  
8 then continuing in this business in the '80s had  
9 developed any number of efficient ways of carrying out  
10 their business.

11                 Brown & Root hadn't developed that degree of  
12 sophistication.

13           Q     My question went specifically to that one  
14 element of management called control, whether they were  
15 adequately controlling the activities that were going on.  
16 And from the Quadrex report, was it your view that Brown  
17 & Root was adequately controlling the design process?

18           A     You are talking from the context of quality  
19 with the exception that is we've already discussed? The  
20 answer would be yes. If you're talking from the  
21 standpoint of timeliness, commercial viability, there  
22 were a lot of things that we were concerned about there.

23           Q     Did did Quadrex report indicate to you that  
24 Brown & Root was conducting its design process in an  
25 orderly manner?

1           A     I think I've already suggested that there were  
2 elements of the work that were not being done in an  
3 orderly manner. It is not orderly to undertake certain  
4 work very late in the program. It tends to just cause  
5 you to spend a lot more money to get the job done than it  
6 would have otherwise turned out had you undertaken that  
7 work sooner.

8           Q     Doing things late can cause to you have to go  
9 back and re-evaluate things you've already done. Isn't  
10 that also true?

11          A     That's distinctly possible.

12          A     Brown & Root's treatment of pipe break outside  
13 containment was reminiscent of how everybody had to deal  
14 with it when they had their plants partially finished and  
15 then the requirement came along. You have to deal with  
16 pipe break outside containment. Had they tackled it  
17 sooner, they could have avoided that kind of a scenario.

18                But there was demonstrated proof in the  
19 industry that you could deal with it after the fact, so  
20 it wasn't so much a technical concern. It was clearly an  
21 economic concern.

22          Q     So that the requirement for pipe break analysis  
23 outside containment was in place when Brown & Root began  
24 the design and engineering process?

25          A     No, it was not.

1 Q When did it become effective?

2 A Well, I guess the first tip of the iceberg may  
3 have surfaced sometime in '75 -- late '74, early '75. I  
4 believe the more coherent regulations from the NRC  
5 probably surfaced sometime in the '76, '77 time frame.

6 I didn't mean to suggest that the original  
7 requirements were incoherent but they were more difficult  
8 to deal with because they were in the form of letters and  
9 a lot of negotiations on a case by case basis with the  
10 NRC, because plants were in different stages of  
11 completion.?

12 Q In what time period was that going on?

13 A That was in the '74, '75 time frame?.

14 A So in '74 '75, people involved in the  
15 construction design engineering of nuclear power plants  
16 were put on notice that this was a problem, but in '76,  
17 '77, the more comprehensive, coherent kind of guidance  
18 came forward.

19 A Yes.

20 Q Given the concerns that you had before Quadrex  
21 began, did the Quadrex report confirm those concerns?

22 A I guess it's fair to say that the Quadrex  
23 report certainly confirmed that there were a number of  
24 areas that required attention, including those areas that  
25 were already perceived to be in some degree of

1 difficulty.

2 Q So it both confirmed concerns you already had  
3 and brought new concerns to your attention?

4 A That's correct.

5 Q From the time you arrived in October 1980 until  
6 May of 1981, was there any other single document that  
7 caused you greater concern about the design and  
8 engineering process than the Quadrex report?

9 A I didn't think that there was anything  
10 certainly that was as broad a view as the Quadrex  
11 document, so from the standpoint of perspective, or I  
12 should say not perspective, but from the standpoint of  
13 visibility, it provided much broader visibility than any  
14 other single document.

15 Q The term broader visibility, I'm not -- could  
16 you elaborate what you mean by that?

17 A It's a wide angle, wide view of what was going  
18 on.

19 Q As opposed to a specific little problem?

20 A Right.

21 Q Overall, based on the Quadrex report, did you  
22 find that Brown & Root understood the task before them?

23 A I think that they understood a considerable  
24 portion of that task, I think that when they were  
25 fortunate to get the services of Mr. Saltarelli, they had

1 in the position of technical authority, if not  
2 necessarily in total management authority, they had a  
3 person who was able to bring or focus attention in those  
4 areas that needed to be strengthened and they were making  
5 significant progress at the time that the Quadrex review  
6 had started.

7 Q In your testimony at page seven, line 20, I'm  
8 sorry, back up to line 16, Quadrex asked Brown & Root to  
9 identify documentary evidence such as calculations,  
10 drawings, and reference documents, that could be examined  
11 in support of the answers. Would it be fair to say that  
12 in general, the documents reviewed by Quadrex were the  
13 type of design documents that are not directly used as  
14 construction drawings?

15 A They were looking at documents other than  
16 drawings as well. So I'm struggling with your question.

17 Q Let me try again. Isn't it true that in  
18 general, Quadrex was looking at system design  
19 descriptions, technical reference documents, one line  
20 electrical drawings, piping and instrumentation drawings,  
21 calculations and similar types of documents that simply  
22 aren't used for construction?

23 A The documents you mentioned are definitely used  
24 for construction.

25 Q Drop the similar documents. Those kinds of



1 documents are not the kind of documents that are directly  
2 used as construction.

3 MR. AXELRAD: At this point, Mr. Chairman, I'm  
4 not sure what the question refers to anymore.

5 MR. PIFRO: I'm not sure what those documents --

6 MR. SINKIN: Okay.

7 Q (By Mr. Sinkin) In general, the documents that  
8 Quadrex looked at, were they not in fact system design  
9 descriptions, technical reference documents, one line  
10 electrical drawings, piping and instrumentation drawings,  
11 calculations, I'll say "and calculations," and that those  
12 are the kinds of documents that are not used in field  
13 construction?

14 A You've got a defective question, Mr. Sinkin.

15 Q Please point it out to me.

16 A You are including in this bag documents that  
17 are used in construction.

18 Q Such as?

19 A Electrical one line, instrumentation drawings,  
20 piping drawings, diagrams. Those are all used.

21 Q Well, Mr. Goldberg, I just want to clarify this  
22 point. I'm going to show you Applicant answers and  
23 objections to State of Texas first set of interrogatories  
24 to Applicant on Quadrex. Do you have that?

25 MR. GUTTERMAN: What page are you on?

1 MR. SINKIN: Page 17.

2 JUDGE BECHHOEFER: Could you wait a second?  
3 Someplace I have it. What page did he say?

4 MR. SINKIN: Page 17, it will be answer --  
5 interrogatory 18, answer C.

6 JUDGE BECHHOEFER: I think the difference, Mr.  
7 Sinkin, was you asked him whether these were documents  
8 not used in construction. And this was not used as  
9 construction drawings, which is kind of a different  
10 matter.

11 MR. SINKIN: Well, maybe we can clarify that.  
12 That's why I showed him to it. I don't understand the  
13 difference quite yet as to the answer.

14 Q (By Mr. Sinkin) Can you distinguish for me,  
15 Mr. Goldberg, documents -- I'm sorry.

16 MR. AXELRAD: I would just like to be sure that  
17 the entire answer to interrogatory 18, including the next  
18 page, is read by the witness before he answers any  
19 questions on it. I just want to make sure he is  
20 answering on the basis of --

21 MR. SINKIN: Why don't we read the  
22 interrogatory 18 into the record, 18 C, and the answer?

23 A As the answer?

24 Q And the answer.

25 A Okay. But it doesn't answer your question.

1 Q Fine. We'll get to that point. So you would  
2 like me to read 18 C? The answer?

3 JUDGE BECHHOEFER: Read both the question and  
4 the answer, so the record will show.

5 THE WITNESS: What's the question, Mr. Sinkin

6 Q (By Mr. Sinkin) The question is, question  
7 18-C.

8 A You want me to read the whole question?

9 Q Read interrogatory 18. I think we can just  
10 read C.

11 A Fine. Question: "For each drawing supplied to  
12 Quadrex, please specify whether at the time supplied or  
13 at any time prior to may 7th, 1981, that drawing had been  
14 used by construction.

15 Answer: "Applicants do not have a list of  
16 drawings supplied to Quadrex. In general, the documents  
17 reviewed by Quadrex were system design descriptions,  
18 technical reference documents, one line electrical  
19 drawings, piping and instrumentation drawings,  
20 calculations, and similar types of design documents that  
21 are not directly used as construction drawings. Thus few  
22 if any of the documents supplied to Quadrex were  
23 appropriate for use in field construction."

24 Q Having had a chance to review that, Mr.  
25 Goldberg, can we go back to what the distinction was that

1 was being made to my questioning and your answer versus  
2 that question and that answer?

3 MR. AXELRAD: Mr. Chairman, I think it might be  
4 best if that question -- whatever that question is, is  
5 asked directly at this point because I don't recall  
6 exactly the previous question and answer and I'm not sure  
7 that the witness does.

8 Q (By Mr. Sinkin) The question I asked before we  
9 got into the interrogatories was whether, in general, the  
10 documents reviewed by Quadrex were system design  
11 descriptions, technical reference documents, one line  
12 electrical drawings, piping and instrumentation drawings,  
13 calculations and similar types of design documents. I  
14 better stop. Strike "similar types of design documents."  
15 We've dealt with that problem, and I just  
16 said: And calculations that were not directly used as  
17 construction drawings, that was my question. Now, you  
18 may have misunderstood my question or we may have a  
19 difference of perception as to what these are used for.  
20 I'm just trying to get it cleared.

21 A I think there is a difference. When you say  
22 words like piping and instrumentation drawings, I just  
23 have difficulty understanding what that is if it's  
24 something that isn't used for construction. And that was  
25 why I thought your question might have been defective,

1 that maybe this answer here is just a little fuzzy. But  
2 interestingly enough,  
3 they say: Thus few if any of the documents supplied to  
4 Quadrex were appropriate for use in field construction  
5 but apparently there were a few.

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1 Q A few were?

2 A There had to have been if they're talking  
3 piping and instrumentation drawings.

4 Q Okay. I just wanted to be sure --

5 A Okay. I wasn't trying to be difficult.

6 Q No, I wasn't either.

7 A I was confused because I didn't know where you  
8 were coming from.

9 Q Okay. Just one follow-up on that so I get a  
10 clear mind on it and we don't have to go through this  
11 any further later.

12 A one-line drawing, are there some that would  
13 never be used by construction but there are some that  
14 would be used by construction?

15 A The one-line drawings are used for checking  
16 the terminations. They're used by construction, they're  
17 also used by quality control. They are a diagrammatic,  
18 if you will, which are very useful for checking  
19 connections, do I have the right wire in the right  
20 terminal.

21 Q So, you would use that to check, but not to  
22 install the original work?

23 A No, they have other devices for the  
24 installation. But that's -- see, that's part of the  
25 construction process. That's why I say we're getting

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1 caught up in semantics here. The construction process  
2 to me involves not just the installation, but also the  
3 inspection and verification.

4 Q But do you think of the one-line drawing that  
5 is used to check the work that's been done as a design  
6 released for construction as that term is used in  
7 50.55(e)?

8 A As a design released for construction.  
9 Without the attendant construction drawing that would  
10 actually cause something to get installed, the answer  
11 would be no. It doesn't become a construction device  
12 until you've actually built something. No different  
13 than a piping diagram from which piping layout drawings  
14 are developed. And after the piping is installed to the  
15 layout drawings and somebody wants to check to make sure  
16 it's all there, they use the diagram because the diagram  
17 is a good shorthand technique for assuring yourself that  
18 you've got it all installed.

19 Q So, perhaps what was going on in this answer  
20 to the interrogatory is that since those are used to  
21 check as opposed to construct from, they are not  
22 directly used as construction drawings. That's probably  
23 what they meant?

24 A Okay. In that context, they're not.

25 Q Okay. Mr. Goldberg, I have handed you a

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1 document which I at the last break supplied to your  
2 counsel in hopes that they would have a chance to check  
3 on the authenticity.

4 MR. SINKIN: I don't know if you had a chance  
5 to check on that or not. No, okay.

6 Q (By Mr. Sinkin) It's an excerpt from the  
7 Brown & Root quality assurance manual. I wanted to  
8 direct your attention to -- have you reviewed this  
9 manual before, Mr. Goldberg?

10 A No.

11 Q You've never had occasion to review the Brown  
12 & Root quality assurance manual?

13 A No.

14 MR. AXELRAD: I might also add, Mr. Chairman,  
15 we have not had a chance to review this document for  
16 authenticity. But to the extent Mr. Sinkin is referring  
17 to this particular document, I'm not sure how it should  
18 be characterized. We have not brought our entire files  
19 to Bay City. If we'd gotten this material before, we  
20 could have checked it for authenticity.

21 JUDGE SHON: The first thing I notice, Mr.  
22 Sinkin is that the next page of it is stamped  
23 superseded, the second page.

24 MR. SINKIN: There is a page that is stamped  
25 superseded, there is no question about it. Fortunately, 11602

1 the page I want to ask about is not stamped superseded.

2 MR. AXELRAD: Unfortunately, Mr. Chairman, we  
3 don't know if superseded applies to the one page or  
4 everything that follows.

5 MR. SINKIN: Well, actually this is -- we will  
6 just start with marking this for identification as CCANP  
7 72.

8 MR. PIRFO: No objection.

9 Q (By Mr. Sinkin) And ask Mr. Goldberg to turn  
10 to page 3 as numbered in the upper right-hand corner.

11 MR. AXELRAD: That is page 3 of 14?

12 MR. SINKIN: Page 3 of 14.

13 Q (By Mr. Sinkin) I'd like you to review, Mr.  
14 Goldberg, the definition of system design description  
15 and the definition of technical reference documents.

16 Have you had a chance to read that?

17 A Yes.

18 Q Thank you.

19 Do you find these definitions to be accurate  
20 definitions of what those documents should be?

21 MR. REIS: Mr. Chairman, I object to the  
22 question in that it's not relevant. We don't know what  
23 the document is, it isn't authenticated yet. And,  
24 therefore, whether he agrees or disagrees with some  
25 document that we don't know what it says or anything

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1 else about it, it just has no relevance.

2 If he asks a direct question as to what is the  
3 definition of system design descriptions or what is the  
4 definition of technical reference documents, that's  
5 something else again. But referring to the document  
6 without the document being authenticated or in effect at  
7 any time or having any relevance to this proceeding and  
8 the witness saying he hasn't seen the document before,  
9 the question just has no relevance whether he agrees or  
10 disagrees.

11 MR. SINKIN: I was trying to do this in some  
12 shorthand manner, Mr. Chairman. I'd be happy to read  
13 the description into the record and ask Mr. Goldberg if  
14 he agrees with the description regardless of where it  
15 came from. It seemed to me that that was a rather  
16 cumbersome way of doing things.

17 I do realize we have a problem in that Mr.  
18 Goldberg has never reviewed the Brown & Root quality  
19 assurance manual so that I would have difficulty  
20 introducing this document through him, I assume.  
21 However, there are other witnesses through whom this  
22 document could be introduced and at that time, once they  
23 are in evidence, it would be easy enough to refer back  
24 to them as definitions Mr. Goldberg agrees with.

25 But if that is not an acceptable way of going 11604

1 about it, I'd be happy to read into the record the  
2 description and ask him if he agrees with it.

3 JUDGE BECHHOEFER: Mr. Sinkin, one problem, it  
4 may not be a problem, but one observation we have with  
5 respect to this document is that apparently it's dated  
6 August 14, '81, and I don't know what time period your  
7 questions are relating to. But if it's at the time of  
8 May '81, it may or may not be similar or identical to  
9 what was in effect at that point. I don't really know  
10 what the source is or anything else about the document  
11 or whether it superseded entirely some other document or  
12 what.

13 I think it would be necessary to establish  
14 some greater specification of when this document or  
15 various parts of it were actually in effect if you're  
16 going to relate it to definitions at a particular time  
17 period.

18 MR. SINKIN: Well, Mr. Chairman, I realize the  
19 problem looking at the date here. This is from the  
20 discovery done by the State of Texas. It is the Brown &  
21 Root quality assurance manual supplied by the Applicants  
22 as the quality assurance manual that was in place at the  
23 time of the Quadrex report. It appears that that may  
24 have been a mistake. It appears that this was revised  
25 shortly after the Quadrex report and it is quite

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1 possible that the definitions of system design  
2 descriptions and technical reference documents don't  
3 change from one document to another. I'm not sure quite  
4 what to do about that.

5 MR. AXELRAD: Mr. Chairman, I think one of the  
6 basic problems that we're having here is the proffering  
7 of documents by counsel for -- representative for CCANP  
8 in a situation of this kind where we haven't had a  
9 chance to go back and check what documents were produced  
10 to the State of Texas, whether that was, in fact, in  
11 response to what Mr. Sinkin has just alluded to. I  
12 would hope that difficulties of this kind could be  
13 obviated, valuable hearing time would not be taken up,  
14 by going through this type of exchange with CCANP at a  
15 recess or at lunchtime rather than during hearing time.

16 Perhaps the more appropriate question the  
17 Board might want to ask Mr. Sinkin is where is he going?  
18 Why does he want a definition of SDD's and TRD's? And  
19 maybe once the Chairman is aware of that, maybe we can  
20 find a way to take care of whatever the problem is.

21 MR. SINKIN: Well, I'd be happy to.

22 Two of the primary kinds of documents that  
23 Quadrex reviewed were system design descriptions and  
24 technical reference documents. I just wanted the  
25 definitions of what those are clearly in the record as

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1 far as the company that was using that term used it.  
2 That's as far as I was going with Mr. Goldberg.

3 MR. AXELRAD: I'm sorry. What was your last  
4 sentence?

5 MR. SINKIN: I beg your pardon?

6 MR. AXELRAD: I didn't hear your last  
7 sentence.

8 MR. SINKIN: That is as far as I was going  
9 with Mr. Goldberg.

10 MR. AXELRAD: I can only say that if CCANP  
11 wanted Brown & Root's definitions of SDD's and TRD's,  
12 perhaps he should call a witness from Brown & Root.

13 MR. SINKIN: Mr. Chairman, I'll withdraw for a  
14 moment on this exhibit.

15 JUDGE BECHHOEFER: Well, why don't you just --  
16 let's leave it marked and --

17 MR. SINKIN: Leave it marked CCANP 72.

18 JUDGE BECHHOEFER: Because I think the purpose  
19 you described for getting it into evidence seemed  
20 appropriate. So, I'm not sure what witness or who you  
21 could get it in through.

22 MR. SINKIN: I'm sorry. You said the purpose  
23 I described was?

24 JUDGE BECHHOEFER: Satisfactory.

25 MR. SINKIN: Satisfactory.

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1 JUDGE BECHHOEFER: Yes.

2 MR. SINKIN: Thank you.

3 MR. REIS: Mr. Chairman, we haven't had an  
4 opportunity to address that question whether it is  
5 satisfactory. I was just thinking that there were  
6 questions as to if it's satisfactory. We don't know  
7 that Quadrex used the terms the same way Brown & Root  
8 did. We don't know whether they have general  
9 engineering meaning. We don't know whether Mr. Goldberg  
10 uses them the same way. So, I don't know whether it has  
11 any probative value at all even if we got it  
12 authenticated.

13 JUDGE SHON: Well, Mr. Reis, isn't that  
14 exactly what Mr. Sinkin was trying to find out from Mr.  
15 Goldberg, whether the definitions stated in this  
16 document corresponded to his notion of what these  
17 definitions should be and also ultimately, I presume,  
18 for the Quadrex report use of it?

19 MR. SINKIN: That's exactly what I asked.

20 MR. AXELRAD: Mr. Chairman, perhaps we can  
21 again take care of this. I don't know what the witness'  
22 understanding is of those particular terms, but if he  
23 has looked at those two definitions and if those two  
24 definitions are, in fact, his general understanding of  
25 what the documents were that were being used on the

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1 project and that therefore Quadrex might have reviewed,  
2 then perhaps we can take care of it. If this particular  
3 witness doesn't know, then it will be up to Mr. Sinkin  
4 to do it through some other mechanism.

5 MR. SINKIN: Let me ask a question and see if  
6 it does the job.

7 Q (By Mr. Sinkin) Having reviewed these two  
8 descriptions, Mr. Goldberg, the system design  
9 description and the technical reference document, does  
10 that conform to your understanding of what these  
11 documents should be? That will be question number one.

12 A They have a good ring, but they're going into  
13 excruciating detail here and I can't say from personal  
14 knowledge whether all the things in this description  
15 were necessarily what was in place either before or  
16 after Quadrex. I just don't know.

17 Q But, let me be real clear what I'm asking  
18 you. Do these descriptions fit your understanding of  
19 what these documents should be?

20 A Not what they should be, what I understood  
21 them to be.

22 Q What you understood them to be in 1981, but  
23 with the caveat --

24 A I say they have a good ring to them.

25 Q Right.

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1           A     But they go into excruciating detail that I  
2 have never seen before.

3           Q     Okay. And when Quadrex says it reviewed  
4 system design descriptions and technical reference  
5 documents, is it your understanding that this is the  
6 type of document that they would have reviewed?

7           A     Yes, it --

8           MR. AXELRAD: Mr. Chairman, the witness has  
9 already answered that the definition has excruciating  
10 detail which may not be the type that he would have had  
11 in mind, so I don't think he can answer the question as  
12 to whether that would have been what Quadrex would have  
13 used.

14          MR. SINKIN: Even with the excruciating detail  
15 that he might not be familiar with, the overall nature  
16 of the document as described here he certainly can be  
17 familiar with and I think he indicated he was.

18          JUDGE BECHHOEFER: I think he can answer the  
19 question. He can qualify it in any way he wants to.

20          A     Well, in the limitations of my previous  
21 answer, I think these were the kinds of documents that  
22 Quadrex was referring to.

23          Q     (By Mr. Sinkin) Thank you very much.

24          MR. SINKIN: Mr. Chairman, I guess to avoid  
25 any future problems, I will read into the record what

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1 these two descriptions say in case for some reason this  
2 document does not come into evidence later. And I'll  
3 try and do that as expeditiously as possible.

4 MR. PIRFO: Mr. Chairman, I'm not sure that  
5 it's appropriate for the representative of CCANP to  
6 enter evidence from some document which is not in  
7 evidence. The problem I have is not who reads it, the  
8 problem is taking some document out of the air and  
9 reading the definition into the record as evidence. I  
10 mean, who is testifying to that? Mr. Goldberg cannot  
11 testify to that. If Mr. Sinkin reads it in, he's in  
12 essence just in-running the authenticity problem we have  
13 with this document. I mean, reading it into the record  
14 doesn't accomplish anything.

15 MR. AXELRAD: Mr. Chairman, it seems to me the  
16 document has been marked for identification, the  
17 document is not going to go away. It is clear from the  
18 record, whether or not the document ever gets admitted  
19 into evidence, what it was that the witness was  
20 referring to when he answered the question. So, it  
21 doesn't appear to be there's any need to do anything  
22 further.

23 MR. SINKIN: That's fine.

24 JUDGE BECHHOEFER: All right. It will travel  
25 with the record, but if you find somebody or if you can

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1 authenticate it later on --

2 MR. PIRFO: If Mr. Sinkin wants to read those  
3 words into the record, if it comes in for the limited  
4 purpose of Mr. Goldberg's testimony, he says they ring  
5 true, whatever that is appropriate of, then we have no  
6 objection to Mr. Sinkin reading it into the record for  
7 that limited purpose. Mr. Goldberg has testified that  
8 they ring true.

9 JUDGE BECHHOEFER: Do you have other questions  
10 based on this document?

11 MR. SINKIN: Not of Mr. Goldberg. We will  
12 just leave it as marked for identification.

13 JUDGE BECHHOEFER: You may find a witness who  
14 can authenticate it later possibly.

15 MR. SINKIN: I hope so.

16 Well, I guess before leaving this document  
17 entirely, it is my understanding that this was to be the  
18 Brown & Root quality assurance manual in place at the  
19 time Quadrex was doing their study. I'm saying that  
20 only so you can check.

21 But we would hope to have -- if in error the  
22 wrong version was provided, we would hope to have the  
23 same pages, the same subject covered from the correct  
24 copy, the one that was in place at the time. I realize  
25 at this time you don't know what was asked for, you

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1 don't know what was produced. But should it turn out to  
2 be the case that the wrong version was produced, we  
3 would appreciate having the correct version.

4 MR. AXELRAD: If Mr. Sinkin is talking about  
5 any kind of expansion or change in discovery, that comes  
6 far too late. We will consider any request Mr. Sinkin  
7 makes off the record. If he has any difficulties, I'm  
8 sure he can bring them to the attention of the Board.  
9 But it is not his discovery. I'm not too sure what his  
10 understanding is --

11 JUDGE BECHHOEFER: Well, we have allowed Mr.  
12 Sinkin to have further discovery, which he didn't  
13 exercise. But when we allowed him to, we precluded him  
14 from getting anything that the State of Texas had  
15 previously gotten. So, he may, in a sense, be stuck  
16 with what Texas got to some extent through what we  
17 ordered.

18 MR. AXELRAD: Mr. Chairman, I'm not suggesting  
19 that we're going to be uncooperative, but I just didn't  
20 want my silence to Mr. Sinkin's remarks to indicate that  
21 we were agreeing in advance to anything further. We  
22 will be glad to discuss with Mr. Sinkin off the record  
23 whatever it is that he wants and see if we can reach an  
24 amicable solution.

25 JUDGE BECHHOEFER: Okay.

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1 MR. SINKIN: Fine.

2 Q (By Mr. Sinkin) Mr. Goldberg, at page 8 of  
3 your testimony, answer number 11, I would like just to  
4 review that answer and I'll have some questions about  
5 it.

6 Have you had a chance to review it?

7 A Yes, I have.

8 Q You testified that you tried to keep Houston  
9 Lighting & Power's involvement to a minimum in this  
10 study and state at line 11 that Quadrex was in complete  
11 control of the review. But isn't it true that you wrote  
12 to Brown & Root when the study was beginning and said  
13 that this was an HL&P study and that Quadrex would  
14 simply be providing technical assistance to HL&P?

15 A I don't recall that.

16 Q Mr. Goldberg, I've provided you with a copy of  
17 a letter from yourself to Mr. Saltarelli dated February  
18 2nd, 1981. I'd like to give you a chance to review that  
19 letter.

20 A I've read it.

21 Q You've read it. Do you recognize this letter?

22 A I haven't seen this letter since probably  
23 February 2nd, 1981.

24 Q But you did write this letter to Mr.  
25 Saltarelli?

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1           A     It certainly looks like my hen scratching,  
2     yes.

3           MR. SINKIN: I would ask that this be marked  
4     as CCANP 73.

5           MR. AXELRAD: No objection.

6           Q     (By Mr. Sinkin) You see the second paragraph,  
7     Mr. Goldberg?

8           A     Yes, I do.

9           Q     In which you say that Dr. Sumpter of HL&P will  
10    be responsible for conducting the review and that  
11    Quadrex has been contracted to provide technical  
12    assistance. And at the end of that page you stress this  
13    review is a priority activity for South Texas.

14           The reason I raise the question with you is it  
15    seems to me you were saying -- you were couching the  
16    study much more to Mr. Saltarelli as an HL&P study, that  
17    Quadrex was going to be coming in to help, but that this  
18    was an HL&P study and you very much wanted their  
19    cooperation.

20           MR. PIRFO: Mr. Chairman, I'm going to object  
21    to this as an impeachment on a collateral issue. Who  
22    originated the study or -- the witness has testified on  
23    direct that this was to be an HL&P study and now Mr.  
24    Sinkin is attempting to impeach that testimony by  
25    showing him a letter of February 2nd, 1981 that says

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1 that HL&P was going to take the lead, whereas Quadrex  
2 was merely to provide technical assistance. This is not  
3 material to any issues that are to be decided by this  
4 tribunal and it's therefore impeachment on a collateral  
5 issue and simply inappropriate.

6 MR. SINKIN: I think, Mr. Chairman, this was  
7 not brought in as an impeachment document. Let me ask  
8 the next question, drop the previous question and maybe  
9 it will be clear why I brought this up.

10 (No hiatus)

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1 Q (By Mr. Sinkin) Were you concerned about whether  
2 Brown & Root would give their full cooperation to the  
3 Quadrex study?

4 A Yes, I think that's correct.

5 Q And so you wrote to Mr. Saltarelli and tried to  
6 stress to him that this was an HL&P study and that he  
7 should give his full cooperation?

8 A I think that's probably correct. It's as I  
9 say, almost five years, about four and-a-half years since  
10 I've seen this.

11 As I recall, clearly the signals to Quadrex  
12 were uncluttered, that we wanted an independent -- it was  
13 really their review.

14 Dr. Sumpter had the function as a coordinator.  
15 I suspect that I wanted to not cause Brown & Root to get  
16 defensive and it might well have been that my feeling was  
17 that if this is advertised as a Light Company review,  
18 that there would be less stonewalling of information  
19 conceiveably.

20 One engineer gets concerned if another engineer  
21 is looking at their work. There is always the threat of  
22 commercial issues. "I am having to show my way of doing  
23 business to another engineer who's competing in the same  
24 market place."

25 So I'm reasonably sure that probably couched it

1 in these terms to reduce the fears of Brown & Root, so as  
2 to enhance cooperation needed to make this review useful.

3 Q Other than the concern of one engineer for  
4 another engineer looking over his shoulder, someone else  
5 seeing how you do your work, were there any other reasons  
6 you were concerned about whether Brown & Root would  
7 cooperate with this study?

8 MR. PIFRO: Again, Your Honor, I would object.  
9 I fail to see the relevance of Brown & Root's mind set at  
10 this time.

11 MR. SINKIN: Well, I think, Mr. Chairman, it  
12 goes to the facts and circumstances under which the  
13 Quadrex report was being conducted.

14 MR. PIFRO: There's many things that could have to with  
15 facts and circumstances under which Quadrex was reported  
16 and that's -- but that's not relevant here. That's not  
17 an adequate answer.

18 JUDGE BECHHOEFER: I think we'll overrule that.  
19 It's all in this direct testimony of Mr. Goldberg,  
20 essentially.

21 THE WITNESS: Would you repeat your question.

22 MR. SINKIN: Let me see if I can.

23 THE WITNESS: I'm getting caught up in the  
24 excitement.

25 Q (By Mr. Sinkin) Were there any reasons other



1 than the ones you've expressed, one engineer looking over  
2 the shoulder of another engineer being concerned about  
3 how someone else would see your work and what you did,  
4 were there reasons other than that that you were  
5 concerned about whether Brown & Root would cooperate with  
6 Quadrex in this study?

7 A Well, I think it's fair to say that advertising  
8 this as an HL&P review mandates contractor's corporation,  
9 because we have a responsibility to oversee the  
10 activities of the contractor. And if we choose to use  
11 outside authority to assist us in carrying out those  
12 responsibilities, a contractor clearly has the  
13 responsibility to cooperate.

14 So this would certainly tend to avoid any  
15 subsequent bickering that might ensue should that  
16 contractor believe that this is not in concert with the  
17 licensee carrying out its responsibilities.

18 Q I guess my question is did you foresee there  
19 might be problems with Brown & Root other than for the  
20 reasons you've stated one engineer, those are sort of  
21 generic problems, one engineer not wanting another  
22 engineer to look over his shoulder?

23 A I think I could foresee the kind of situation I  
24 just attempted to explain, irrespective of who the  
25 contractor would have been. When a utility brings in an

1 outside engineering authority to look at the work of an  
2 architect engineer and speaking as an ex-architect  
3 engineer, that is not a very popular situation.

4 Now, in order to gain that contractor or that  
5 engineer's cooperation, it has to clearly be under the  
6 role of the utility's responsibility to oversee the  
7 adequacy of his work. That has to be understood.

8 Q You have expressed your respect for Mr.  
9 Saltarelli earlier in your testimony. Did you have an  
10 adversarial relationship with Mr. Saltarelli at this time  
11 in early 1981?

12 MR. PIRFO: Objection, Your Honor. That's not  
13 only vague, it's also irrelevant. Adversarial  
14 relationship, what does that mean.

15 Q (By Mr. Sinkin) Were you and Mr. Saltarelli  
16 having repeated disputes about Brown & Root's design and  
17 engineering efforts in February of 1981?

18 A Not at all. Mr. Saltarelli and I, I think, had  
19 an excellent business relationship. I found him to be a  
20 very conscientious, talented and responsible person.

21 MR. SINKIN: I would move CCANP 73 into  
22 evidence, Mr. Chairman.

23 JUDGE BECHHOEFER: Any objection.

24 MR. AXELRAD: No objection.

25 JUDGE BECHHOEFER: Okay, CCANP Exhibit 73 will

1 be admitted into evidence. Mr. Sinkin, are you ready for  
2 a breaking point?

3 MR. SINKIN: I'm really hungry.

4 JUDGE BECHHOEFER: So are we.

5 MR. SINKIN: Let me see. I think -- yes, I'm  
6 at a very reasonable breaking point.

7 (Luncheon recess.)  
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1 (Hearing reconvened at 2:10 p.m.)

2 JUDGE BECHHOEFER: Mr. Sinkin, are you ready  
3 to resume?

4 MR. SINKIN: Yes, I am.

5 JUDGE BECHHOEFER: Back on the record.

6 Q (By Mr. Sinkin) Mr. Goldberg, I just want to  
7 go back to CCANP 73 for a moment, your letter to Mr.  
8 Saltarelli. I discussed this with counsel and I'm not  
9 sure. On the side of the letter appear what appears to  
10 be a confidential stamp. Do you know if you asked that  
11 this letter be held as a confidential letter?

12 A No. I'm certain it wasn't. Mine looks like  
13 it's an old movie ticket.

14 Q Yours looks like it's an old movie ticket?

15 A It's got a lot of holes in it, but there's no  
16 markings on it.

17 Q Oh, okay. You're looking at the left edge,  
18 I'm looking at the right edge.

19 A On my right edge -- I don't know what I got  
20 here.

21 Q Okay.

22 A Mine's so faded, I can't figure it out. But  
23 I -- I can't imagine this being confidential.

24 Q Okay. Prior to the receipt of the final  
25 Quadrex report, if I'm correct, Dr. Sumpter was given

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1 drafts of Volumes 2 and 3 sometime shortly before the  
2 delivery of the final report. Do you remember that?

3 A I have no personal knowledge of that. I have  
4 understood from others that that happened.

5 Q So, you never saw those drafts of Volumes 2  
6 and 3?

7 A No.

8 Q On page 9, line 15 of your testimony you  
9 stated that you don't have detailed notes of the March  
10 18th briefing by Mr. Stanley, but you have looked at an  
11 outline that Mr. Stanley apparently prepared for his  
12 presentation at the meeting.

13 I'm going to show you a document, Mr.  
14 Goldberg, and ask if this is the outline that you looked  
15 at.

16 JUDGE BECHHOEFER: Mr. Sinkin, does this  
17 happen to be Document Number 3 that we were supplied by  
18 the Applicants or is this a different one?

19 MR. SINKIN: I don't -- I can tell you in a  
20 minute. I think it probably is.

21 JUDGE BECHHOEFER: My notes here say to ask  
22 that.

23 MR. SINKIN: I'm afraid I can't answer that  
24 question right now, Mr. Chairman, but I suspect that it  
25 did come in that group of documents supplied by the

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1 Applicants on discovery.

2 Q (By Mr. Sinkin) Have you had a chance to  
3 review the document?

4 A Yes.

5 Q Is this the outline you referred to in your  
6 testimony at page 9?

7 A I believe it is.

8 Q You say in your testimony that in view of the  
9 brevity of the session, I am fairly sure that he did not  
10 cover all of the points in his outline.

11 How long did that session last, if you  
12 remember?

13 A Oh, I was in and out of that meeting. So,  
14 quite frankly, I don't remember exactly, but it wasn't a  
15 very long session. It was a matter of a couple of  
16 hours.

17 Q Turning to the document itself, while you were  
18 in the session did Mr. Stanley tell you that Brown &  
19 Root's work from the '76 to '80 period seemed invisible  
20 in terms of results?

21 A I believe he made that comment with regard to  
22 nuclear analysis.

23 MR. SINKIN: Actually, I should interrupt  
24 myself to mark this as CCANP Exhibit 74 for  
25 identification.

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1           Q     (By Mr. Sinkin) While you were in the  
2 meeting, did Mr. Stanley tell you that there was strong  
3 evidence of a hostile attitude by Brown & Root towards  
4 Houston Lighting & Power?

5           A     He may have. Certainly that did not come as  
6 any surprise if he did. One could detect that attitude  
7 if you were working on the job.

8           Q     You had personally detected that attitude by  
9 then?

10          A     I think it was a very unfortunate situation.  
11 There seemed to be very bad feelings both from Brown &  
12 Root's perception of HL&P and vice versa. So much so  
13 that I think it was in the spring or early spring of  
14 1980 that we conducted an organizational development  
15 session to try to get to the heart of why there was such  
16 bad feeling between the two organizations and I think it  
17 was very useful.

18          Q     Could that have been the spring of 1981?

19          A     '81. I'm sorry. If I said '80, it was the  
20 spring of '81.

21          Q     And the purpose of that organizational session  
22 was to try and get at the roots of this hostility and do  
23 something about it?

24          A     To try to understand why it was that we,  
25 speaking for HL&P, why so many of our people were highly 11625

1 suspect of Brown & Root's motives and vice versa why  
2 Brown & Root was so resentful of some of HL&P. And it  
3 did get at some rather interesting underlying  
4 situations.

5 Q What did you find were those roots?

6 A It seems that the people working on the  
7 project for Brown & Root I think were genuinely  
8 interested in trying to do a good job. I personally was  
9 very pleased because it came somewhat as a little bit of  
10 a surprise. When you have problems, you can't always be  
11 sure where they're being fostered.

12 I think a number of HL&P personnel were  
13 pleasantly surprised to come to understand that most of  
14 the people on that project were trying to do the very  
15 best job they could. Obviously the problems must lie  
16 elsewhere. Clearly it wasn't being -- it wasn't  
17 something that was starting within the ranks, it was  
18 coming from elsewhere.

19 Q By elsewhere you mean management?

20 A I believe that management hadn't fostered the  
21 right kind of team approach to getting this job  
22 completed. And I'm referring specifically to the  
23 management of Brown & Root.

24 Q You didn't feel that the management of HL&P  
25 shared any responsibility in that area?

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1           A     Well, from my perspective, what I sensed was  
2     that the management of Brown & Root was conducting the  
3     business of trying to handle this project with the  
4     perception that they must do things in such a way that  
5     they will protect themselves from future litigation. In  
6     spite of numerous attempts by HL&P management of  
7     assuring Brown & Root that the surest way to avoid that  
8     kind of a situation would be to have a successful  
9     completion of the project, the conduct of Brown & Root's  
10    management seemed to focus on what I would call  
11    defensive management as opposed to proactive  
12    management.

13               And I exclude Mr. Saltarelli from that  
14    comment. As I said earlier, I did not sense that in Mr.  
15    Saltarelli.

16           Q     Well, by this time, by the spring of 1981  
17    there had already been on the project some agreements  
18    signed between HL&P and Brown & Root regarding future  
19    litigation; isn't that right?

20           A     There was a tolling agreement in place which,  
21    in effect, said that the parties were willing to set  
22    aside any thoughts of litigation for a prescribed period  
23    of time. And the thought behind that that hopefully  
24    during that period of time that progress and the  
25    relationship would be billed toward a successful

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1 conclusion, if you will, which would obviate hopefully  
2 the need for any litigation.

3 Q Do you know how long it had been since that  
4 agreement had been signed as of the spring of '81?

5 A I'm not sure. I know that it was going to  
6 expire in the end of '81. I can't recall whether it was  
7 in force for a period of two years or more. It's been  
8 such a long time since I visited that particular  
9 subject.

10 Q On the second page of this same document in  
11 item 15, the last line, Mr. Stanley writes a note,  
12 "Brown & Root management profanity toward HL&P should  
13 stop now."

14 Did he talk -- were you there when he talked  
15 about profanity being used by Brown & Root's management  
16 toward HL&P?

17 A I honestly can't recall. Again, when you're  
18 already aware of those kinds of unfortunate  
19 relationships, it's hard to remember whether it was  
20 brought up in my presence or not. It was pretty clear  
21 from my recollection that the two companies were not  
22 getting on well at all.

23 Q Back to page 1, item 6. While you were  
24 present, did Mr. Stanley state that there was  
25 considerable evidence of a chaotic work situation?

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1 A I think he characterized that, yes.

2 Q In item 7 Mr. Stanley speaks of a rigid  
3 attitude without any evidence of an open mind toward  
4 what HL&P needs. Were you there when he brought that  
5 up?

6 A I believe so, yes.

7 Q Do you know what he was expressing in terms of  
8 what HL&P needs were that Brown & Root was not  
9 responding to?

10 A I think the focus of that remark was on the  
11 attitude that clearly the things that were already a  
12 matter of regulation that affected this particular  
13 project, that Brown & Root was trying to strictly adhere  
14 to the requirements of those regulations. Where HL&P  
15 was attempting to encourage Brown & Root to be more  
16 active was in examining draft new regulations which may  
17 not yet have been issued but might portend requirements  
18 that if one were to act on in a timely way, you might be  
19 able to deal with them much more efficiently than if you  
20 were kind of laid back and wait and see whether they  
21 were going to become efficient. I sense that that  
22 difference in attitude was one of the distinctions that  
23 I would make between someone who's engineered these  
24 plants before versus someone who's doing it pretty much  
25 for the first time.

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1           Q     Well, that rings with familiarity like a pipe  
2 rupture outside containment analysis where you had  
3 plants in the early phase that were impacted because  
4 that became a requirement during construction so that  
5 you think about it before you get involved even when  
6 it's in the draft phase, you're ahead of the game?

7           A     Well, that particular example, Mr. Sinkin, I  
8 don't think fits this particular discussion. What I was  
9 saying there was the case of where people had basically  
10 built a power plant and then the requirements surfaced  
11 and they had obviously a much more difficult task of  
12 installing that kind of equipment than would have been  
13 the case if the requirements had surfaced while they  
14 were in the process of building.

15          Q     Is there a -- I chose a bad example. Is there  
16 a particular kind of requirement that Brown & Root was  
17 not treating as possibly coming that should have been  
18 treated as possibly coming?

19          A     Well, there was in the case of, say, the fire  
20 protection rule in Appendix R, that had come out in  
21 draft form a considerable time before it was ever issued  
22 officially. And I know that HL&P was attempting to  
23 accelerate Brown & Root's attention to that document,  
24 even though it was in draft form, because it was  
25 believed that we would probably save considerable time

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1 and money if we could undertake the incorporation of  
2 some of those design requirements at that point in the  
3 program rather than wait for it to become an official  
4 regulation.

5 Q Item 9, Mr. Stanley states key design  
6 verification questions were not being addressed.  
7 Parenthetically he explains are the assumptions valid,  
8 is the input reasonable, is the output reasonable. Did  
9 he express that while you were in the meeting?

10 A He may have. It's hard to remember because  
11 clearly that was a subject that was in the final  
12 report.

13 Q I realize it was in the final report and that  
14 was a clarification and question I wanted to bring up  
15 when I saw that. The final report talks about  
16 disciplines not evaluating whether the input they're  
17 receiving is reasonable. Is that a verification  
18 function which should be performed? Is that the same as  
19 a verification?

20 A Well, in this area one has to be more  
21 precise. In the case of an analysis that's performed  
22 within a given discipline, after that work is completed  
23 someone with equal or greater technical capability would  
24 be required to review it if we're talking about an  
25 analysis that is, say, for a safety-related feature.

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1 The person who makes that review would want to satisfy  
2 himself that the input to the analysis was appropriate,  
3 that the assumptions were reasonable, that the modeling  
4 techniques were proper, and wherever possible, if by  
5 independent analysis, demonstrate the reasonableness of  
6 the calculation result.

7 Now, that's one type of verification of  
8 input. But in the sense of, say, an electrical engineer  
9 receiving as input a motor horsepower requirement to  
10 drive a pump, the electrical engineer is not a pump  
11 expert. If a mechanical engineer says I need motor  
12 horsepower of so much for certain electrical motor  
13 efficiency, that's input to the electrical department  
14 that they have to provide for the power, appropriate  
15 cabling, et cetera, and they don't go back and say,  
16 well, let me see now, I think I'm going to check up on  
17 that mechanical engineer and make sure he really needs  
18 that kind of pump.

19 One discipline doesn't necessarily, as a  
20 matter of input review, check the output of another  
21 group if the character of the information is not  
22 familiar to the group receiving the information.

23 Q Would there be circumstances where one group  
24 would check the input of another group?

25 A Wherever it is feasible, it's certainly

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1 prudent design practice to look at that input to see if  
2 it's reasonable. For example, a structural engineer who  
3 designs nuclear structures to handle pipe break loads  
4 and he gets a number from, say, the mechanical section  
5 that's just crazy, in his experience he's never seen  
6 loads that big or that small, he would challenge that  
7 and say are you sure about these numbers, they just  
8 don't look reasonable. And that would be a situation  
9 where a prudent engineer would attempt to satisfy  
10 himself that input information is correct.

11 But alternatively, if that structural  
12 engineer -- let me take a different example. If that  
13 structural engineer had to handle a load for a device  
14 that he had never encountered before, he would have no  
15 prior experience and he might be less likely to be able  
16 to satisfy himself that that input number looked  
17 reasonable.

18 Q Thank you.

19 But the concern being expressed in item 9 by  
20 Mr. Stanley is the interdisciplinary concern that you  
21 spoke of as the first type of verification; is that  
22 correct?

23 A He's talking about a lot of things here. His  
24 first sentence is internal document review comments  
25 rarely achieve very good rating. I assume from that, 11633

1 and I cannot be certain of it, he was referring possibly  
2 to people responding to some of the comments on these  
3 internal document reviews. I mean, these could even be  
4 procedures where if somebody writes a procedure and  
5 circulates it around and gets comments from other groups  
6 and maybe he doesn't like the comments, proceeds to  
7 ignore some of them. It's possible he means that.

8 Q Okay. Let me be more specific then. Item 9,  
9 that sentence I originally read, key design verification  
10 questions not being addressed, that's addressing within  
11 a discipline?

12 MR. PIRFO: Mr. Chairman, I'm having a little  
13 bit of problem with this. Mr. Sinkin is going through  
14 somebody else's notes and keeps asking Mr. Goldberg to  
15 tell us what Dr. Stanley or Mr. Stanley meant by those  
16 comments. And sometimes it's okay when Mr. Goldberg was  
17 at the meeting when these were discussed, but in this  
18 case he was not. And it's become apparent that Mr.  
19 Goldberg is unclear as to what necessarily was meant by  
20 the notes and that's why I'm having a little bit of  
21 difficulty. Trying to draw this out of Mr. Goldberg is  
22 really becoming quite speculative.

23 MR. SINKIN: Well, Mr. Goldberg stated that he  
24 knew Mr. Stanley said this, but he wasn't sure if he  
25 said this in this meeting or if it was in the final

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1 report. That may be -- I'm going for the concept which  
2 he certainly is familiar with because it was in the  
3 final report and I'm just trying to clarify if this was  
4 number one kind of verification or if it was number two  
5 kind of verification.

6 A Well, I think you have to go to the final  
7 report --

8 MR. PIRFO: May I have a ruling?

9 JUDGE BECHHOEFER: I think we'll overrule the  
10 objection.

11 You can answer it.

12 A I think you have to go to the final report  
13 because I don't think the report's conclusions match up  
14 with this item 9.

15 Q (By Mr. Sinkin) In that same item 9 Mr.  
16 Stanley has notes which say there's a strong Brown &  
17 Root interest in proceeding with preliminary data right  
18 up to fuel loading time.

19 Do you remember Mr. Stanley saying that to you  
20 on the 18th? Were you present?

21 A I've heard that. And, again, to be able to  
22 say under oath that I heard it on the 18th or whether I  
23 heard it subsequent, I can't be that sure. I've heard  
24 that expression. It may well have been on the 18th.

25 Q In item 10 Mr. Stanley notes virtually no

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1 analysis capability, NUS dependence, EDS dependence. On  
2 the 18th did he tell you that? Were you present when he  
3 said that?

4 A I remember his pointing out that the nuclear  
5 analysis strength appeared to be within NUS. Now, that  
6 in itself doesn't constitute some terrible deed. There  
7 are many architect engineers who will subcontract  
8 selected design activities to other firms that may have  
9 a special expertise. So, I don't want you to believe  
10 that the fact that they were using other companies  
11 constitutes in itself a problem.

12 (No hiatus)

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1 Q At the same time, at the same time, Mr. Stanley  
2 seems to be saying that Brown & Root had virtually no  
3 analysis capability and was dependent upon NUS as opposed  
4 to subcontracting selected design activities; they  
5 couldn't do any of it.

6 A Well, I think you perhaps might want to discuss  
7 that with Mr. Stanley because I don't think, if my memory  
8 serves me correctly, that that was to say they had no  
9 analysis capability across the board.

10 As I remember it his feelings, it was  
11 particularly a problem in the nuclear analysis area, and  
12 as I recall, they were very dependent upon NUS for the  
13 performance of nuclear analysis.

14 Q Let me be sure about this question. If we  
15 insert the word "nuclear," if Brown & Root had virtually  
16 no nuclear analysis capability and was dependent upon,  
17 NUS would you agree that that was the condition?

18 A I would agree if he said that Brown & Root had  
19 no nuclear analysis capability unique to Brown & Root.  
20 But they were contracting for those services from NUS.

21 Q On item ten, in the last sentence, Mr. Stanley  
22 notes Brown & Root calculations have high error rate even  
23 though calculations are often rather simple. Were you  
24 present when Mr. Stanley spoke about this problem?

25 A I don't think I heard that on the 18th. I've

1 heard some version of that subsequently.

2 Q All the way to the last item on page two, No.  
3 20, there were no minimum qualifications defined for  
4 design verifiers. Did Mr. Stanley tell you that day that  
5 this was a problem within Brown & Root?

6 A I don't treat that as a problem. I treat that  
7 as an observation.

8 Q Why don't you consider it a problem that there  
9 were no minimum qualifications for design verifiers?

10 A Well, I think in the context of a whole  
11 engineering organization, let's start with any job in  
12 engineering and ask yourself what are the qualifications.

13 The qualifications to be an electrical  
14 engineer, usually, is that you are graduated from an  
15 accredited college or university with a degree in  
16 electrical engineering. And I assume that the person  
17 that's doing design verification of electrical  
18 calculations might well be an electrical engineer. His  
19 qualifications are no more spelled out than they are for  
20 the person who does the work.

21 Q So the qualifications of a verifier are the  
22 same as the qualifications for someone doing the original  
23 work?

24 A It's an accepted premise that that person  
25 should have comparable or greater skill than the person

1 who's done the work.

2 Now, you can have a piece of paper that says  
3 that or you can accept the common sense suggestion.  
4 That's usually what one does.

5 MR. SINKIN: I would move CCANP 74 into  
6 evidence, Mr. Chairman.

7 MR. AXELRAD: No objection.

8 MR. PIRFO: No objection.

9 JUDGE BECHHOEFER: Okay. CCANP 74 will be  
10 admitted into evidence. Are you going to ask further  
11 questions at this time on 74?

12 MR. SINKIN: Let me just check.

13 JUDGE BECHHOEFER: If not, I would like to ask  
14 one.

15 MR. SINKIN: No, I'm not.

16 JUDGE BECHHOEFER: Mr. Goldberg, I'd like to  
17 just interrupt for a minute, staying on 74. I notice a  
18 number of numbers with circles around them on the left  
19 edge of the document. What is the difference in  
20 numbering, if any, between pages two and pages three.  
21 The series of numbers seems to be different and I was  
22 wondering whether you might recognize that.

23 MR. AXELRAD: Mr. Chairman, if it might  
24 explain, this is Mr. Stanley's outline; it is not Mr.  
25 Goldberg's outline. Mr. Stanley will be testifying. I

1 think it might be best if you ask Mr. Stanley those kinds  
2 of questions.

3 JUDGE BECHHOEFER: Well, let me point out where  
4 I'm going. Maybe you can still answer this, because what  
5 I wanted to do was not so much find out what the numbers  
6 meant, but to find out whether the numbers on the last  
7 couple of pages were cross references to specific items  
8 in the list of numbers and if that's so, whether the  
9 reference on the last page, three lines from the bottom,  
10 goes to the paragraph which was seven, which we had some  
11 discussion of a few minutes ago, whether that elaborates  
12 what item seven referred to.

13 THE WITNESS: Mr. Chairman, the item seven  
14 you're referring to is on which page, please?

15 JUDGE BECHHOEFER: The extremely rigid  
16 attitude, the item seven is on the front page and you  
17 were asked a number of questions about that, desogm  
18 meeting the NRC requirements?

19 THE WITNESS: Right.

20 JUDGE BECHHOEFER: An example of that, one  
21 example of that, what's listed three lines from the  
22 bottom, where it says flushing of tanks, shielding ALARA.

23 MR. AXELRAD: Three lines to the bottom on the  
24 next to the last page, not the last page.

25 JUDGE BECHHOEFER: I'm sorry, yes.

1           THE WITNESS: I'm going to -- this is a very  
2 tentative answer, Mr. Chairman. I don't think so. I  
3 don't think that that's going to fit this particular  
4 situation. I don't think that, for example, if we were  
5 having any special difficulty with Brown & Root  
6 convincing them of the importance of the ALARA, they may  
7 not have even begun, but they weren't fighting it. It  
8 was just a case of getting up to speed. I was thinking  
9 in terms of Appendix R, which was the example I used,  
10 which was a proposed new regulation and I think it was  
11 Brown & Root's posture to be very provincial about  
12 regulations, that until they became I should, final, they  
13 weren't paying enough goes to them and I think HL&P's  
14 feeling about it was this is an area where an engineer  
15 would do well to get aboard the train early as it would  
16 serve to allow him to incorporate new requirements at a  
17 time when it would be far more opportune, more efficient,  
18 result in far less rework.

19           JUDGE BECHHOEFER: Were you present at the  
20 meeting at a time when particularly the shielding and the  
21 ALARA aspects of shielding was discussed?

22           THE WITNESS: I don't really believe so. I  
23 think my knowledge of the ALARA aspects came along pretty  
24 much at the time of the final report.

25           JUDGE BECHHOEFER: Were any of the HL&P

1 representatives at that meeting who might have been at  
2 that meeting at the time this particular subject was  
3 discussed, if it was discussed, would they have had any  
4 responsibilities for reporting 50.55(e) violations to  
5 NRC?

6 THE WITNESS: I believe that that would be a  
7 good question to put to Dr. Sumpter, find out if he was  
8 present, for example.

9 JUDGE BECHHOEFER: One other question. Were  
10 you present when there was a discussion on the subject  
11 indicated by No. 17 on the second page, difficulty in  
12 locating back up information.

13 THE WITNESS: It doesn't ring a bell. And  
14 again, I think that's the kind of a subject that in any  
15 kind of a review of this type, owing to the tight  
16 schedule, I would have expected there will be difficulty  
17 people finding all the back up information.

18 JUDGE BECHHOEFER: Okay, that's all the  
19 questions I have at this time.

20 Q (By Mr. Sinkin) I want to get back to a  
21 question raised by the Chair, Mr. Goldberg. Present at  
22 the March 18th meeting according to to your testimony,  
23 were Dr. Sumpter and Mr. Stanley. Is that your  
24 recollection of the only people that were present,  
25 yourself, Dr. Sumpter and Mr. Stanley?



1           A     That's my recollection.

2           Q     And at that time, March 18th, 1981, did Dr.  
3     Sumpter have any responsibilities for seeing that the NRC  
4     was noticed of potentially reportable items under 50.55  
5     (e)?

6           A     I think any person who has access to  
7     information, any person who's in the employ of the  
8     utility, who's assigned to the project and of a technical  
9     capacity, who comes upon information that might have a  
10    reportable character, has the responsibility to see to it  
11    that such matters are addressed in that fashion.

12          Q     So then you would exclude by definition, the  
13    definition you just gave, Mr. Stanley?

14          A     That's correct.

15          Q     I do have one other question on CCANP 74, item  
16    five. Mr. Stanley's notes say, "Where is management  
17    planning. How could this be tolerated for so long; where  
18    was HL&P?" Did Mr. Stanley convey to you at that meeting  
19    this sense of where was HL&P while all this was going on?

20          A     I think that that subject was discussed, but I  
21    don't know whether it was discussed at this particular  
22    session.

23          Q     Do you know a particular session at which that  
24    was discussed?

25          A     I frankly don't recall a discussion between

1 myself and Dr. Stanley on that particular theme.  
2 Certainly can occur to somebody that if you find a  
3 condition -- if you find a condition -- that is systemic  
4 and serious and of any prolonged character, you have to  
5 ask yourself how come we didn't find it sooner, which is  
6 another way of saying the same thing.

7 Q Well, were you ever present at a meeting where  
8 Mr. Stanley made a remark similar to this that I have  
9 found things that are systemic, serious, prolonged that  
10 should have been dealt with long ago, where was HL&P, or  
11 something do that effect?

12 A I don't recall him ever saying that to me, no.

13 Q And you weren't present when he said it to  
14 anybody else?

15 A I'm saying that I don't remember him saying  
16 that in my presence, if he did, it didn't ring any  
17 familiar note.

18 Q On page ten of your testimony, you're  
19 describing the April 13th, 1981 meeting, and you state  
20 that present during that meeting, you believe, in  
21 addition to yourself, were Mr. Barker, Mr. Blau, Mr.  
22 Briskin, Dr. Sumpter and Mr. Robertson. Can you tell us  
23 at that time the position of Mr. Barker?

24 A Mr. Barker was then project manager of the  
25 South Texas Project for Houston Lighting & Power Company.

1 Q And Mr. Blau?

2 A I think Mr. Blau at the time was a supervising  
3 engineer, I think it was mechanical.

4 Q And Mr. Briskin?

5 A Mr. Briskin was the project planning and  
6 scheduling manager. And at that time, I believe that  
7 engineering reported through him to Mr. Barker.

8 Q At page eleven of your testimony, line 13, the  
9 question asked is whether Quadrex personnel identified  
10 any of their findings as reportable or potentially  
11 reportable to the NRC. Was Quadrex asked to identify any  
12 of their findings as being reportable or potentially  
13 reportable?

14 A I asked Quadrex if they could identify that  
15 from there perspective since they had worked around these  
16 plants, and were somewhat familiar with the requirements  
17 as it might serve to certainly focus our attention in  
18 those areas. Quadrex indicated they really couldn't,  
19 because you not only have to be knowledgeable about the  
20 NRC regulations but you also have to have a thorough  
21 knowledge of that particular plant, which they felt they  
22 wouldn't be able to acquire in such a short period.

23 Q So that the fact that they did not identify any  
24 of these findings as reportable or potentially reportable  
25 came as no surprise to you?

1           A     That's correct.

2           Q     The same page, line 16, in your answer, you say  
3     that discussion was fairly general. I just wanted to  
4     clarify. Are you characterizing the discussion as fairly  
5     general or the Quadrex presentation as fairly general or  
6     both?

7           A     I think it was both, as I recall.

8           Q     After the April 13th briefing, did you have a  
9     discussion with Dr. Sumpter about potentially reportable  
10    items that Quadrex might find?

11          A     I don't recall having a discussion -- well, I  
12    guess I had a discussion in addition to sending Dr.  
13    Sumpter a memorandum, which is I believe one of our  
14    exhibits, wherein I identified some categories that I  
15    wished to see defined his group into as it would serve to  
16    enable us to review likely issues for reportability, and  
17    in a collected packet, so to speak, to separate those out  
18    in a way that we could get those quickly for review.

19          Q     So after the April 13th briefing, you had  
20    fairly clear idea in your mind that there were going to  
21    be some potentially reportable items.

22          A     No, I didn't have that. I knew that I would  
23    have the responsibility to review the report for that  
24    possibility. And it occurred to me that there was a way  
25    in which that review could be streamlined and made

1 efficient if we could get the document organized in a  
2 fashion that we could concentrate our efforts in an area  
3 that would have the potential for a possible  
4 reportability.

5 Q But you had some idea by the time you had this  
6 discussion with Dr. Sumpter that there could well be  
7 potentially reportable items?

8 A I could have had that conversation with myself  
9 because I commissioned the study, that when you go in and  
10 look at the nuclear engineering areas of a nuclear  
11 project for the express purpose of trying to find out  
12 where you are, you better prepare yourself for the  
13 possibility that you may find something that has to be  
14 reported. So that's a given when you start one of these.

15 Q Well, were you, by suggesting these categories,  
16 were you asking Quadrex to do something that in a a sense  
17 they'd already said we don't want to do because now  
18 you're asking them to have a category in which they would  
19 put the things that might be potentially reportable?

20 A If you -- I'd like to check something to see if  
21 this is one of my exhibits.

22 Q I would refer to you Applicant Exhibit 58,  
23 which was not introduced but is marked as Applicant  
24 Exhibit 58.

25 A What I asked Mr. Sumpter to do in

1 subsequent communications with Quadrex, which is shown  
2 on our exhibit No. 58, would be to group  
3 the findings into four categories, first category I  
4 called most serious, where I defined that these would be  
5 problems that would pose a serious threat to the plant  
6 licensability in that we have not satisfied NRC  
7 requirements applicable to South Texas.

8 If I could get  
9 that kind of categorization from Quadrex, then I  
10 would have had information organized in a manner  
11 where we could go about the review for reportability  
12 in a very efficient way, because  
13 anything that would fall into that category would warrant  
14 examination for possible reportability.

15 Q Was one of the problems you considered falling  
16 in this category, designs or analyses which the NRC  
17 would ultimately require, but that were so far  
18 behind schedule at this point that there was a threat  
19 to licensability?

20 A You'll just have to look at the report and see  
21 what was in the most serious category.

22 Q I'm asking what you thought in your definition  
23 of most serious category, on April 15, 1981.  
24 Let me give you an item and you tell me if it  
25 goes in.



1 A All right.

2 Q Quadrex looks at the project, and  
3 examines a certain area of analysis and finds the  
4 analysis has not been begun, it is the kind of  
5 analysis the NRC will require, it's significantly  
6 behind schedule.

7 A Quadrex would have put that in the most serious  
8 category because as it turned out, they  
9 redefined the categories in their report  
10 and expanded the most serious to include not only items  
11 they didn't necessarily comply with NRC regulations but  
12 items which were behind schedule and therefore could  
13 prolong the issuance of a license.

14 Q When you wrote the categories on  
15 April 15, 1981, did you envision that the most  
16 serious category would include those sorts of items?

17 A No.

18 Q Which category on your April  
19 15, 1981 memorandum, would have included those sorts  
20 of items?

21 A It would probably have ended up in a serious  
22 category, because until you get the engineering done and  
23 construction of the plant finished, and get it  
24 licensed, it does pose a concern for the generation of  
25 reliable electric power.

1           Q    Do you envision that the most serious  
2 category -- let me talk about the serious category  
3 for a moment here. Serious category, the  
4 generation of reliable power -- let me think how  
5 to ask you this. Reliable power means a plant that  
6 works as opposed to one that breaks down?

7                   In my mind, that's what it meant. In your mind,  
8 on April 15 --

9           A    No.

10          Q    What did it mean in your mind?

11          A    The ability to generate power.

12          Q    The ability to generate power.

13          A    In the parlance of nuclear projects, you  
14 have certain portions of the plant which are  
15 designated as safety related, you have certain  
16 portions of the plant associated with the  
17 reliable generation of electric power. And that  
18 represents all the power block outside the safety  
19 related.

20          Q    So then the reliable generation of power  
21 is a question confined to the non-safety related items?

22          A    And/or parts of the safety related portion that  
23 aren't safety related per se but they're  
24 inside that bounds.

25          Q    You'll have to give me an example of that.

1           A     Well, we have in case of the nuclear plant, a  
2 portions of the nuclear plant are not  
3 safety related; it's a rather fine definition of what's  
4 safety related.

5           Q     Were some of the -- some of the design  
6 activities which Brown & Root had not yet commenced,  
7 were those on safety related items?

8           A     There were parts of the work that hadn't  
9 commenced that were on safety related items,  
10 yes.

11          Q     Which category were those on?

12          A     That wouldn't have been the first category,  
13 unless it constituted a violation of the NRC  
14 requirements.

15          Q     Would it have been in the second category?

16          A     More than likely.

17          Q     Even though it was safety related?

18          A     Even though.

19          Q     Did you have a discussion around this kind of  
20 refinement or findings with Dr. Sumpter prior  
21 to or after sending him this memo in this same time frame  
22 of this week of April 15th?

23          A     I know I had a discussion with him. I don't  
24 think I served that memo on him cold. We discussed  
25 these categories.

1           And my most serious category was a violation of  
2 NRC requirements. Now, if you want to get technical and  
3 say well what about something you haven't even  
4 done yet, I would hardly call that a violation of the  
5 requirement, because if that were true then the  
6 whole plant"s in violation the day it gets started.

1 Q You expected Quadrex to find many areas that  
2 had not yet been started, did you not?

3 A I was sure that they would find things that  
4 hadn't been done because the reported of progress of the  
5 engineering was far less than a hundred percent.

6 Q And you expected them to find things that  
7 hadn't been done that should have been done by that time  
8 if the design process had been efficient?

9 A Might well be they'd find that. That's always  
10 a possibility, yes.

11 MR. SINKIN: I would move Applicants' Exhibit  
12 58 into evidence, Mr. Chairman.

13 MR. AXELRAD: Mr. Chairman, I object at this  
14 time. One of the reasons we didn't move Applicants  
15 Exhibit 58 into evidence is that there are handwritten  
16 notes all over it and we thought we should wait until  
17 those handwritten notes could be identified by the  
18 writer.

19 JUDGE BECHHOEFER: Is the writer Mr. Stanley?

20 MR. AXELRAD: Yes.

21 MR. PIRFO: Well, the Staff -- it's a bit  
22 unusual, but since Mr. Sinkin's not provided a copy, I  
23 think we should go with the person -- answer to the one  
24 who brought it and wait for the Applicants to move it.

25 MR. SINKIN: Well, is it Applicants' expressed

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1 intention to move this in when Mr. Stanley comes?

2 MR. AXELRAD: As to Exhibit 58, that is.

3 MR. SINKIN: That is. Okay. Well, I'll  
4 wait.

5 JUDGE BECHHOEFER: Mr. Sinkin, are you now  
6 through with your questions on 58 for the moment? I had  
7 a clarifying question I wanted to ask Mr. Goldberg about  
8 some of the terms that he's been using.

9 MR. SINKIN: Yes, I am finished with -- I am  
10 finished with 58.

11

12 PANEL EXAMINATION

13 BY JUDGE BECHHOEFER:

14 Q Mr. Goldberg, are you aware that there's been  
15 a number of questions raised around NRC about whether  
16 structures, certain structures which are not strictly  
17 so-called Category 1 structures should nonetheless be  
18 subject to certain QA requirements because they're  
19 either important to safety or have an impact on  
20 safety-related structures?

21 A Yes, sir, I think everyone in the industry is  
22 looking with considerable interest at this topic of  
23 important to safety.

24 Q Was it your testimony just a few minutes ago,  
25 I just want this to be clarified, that every Quadrex

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1 finding that relates to non-Category 1 structures will  
2 be considered serious or less? In other words, not most  
3 serious?

4 MR. AXELRAD: Mr. Chairman, I think you're  
5 going to have to define what you mean by those terms.  
6 There are any number of definitions of most serious and  
7 serious, both in the Quadrex report, in this memo and  
8 the various discussions.

9 JUDGE BECHHOEFER: Well, what my question was  
10 is really is the most serious category limited to  
11 structures, components, if you will, which are the size  
12 of Category 1 structures to which Appendix B is clearly  
13 applicable or do they include some of the items where  
14 there is some dispute as to whether Appendix B or some  
15 other QA system should be applicable.

16 MR. AXELRAD: Mr. Chairman, again, that was a  
17 very lengthy question to ask. But in addition to being  
18 lengthy, are you referring to what Mr. Goldberg's intent  
19 was in his April 15th memo as to what would be included  
20 in the definition or are you talking about the  
21 definition most serious contained in the Quadrex report?  
22 Those are two completely different definitions.

23 JUDGE BECHHOEFER: For the moment I'm talking  
24 about it right here. We were talking about this  
25 particular document.

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1           A     I think I can take a crack at that answer.

2                     This would include other things, such as  
3 within the scope of what is, I shudder to use this  
4 expression, important to safety because no one can  
5 really define it and get any two people to agree. But  
6 be that as it may, we do have certain devices, for  
7 example, non-safety-related equipment which is in  
8 proximity to safety-related equipment which, in effect,  
9 may even be supported above the safety-related  
10 equipment. So, therefore, its support system must be  
11 able to handle earthquake so that in the event of  
12 earthquake it doesn't fall down and compromise something  
13 safety-related.

14                    Well, we call those devices, we treat them as  
15 a high-quality item. They have a quality -- you know,  
16 they have a quality definition and they give special  
17 inspections to insure that they're installed properly so  
18 that those would fall into important safety, if you  
19 will. They in themselves are not Category 1, but they  
20 are necessary to be treated as a special quality area to  
21 avoid compromising the safety-related features of the  
22 plant.

23           Q     (By Judge Bechhoefer) Now, would a Quadrex  
24 finding -- put it this way, a preliminary -- first, at  
25 this stage would a finding which was deemed to be most

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1 serious in terms of this April 15th memorandum include  
2 the kind of item that you just described?

3 A Yes, it would. Because we have made certain  
4 commitments to the Nuclear Regulatory Commission  
5 regarding STP and they became part of our licensing  
6 requirements that we had to address those areas in a  
7 special way. And if Quadrex had found that we hadn't,  
8 then that would have constituted a most serious  
9 problem.

10 Q Thank you. I guess I'll wait, but I'll ask  
11 you the same question as to the final Quadrex categories  
12 when we -- oh, you may want to answer that right now.  
13 On the final -- on the way Quadrex designated them  
14 finally in the final report, does the same hold true?

15 A Except Quadrex went to a larger band -- they  
16 included all those things that I just described, but  
17 they also did include matters that were running late  
18 wherein the penalty would be that until you finish them,  
19 you cannot get the plant licensed. So, the longer you  
20 take, then the longer you're going to wait for the  
21 license. Then they put those items in that category as  
22 well.

23 Q Okay. So, at this stage, though, this was a  
24 narrower category?

25 A It did not include those delaying type items,

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1 per se.

2 Q Thank you.

3

4 CROSS-EXAMINATION (Continued)

5 BY MR. SINKIN:

6 Q Following up on that, when you talked to Dr.  
7 Sumpter prior to sending this memo, you discussed what  
8 kinds of categories you would want; is that correct?

9 A Yes. The substance of what's in this memo is  
10 basically what was the topic of the conversation with  
11 Dr. Sumpter.

12 Q And during that discussion did you deal  
13 specifically with the question of where a finding would  
14 go if the work had not been redone?

15 A I don't honestly believe that that may have  
16 come out in that specific way. What was very clearly  
17 discussed, to the best of my recollection, was that  
18 anything that would be in violation of NRC requirements  
19 which could pose a legitimate threat to the  
20 licensability of the plant, that we needed to get at  
21 those issues quickly because those issues are a place  
22 where one would expect to find reportability potential.  
23 Now, that's where the conversation was really  
24 focused. But to also then put degrees of importance on  
25 the balance, the next most important category in my mind

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1 was the balance of the plant that was necessary to  
2 generate power because there are certain quality  
3 requirements for portions of the plant that are not  
4 within the nuclear area of interest.

5 We're not building this plant to satisfy some  
6 academic theme. At times it seems that way. But we're  
7 really trying to get some power out of it.

8 So, that constitutes the serious category.  
9 And then the noteworthy category would deal with things  
10 that didn't fall into those two areas, but would  
11 contribute to project schedule or cost increases. And  
12 then there were some potential item categories in case  
13 something else was floating around that didn't fall in  
14 any of the other three.

15 Q While you stated earlier that going into such  
16 a study you expect or at least you have the possibility  
17 of potentially reportable items coming out and you were  
18 prepared for that going into the study, were these  
19 categories ever discussed prior to April 15th, 1981?

20 A If they were -- well, I think you're referring  
21 to my discussions of April 13th.

22 Q 13th.

23 A I don't think so. I think it was after we had  
24 our meeting with Quadrex and it became apparent that we  
25 needed to organize this report in a way that would allow

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1 that kind of definition for expedient review to take  
2 place.

3 Q Why was it apparent by that time?

4 A Well, we had reason to believe there were  
5 going to be a number of findings. We didn't know the  
6 exact number, but we knew there were going to be a  
7 number. And to manage the review, it occurred to me  
8 that we ought to get these things grouped by category.

9 Q I think you already have a copy of Applicants'  
10 57, Mr. Goldberg, some notes of the review on the 13th  
11 of April.

12 A I don't see them. I've given them back to the  
13 attorneys.

14 Yes, I have it now.

15 Q Okay. You have already identified these notes  
16 as your notes of the preliminary meeting -- I mean the  
17 preliminary review conducted by Quadrex on April 13th,  
18 1981. That is correct, is it not? These are your  
19 notes?

20 A These are my notes.

21 MR. SINKIN: Mr. Chairman, I would once again  
22 move an Applicants' exhibit into evidence. I'm not sure  
23 what the reason was this one wasn't introduced, but I  
24 will move it in if they don't care to.

25 MR. AXELRAD: I have no objection.

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1 MR. SINKIN: Should we remark -- I guess we'd  
2 better not remark this. This is already in evidence as  
3 Applicants' Exhibit 57. -- We'll leave it as  
4 Applicants' 57, but moved in by CCANP.

5 JUDGE BECHHOEFER: Okay.

6 MR. REIS: The Staff has no objection.

7 JUDGE BECHHOEFER: 57 will be admitted into  
8 evidence.

9 Q (By Mr. Sinkin) I just want to clean up  
10 another little item. On page 17 of your testimony, Mr.  
11 Goldberg, you identified an Applicants' Exhibit 59 as  
12 notes for the minutes of an April 27th management  
13 committee meeting. Do you have that exhibit in front of  
14 you?

15 A Yes, I do.

16 MR. SINKIN: Mr. Chairma. I would move  
17 Applicants' 59 into evidence.

18 MR. AXELRAD: No objection.

19 MR. PIRFO: The Staff has no objection.

20 Q (By Mr. Sinkin) By the way, Mr. Goldberg, on  
21 page 13 of your testimony, line 7, I think I found a  
22 spelling error. The word efficient.

23 A You found one of them.

24 JUDGE BECHHOEFER: What was that?

25 MR. SINKIN: On page 13, line 7, the word

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1 efficient has an E instead of an I.

2 JUDGE BECHHOEFER: Before we get too far, we  
3 are going to admit Applicants' Exhibit 59 into evidence,  
4 before we get too far away from that.

5 Okay. Let the record reflect that the word  
6 efficient on page 13 is not spelled correctly.

7 Q (By Mr. Sinkin) Mr. Goldberg, on page 18,  
8 line 3 of your testimony you identify as present at the  
9 May 7th briefing Dr. Sumpter and several other HL&P  
10 personnel. Can you today tell me who the other HL&P  
11 personnel present on May 7th, 1981 were?

12 A I'm not sure I can recall that. I'd be  
13 guessing at the likely people who were there besides Dr.  
14 Sumpter, so I'm saying I'm not sure.

15 Q Do you recall Mr. Blau being present?

16 A He could have been there. He'd be one of  
17 those possibilities.

18 Q How was the May 7th meeting set up? Was it  
19 one long table? Did you have HL&P people all sitting  
20 together and Brown & Root people, Quadrex people? How  
21 was the meeting actually -- what's going on in terms of  
22 how it's set up?

23 MR. REIS: Mr. Chairman, I object. There's no  
24 relevance to that of how the meeting was set up, what  
25 the room looked like, what color the walls were

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1 painted. I don't understand where we're going with  
2 this. We're wasting time.

3 MR. SINKIN: It's a foundation question, Mr.  
4 Chairman.

5 JUDGE BECHHOEFER: We'll give him a little  
6 leeway on foundation questions. We'll overrule the  
7 objection.

8 A I'm glad you asked. I don't have the foggiest  
9 idea.

10 Q (By Mr. Sinkin) You were there, were you not?

11 A That was almost five years ago, Mr. Sinkin. I  
12 wouldn't begin to imagine what the shape of the table  
13 was. I suspect it was long and square like most of  
14 them.

15 Q Sort of like this one that counsel sits at.  
16 I'm trying to get a feel, Mr. Goldberg, of how Quadrex  
17 presented their findings to you.

18 A I can remember some of it.

19 Q Okay.

20 A I will share with you what I can remember.

21 Q That's fine.

22 A But I'll be honest, the table escapes me.

23 Mr. Stanley, as I remember, was at the head of  
24 the table, whatever shape it was, and I was nearby. And  
25 after the introductions there was a stand-up

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1 presentation by Mr. Stanley. Brown & Root personnel and  
2 HL&P personnel, they may well have been interdispersed,  
3 they may well have been in a block seating arrangement,  
4 I just don't remember. But he made a stand-up  
5 presentation reading from the report.

6 Q How many people are there? I know you don't  
7 have an exact recollection, but are we -- you have  
8 mentioned in your testimony yourself, Dr. Sumpter and  
9 several other HL&P personnel, Mr. Saltarelli and the key  
10 members of his staff. Are we talking in terms of Mr.  
11 Saltarelli and twenty people, Mr. Saltarelli and three  
12 people?

13 A There may have been twenty people in the room,  
14 but that would probably have been just about everybody.

15 Q You were sitting right here by Mr. Stanley  
16 while the briefing was going on?

17 A I think I was reasonably close to Mr. Stanley,  
18 as I recollect.

19 Q And were you taking notes while Mr. Stanley  
20 was doing his presentation?

21 A I don't think I was.

22 Q You don't think you took any notes during the  
23 May 7 meeting at all?

24 A If I did, I don't remember.

25 Q Was Dr. Sumpter taking notes?

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1           A     I think you're going to have to ask him.  If I  
2     can't remember if I took them --

3           Q     Did you perhaps ask Dr. Sumpter to take the  
4     notes of the meeting since you would be busy overseeing  
5     the presentation?

6                     MR. REIS:  Mr. Chairman, I'm just going to  
7     object again on relevance.  You said a foundation  
8     question, let him start.  I look at number 9 and 10 of  
9     the issues we are litigating and I don't think there's  
10    any question, we know when they got the Quadrex report.  
11    We know what they knew ahead of time now about the  
12    Quadrex report.  What difference does it make how many  
13    people were in the room or where?

14                    Mr. Goldberg is acknowledged as a very  
15    responsible officer of HL&P and was at that time.  If  
16    HL&P is charged with anything, they were charged at that  
17    time.  Why are we going into all these ancillary  
18    matters?  We're not dealing with what was in the  
19    report.  We're not dealing with anything that could  
20    possibly bear on the ultimate determination of whether  
21    they foreclosed, did not perform their duties under  
22    numbers 9 or 10 of the issues the Board set out.

23                    This just has nothing to do with their  
24    character or competence and could not in any way lead to  
25    any consideration of their character or competence

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1 unless there's an offer of proof because it certainly --  
2 I don't know where it's going and I just see hours going  
3 down the drain, hours upon hours of hearing time.

4 MR. SINKIN: Mr. Chairman, Mr. Reis had every  
5 opportunity to file a motion for summary disposition if  
6 he didn't think there were any facts in dispute in this  
7 hearing and didn't do so. We are now in the hearing --

8 JUDGE BECHHOEFER: Well, I don't think Mr.  
9 Reis was talking about all the issues. But where are  
10 you going on this particular line?

11 MR. SINKIN: It's a little disconcerting  
12 always to have to get to your conclusion before you get  
13 to ask the questions.

14 There were no notes produced by the Applicants  
15 in response to the Board's discovery order of the May  
16 7th meeting. I am trying to determine whether someone  
17 was taking notes and what happened to those notes.

18 JUDGE BECHHOEFER: Ask it.

19 MR. SINKIN: That's what I asked him. I asked  
20 him was Dr. Sumpter taking notes. He said he couldn't  
21 recall. I said did you perhaps ask Dr. Sumpter to take  
22 notes because you were conducting the proceeding and we  
23 got the objection.

24 MR. REIS: Mr. Chairman, I am again at a  
25 loss. Whether or not somebody was taking notes, whether 11666



1 or not they were turned over during discovery, now, that  
2 would be serious if they weren't turned over in  
3 discovery, but that is not the issues in 9 and 10. Now,  
4 we are not here engaged in an inquiry of whether HL&P  
5 properlyly responded to discovery, we're here engaged in  
6 an inquiry into numbers 9 and 10 and issues B and D.

7 So, I still don't understand the relevance of  
8 the question whether or not some -- if we go to the  
9 question of whether somebody else took notes, it's not  
10 proper cross-examination to the issues. In  
11 cross-examination you have to look at the issues that  
12 are before the Board and I'm looking at those issues and  
13 I'm listening to this question and I can't always  
14 connect it.

15 MR. AXELRAD: Mr. Chairman, I was very  
16 patient, I did not join in the Staff's objection because  
17 I was willing to let Mr. Sinkin take whatever time he  
18 wanted within reason to get to whatever point he was  
19 trying to make. But now that he has identified the  
20 point that he was trying to get to, I must join in the  
21 objection.

22 This is not the time or place for Mr. Sinkin  
23 to imply that discovery was not properly conformed with  
24 or that the Applicants have not conformed to the Board's  
25 order. If that is the purpose of this

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1 cross-examination, I think it's highly improper.

2 MR. SINKIN: Well, Mr. Chairman, this whole  
3 argument -- let us presume for a moment that Dr. Sumpter  
4 took notes. Let us presume for a second moment that Dr.  
5 Sumpter destroyed those notes. That might be a matter  
6 material for this hearing and that's just the kind of  
7 matter on which we were trying to establish whether it  
8 might have happened and we have every right in the world  
9 to explore that sort of thing. And it obviously goes to  
10 the character of the Applicants if that was done in any  
11 deliberate fashion.

12 JUDGE BECHHOEFER: Why don't you just ask Mr.  
13 Goldberg.

14 Do you know whether anyone at that meeting  
15 took notes?

16 THE WITNESS: No, sir, I have no knowledge of  
17 my taking notes, I have no recollection and I couldn't  
18 begin to tell you if anybody else did. I have no way of  
19 knowing that.

20 (No hiatus)

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1 MR. SINKIN: That was all I was trying to ask  
2 and I was just asking it in my fashion.

3 I think the record -- I do -- I want to put in  
4 my own objection at this point, Mr. Chairman. I think  
5 record will reflect that my question was perfectly  
6 appropriate, that there was no reason for an objection,  
7 that I was forced to reveal my trial strategy by the  
8 objection and that I object to that kind of practice  
9 being allowed.

10 JUDGE BECHHOEFER: So noted.

11 Q (By Mr. Sinkin) On page 18 of your testimony,  
12 Mr. Goldberg, you state that on May the 7th, the  
13 discussion began with the generic findings. And that  
14 after Brown & Root personnel took issue with the broad  
15 observations, apparently you mean the broad observations,  
16 the generic findings. Is that equivalent?

17 A That's correct.

18 Q It became apparent that a discussion of the  
19 generic findings would be lengthy and likely to focus on  
20 perceptions rather than facts. Would you clarify for me  
21 how you distinguished between perceptions and facts?

22 A Fact is a conclusion drawn from observations  
23 that can be clearly illustrated. And perception is an  
24 opinion that may or may not have any bearing on the  
25 facts.

1 Q And you're saying that when you began -- Well,  
2 let me ask you. The discussion began with the generics.  
3 Did you start with No. 1 in the generics, the first  
4 generic?

5 A I didn't make the presentation. As I recall,  
6 Mr. Stanley started at the beginning, in the beginning,  
7 No. 1.

8 Q And Mr. Stanley presented the first generic  
9 finding and discussion was then begun on that finding?

10 A As I recall, there was spirited comment after  
11 he got started.

12 MR. SINKIN: I think you may have my copy of  
13 the Quadrex report.

14 If counsel would share with the witness a copy  
15 of the Quadrex report, I had given him mine earlier.

16 MR. GUTTERMAN: We only had one to refer to and  
17 we can't follow along if we give him ourself.

18 MR. PIFRO: Nor can we.

19 MR. SINKIN: Well, fine.

20 Q (By Mr. Sinkin) Mr. Goldberg, the first  
21 generic finding in the the Quadrex report at Page 3-1,  
22 3.1, most serious generic findings. Would you please  
23 read parenthetical A, the first paragraph?

24 A B&R systems level integration --

25 MR. AXELRAD: Excuse me, that is an exhibit. I

1 understand no reason why the witness should have to read  
2 a portion of the exhibit into the record.

3 Q (By Mr. Sinkin) I had a reason I wanted to do  
4 that, but let me ask you to -- the first thing Mr.  
5 Stanley brought up was the systems level integration  
6 problem that the Quadrex corporation had perceived  
7 received in Brown & Root. Is that correct?

8 A That's my recollection, he started at the  
9 beginning.

10 Q And a spirited discussion broke out regarding  
11 that finding?

12 A As I recollect, yes, sir.

13 Q And what was the nature of that discussion?

14 A I think Brown & Root in large measure took  
15 strong issue with that finding.

16 Q They said that they did have an effective  
17 systems integration and overview function?

18 A I'm sure that was the thrust of it; they felt  
19 that they had an adequate program and there's a lot of  
20 discussion going on in the room. I can't recall how much  
21 dialog went on before Mr. Stanley maybe moved on to the  
22 next item.

23 Q The next one is the Brown & Root review of --  
24 let me ask you. Did he go through each generic finding  
25 most serious, serious, down to the lower categories, or

1 did he go only over the top of the most serious?

2 A Started with the most serious, and I frankly  
3 can't recall how far he got; he did not get very far.  
4 The meeting was a very disruptive session because there  
5 were strong disagreements beings voiced by various Brown  
6 & Root engineers on these generic observations.

7 Q Do you know if he got to the second item of  
8 Brown & Root's review of engineering data?

9 A I frankly don't know how far he got. He didn't  
10 get very far.

11 Q How long would you say the discussion of the  
12 generic findings lasted?

13 A Oh, I think there were arguing for about  
14 fifteen, ten or fifteen minutes, and then it became  
15 obvious considering the volume of work that lie ahead,  
16 that we revisited the question of the relationship  
17 between the generic findings and the discipline findings.  
18 And as my testimony would point out that it was agreed  
19 that the review would focus on the discipline findings  
20 since the generic findings were based on did discipline  
21 findings.

22 Q Were the generic findings based only on the  
23 most serious discipline findings?

24 A The most serious generic findings, to the best  
25 much my knowledge, were based on the most serious



1 discipline findings.

2 Q And the less serious generic findings would  
3 have been --

4 A That's my understanding.

5 Q -- based on less serious discipline findings?

6 A Yes.

7 Q When did you first learn that Quadrex was going  
8 to have generic findings in their report?

9 A I think the day they brought the report, I  
10 think it was May 7th.

11 Q So May 7th was the first opportunity you had  
12 had to review the generic findings in the report?

13 A That's correct.

14 Q Did Quadrex explain to you on May 7th that the --  
15 a reason for why they had written generic findings; did  
16 they give you a reason for why they had done so?

17 A I don't recall it.

18 Q Did the report, itself, give you an indication  
19 of why Quadrex had put generic findings in it?

20 A I believe the thrust, as I recollect, was that  
21 these were areas they felt that HL&P should pay attention  
22 to. They were attempting to distill from the discipline  
23 findings what they perceived the thread to be.

24 Q By the "thread," do you mean the common thread?

25 A That was the advertisement of what generic

1 findings were. And didn't always turn out that way but  
2 that was how it was advertised.

3 Q But on May the 7th, did you test the generic  
4 findings to see if there was a common thread for each of  
5 them in the specific discipline findings?

6 A You mean did we, in the course of examining,  
7 say -- I'm having trouble with your question. Would ask  
8 you that question again?

9 Q On May the 7th, did you take the generic  
10 findings and test whether they did indeed represent a  
11 common thread in specific discipline findings?

12 MR. AXELRAD: Mr. Chairman, could we have that  
13 question clarified? Is Mr. Sinkin referring to something  
14 that Mr. Goldberg did personally or something that took  
15 place at the meeting with Quadrex or something that took  
16 place in the review after Quadrex? What exactly did he  
17 mean by "Did you test?"

18 Q (By Mr. Sinkin) On May the 7th, Mr. Goldberg,  
19 did you personally take the generic findings in the  
20 Quadrex report, go to the specific disciplinary --  
21 discipline findings to which they referred, and see if  
22 there was a common thread that would have produced the  
23 generic finding?

24 A No, not on May 7th. I read the generic  
25 findings on May 7th and on the morning of May 8th, had

1 the services of Dr. Sumpter and Mr. Robertson who had  
2 spent the whole afternoon and evening with the Brown &  
3 Root people as they went overall the specific discipline  
4 findings. And prior to and during our review of  
5 information that we received approximately at noontime on  
6 May the 8th, we were sensitive to the generic issues as  
7 we proceeded to review the discipline findings.

8 But if you're asking did I create a cross  
9 index, the answer is no, we didn't create a cross index  
10 per se. But we did have in our minds, a pretty good feel  
11 for the things that Quadrex had said generically and we  
12 when we were making our discipline review, we were  
13 sensitive to looking for those common threads.

14 Q Was it your opinion on May 7 that there was no  
15 possibility that a potentially reportable finding might  
16 appear in the category other than most serious?

17 A Was it my opinion on May 7th -- yes, I think  
18 that that was my opinion on May 7th.

19 Q Did you discuss with Mr. Stanley either  
20 directly or through Dr. Sumpter, prior to May 7th, this  
21 apparent change in the most serious category from what  
22 you had envisioned to what Quadrex did?

23 A I think -- I think Dr. Sumpter, as I recall,  
24 brought that to my attention. And I believe he showed me  
25 an advance differing categorization that Quadrex intended

1 to use. And interestingly enough, when we were  
2 discussing earlier, now, what do you do with safety  
3 related work that hasn't been done, do you put that in  
4 the most serious category or where do you put it, by  
5 Quadrex expanding that category, they actually served to  
6 capture that very item.

7 And I think that there choice of broadening  
8 that category probably was useful, because it did capture  
9 that item; it was basically an area of safety related  
10 activity, hadn't been started so they put in it the most  
11 serious category. My guess is had we stuck with my  
12 categories, they would have had some difficulty deciding  
13 where to plant that kind that kind of item.

14 Q When was it that Mr. -- Dr. Sumpter showed you  
15 the differing categorization that Quadrex was going to  
16 use?

17 A Certainly before the report came in but I don't  
18 honestly remember when.

19 Q At that time, did Dr. Sumpter tell you there  
20 were going to be generic findings?

21 A I don't recall being aware of generic findings  
22 until I saw a report.

23 That isn't to say I didn't see the words,  
24 possibly, but the connection that they would be quote  
25 generic findings, that's the part I don't recall seeing

1 before the day that we got the report.

2 Q Did Quadrex state that the generic findings  
3 were based solely on the most serious findings, that  
4 there was this relationship, that the most serious  
5 generic were based solely on the most serious discipline?

6 A I believe, on page 3-1, if I could get a look  
7 at it, I think they address that point that you just  
8 asked right at the introduction to the definition of the  
9 generic findings, and they specifically identify the fact  
10 that these findings are applicable to most if not at all  
11 of the disciplines involved in this this study and are  
12 based on the detailed evaluation of each discipline  
13 presented in section four of this report.

14 Q Well, as I read that -- I'll leave it in front  
15 of you Mr. Goldberg, as I read that, that doesn't  
16 specifically say that the most serious generic findings  
17 are based solely on the most serious discipline findings.  
18 Do you read that differently?

19 A Doesn't say it; it's implied in my mind,  
20 certainly.

21 Q It's implied in your mind by that.

22 JUDGE BECHHOEFER: Did you say you think the  
23 word "based" there means "based entirely"?

24 THE WITNESS: We constsruded that as based  
25 entirely because this was in addition to dialog log that

1 we had with Mr. Stanley regarding the relationship  
2 between the generic and the discipline findings. We were  
3 led to believe that there were specific discipline  
4 findings that were behind each generic finding.

5 JUDGE SHON: I think there's a little  
6 difference in the way all three people who have been  
7 discussing this are interpreting the words, let's say, or  
8 the notion, of a one-to-one correspondence. I wouldn't  
9 read that sentence myself to say that there was  
10 necessarily a one to one correspondence in the sense that  
11 most serious generic findings are based only on most  
12 serious discipline findings; it seems as if there might  
13 be a lot of things in the discipline findings that would  
14 be something like more system integration but wouldn't  
15 necessarily interfere with licensability and that would  
16 be subsumed in the most serious finding that says one of  
17 the things that's going to interfere with licensability  
18 is a general lack of system level integration.

19 THE WITNESS: Well, there's always the chance,  
20 Dr. Shon, I'm over looking something but it is my  
21 understanding that -- I wouldn't call it a one-to-one, in  
22 many cases it might be a four to one. But I don't think  
23 that there's anything in the generic category that can't  
24 be found in the most serious discipline category.

25 JUDGE SHON: I see.



1 JUDGE BECHHOEFER: Could I ask you if that  
2 includes the -- I don't have in it front of me, but  
3 there's one that Bechtel identified. Do you know what  
4 I'm talking about?

5 THE WITNESS: Yes, sir, I know which one it is.  
6 It had to do with -- if my memory serves me correctly,  
7 Bechtel had said in their report that they couldn't find  
8 a match up between the generic finding of an excessive  
9 number of calculational errors, if I've got the right  
10 one, and yet we found many discipline findings that  
11 suggested calculational error. So speaking for my  
12 vantage point, I'm not sure I understood -- I'm not sure  
13 I understand why Bechtel didn't see that match up. I  
14 think I see it.

15 THE WITNESS: I know -- excuse me, Mr.  
16 Chairman, I think I've addressed some of that in my own  
17 testimony, if I can find it.

18 MR. AXELRAD: Mr. Chairman, if I can save some  
19 time, the specific question you raised is covered in a  
20 specific question and answer in Mr. Goldberg's testimony.  
21 If I could identify that perhaps, it will save some time.

22 JUDGE BECHHOEFER: Okay. There's one other I  
23 wanted to ask him about. But you may identify it anyhow.

24 MR. AXELRAD: On page 30, question 40.

25 JUDGE BECHHOEFER: What I'm referring to now,

1 does anybody here have a copy of the task force report?

2 MR. SINKIN: You want the Bechtel task force?

3 MR. PIFRO The staff or Bechtel?

4 MR. SINKIN: I have one but it's not use I  
5 believe.

6 JUDGE BECHHOEFER: Anyway --

7 MR. SINKIN: We had a flood so -- we had a  
8 flood, that's why it's in that condition.

9 JUDGE SHON: Oh, here it is.

10 JUDGE BECHHOEFER: I apologize, it's the EN  
11 report EN619, which I don't have a copy of in front of  
12 me.

13 MR. SINKIN: I've got that one, too.

14 JUDGE BECHHOEFER: Why don't we take an  
15 afternoon break? Off the record.

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1 JUDGE BECHHOEFER: Mr. Sinkin, I guess you can  
2 resume.

3 MR. SINKIN: I suppose.

4 Q (By Mr. Sinkin) Mr. Goldberg, in our review  
5 of the Quadrex report generic findings there is a  
6 finding 3.1(1) that deals with plant symmetry and it is  
7 a serious finding, not a most serious finding. We  
8 identified that as a finding which does not appear in  
9 any discipline finding. Do you have any reason to  
10 believe otherwise?

11 A I'd like to see the finding. I'm at a loss  
12 here.

13 JUDGE BECHHOEFER: Mr. Sinkin, off the record  
14 for a minute.

15 (Discussion off the record.)

16 Q (By Mr. Sinkin) I want to correct my question  
17 to be 3.2(1).

18 MR. AXELRAD: Mr. Chairman, I'll object to  
19 that question. That particular finding is not a finding  
20 in controversy in this proceeding.

21 MR. REIS: Right. I would point to the  
22 Board's order in support of that of May 17th, 1985,  
23 which says that the most serious generic findings are to  
24 be the ones considered, not the serious ones. And  
25 that's definitely beyond the scope of what this hearing

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1 was set forth in the May 17th order of the Board to  
2 consider.

3 MR. SINKIN: Well, Mr. Chairman, I think that  
4 the question had come up whether the generic findings  
5 were supported by the discipline finding.

6 MR. AXELRAD: And to the extent that Mr.  
7 Sinkin was then prone to follow that up with discussions  
8 relating to the most serious findings which are  
9 controversy in this proceeding, that's perfectly fine.  
10 But now that he's gone beyond that to the serious  
11 category is straying beyond the issues in this  
12 proceeding. If we're going to discuss in this  
13 proceeding every finding in the Quadrex report and not  
14 just the findings which the Board has explicitly  
15 identified as being within the scope of this proceeding,  
16 we will never be finished. In addition to which the  
17 witnesses are not prepared to discuss findings other  
18 than findings that are of controversy in this proceeding  
19 and it's unfair to ask our witness to discuss a report  
20 four years old when he has not had a chance to prepare  
21 for it.

22 MR. REIS: I would ask the Board to review  
23 page 11 of their May 17th order.

24 JUDGE BECHHOEFER: We'll overrule the  
25 objection, but only for the -- we referred to that

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1 finding only for the purpose of showing that the generic  
2 findings were not necessarily all made up of discipline  
3 findings.

4 MR. SINKIN: That's the only purpose for which  
5 we seek the answer.

6 JUDGE BECHHOEFER: And for that purpose -- and  
7 that's the only one of the non-most serious ones that we  
8 referred to. For that purpose, we'll allow you to ask  
9 the question.

10 MR. REIS: Mr. Chairman, let the record  
11 reflect the Staff didn't have an opportunity to verify  
12 and check out that before trial.

13 JUDGE BECHHOEFER: Well, it was in my February  
14 26th order, so --

15 MR. AXELRAD: Mr. Chairman, I don't understand  
16 the Board's ruling. There are a number of things which  
17 have been in a number of the Board's orders over the  
18 course of the past four years that has nothing to do  
19 with what is the scope of the proceeding as the Board  
20 has defined it for this hearing.

21 The witnesses are not prepared to discuss  
22 anything other than the findings which the Board has  
23 identified as being within the scope of this  
24 proceeding. And I don't see how it's going to  
25 contribute to this record to have questions asked and

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1 answered which the witnesses are not prepared for and  
2 which do not relate to the issues in controversy. We  
3 are prepared for the issues that have been placed and  
4 are in controversy in this proceeding.

5 In addition to that, I might also add that any  
6 question of that kind might be beyond the scope of Mr.  
7 Goldberg's direct testimony and therefore check him on  
8 that basis. He cannot be cross-examined on everything  
9 in the Quadrex report, he can only be cross-examined  
10 with respect to the matters that were covered in his  
11 direct testimony. There is no direct testimony with  
12 respect to serious findings because they are not part of  
13 this proceeding.

14 MR. SINKIN: Obviously, Mr. Chairman, there is  
15 testimony that the discipline findings and the generic  
16 findings have a certain relationship to each other.

17 JUDGE BECHHOEFER: It's for the limited  
18 purpose as referred to on page 30 of our testimony we're  
19 allowing the question to be answered, not for the  
20 resolution or effect of not reporting that particular  
21 finding. In fact, it's the one I was looking for to ask  
22 the question about.

23 We'll allow Mr. Goldberg -- if you can answer  
24 the question, so state.

25 A Well, I'm not prepared to say one way or the

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1 other. I'd have to study the report again to see  
2 whether this matches up with any discipline findings.

3 Q (By Mr. Sinkin) On page 19 of your testimony,  
4 Mr. Goldberg, at line 13 you stated that there were some  
5 design deficiencies mentioned by Quadrex, but for the  
6 most part they were deficiencies which had previously  
7 been identified on the project and were being resolved.  
8 Can you identify for us the design deficiencies  
9 mentioned by Quadrex that had previously been identified  
10 on the project and were being resolved?

11 A I think I'd have to refresh my memory and take  
12 a look at the report itself.

13 Mr. Sinkin, did you just want examples or did  
14 you want some kind of a listing?

15 Q I wanted a listing.

16 A Well, we could be at this for days.

17 Q Well, Mr. Goldberg, when did you prepare this  
18 testimony?

19 A Oh, I'd say that was probably prepared a month  
20 or so ago and there are any number of these that were in  
21 the process of being resolved. I didn't have a  
22 comprehensive list, but we certainly can construct one.

23 Q Well, your testimony is that for the most part  
24 that most of the ones --

25 A If I exclude the ones that are inappropriate

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1 findings where we can demonstrate they're just not  
2 right, what's left, I can put together a list of which  
3 ones have been in the process of being resolved at the  
4 time Quadrex came along.

5 I just started making a quick list. My  
6 problem is I have so many of these things that we just  
7 don't even agree with the findings. So, you know, it's  
8 hardly --

9 Q Is that a disagreement as of May 7, 1981?

10 A Yes.

11 Q Well, it would seem that since I've asked you  
12 which ones they've identified that have previously been  
13 identified and were being resolved, if it's previously  
14 been identified and been resolved, you wouldn't disagree  
15 with the finding. It exists already.

16 A That's right.

17 Q Okay. I want the list of those that existed  
18 already that were being resolved --

19 A Fine. I'll have to sit down with my staff and  
20 construct a complete list.

21 Q Well, then perhaps rather than do that today,  
22 we can delay that until a later time in the hearing?

23 MR. AXELRAD: No, Mr. Chairman, I think that  
24 the witness can answer the question on the basis of his  
25 present knowledge. If Mr. Sinkin does not have enough

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1 information, that's just the way it's going to be. Mr.  
2 Goldberg is going to answer the question as best he can  
3 right now. He is not going to go back and work with the  
4 staff on anything. He's being cross-examined now.

5 MR. SINKIN: Mr. Chairman, Mr. Goldberg has  
6 presented direct testimony that says there were some  
7 design deficiencies mentioned by Quadrex, but for the  
8 most part these were deficiencies which had previously  
9 been identified on the project were being resolved.  
10 When asked to name them, he couldn't name any of them  
11 until he started looking at the volume. Now that he has  
12 started looking at the volume, we would want him to  
13 continue looking at the volume until he has named the  
14 ones he has mentioned.

15 MR. PIRFO: I'll object to the  
16 characterization of Mr. Goldberg's testimony that he  
17 could not name any of them. I don't believe that. The  
18 record will speak for itself.

19 MR. SINKIN: The record will speak for  
20 itself.

21 MR. AXELRAD: Mr. Chairman, I believe there's  
22 a question pending. I believe we should let the witness  
23 answer on the basis of his present knowledge. He's  
24 spent sometime looking through the report, let him give  
25 whatever answer he can. I don't see why he can't answer

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1 the question on the basis of what he has right now.

2 A I just confined my looking at most serious and  
3 I've only looked through probably a fraction of them.  
4 I've picked off just three as representative. There's  
5 many others. We'd have to sit down and make up a list.

6 4.4.2.1(a), 4.4.2.1(b), 4.6.2.1(n). And  
7 that's where I decided to ask how far we want to carry  
8 this thing.

9 MR. SINKIN: I think the more appropriate  
10 procedure, Mr. Chairman, is for Mr. Goldberg to take the  
11 time he needs to tell us what he meant by this direct  
12 testimony he presented, what were those findings that  
13 Quadrex identified that were being resolved. And if he  
14 needs more time, he can take the time apart from hearing  
15 time.

16 MR. AXELRAD: Mr. Chairman, the witness has  
17 prepared and given some examples. If Mr. Sinkin is not  
18 satisfied with the example, he is later on free to make  
19 whatever argument he wishes to make with respect to the  
20 weight to be given to this testimony that should be  
21 filed here. But I don't think we should be taking hours  
22 while Mr. Goldberg goes through the rest of the document  
23 to refresh his recollection.

24 MR. PIRFO: The Staff would just join in that  
25 comment and say to the extent Mr. Sinkin thinks he has

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1 in some way undercut the credibility of his testimony,  
2 he hasn't accomplished that. But to have the witness  
3 prepare a list is inappropriate at this time.

4 MR. SINKIN: Well, perhaps, Mr. Chairman, the  
5 more appropriate action would be to strike that  
6 sentence.

7 MR. AXELRAD: As we have just said, Mr.  
8 Chairman, what Mr. Sinkin has raised goes to the weight  
9 of the testimony and not to whether or not the testimony  
10 is credible. The testimony should not be stricken to --

11 MR. PIRFO: The Staff would say, as Mr.  
12 Axelrad has stated, the remedy for incredible testimony  
13 is not to have it stricken, it stays on the record for  
14 whatever weight it should be accorded, assuming it's  
15 incredible.

16 JUDGE BECHHOEFER: I think that's correct. I  
17 think we can just go on and the answer will stand.

18 Q (By Mr. Sinkin) Further on that same page,  
19 Mr. Goldberg, at line -- beginning at line 18 and  
20 proceeding through line 20 you distinguish the Quadrex  
21 review as not being an audit. I'd like you to refresh  
22 your memory on that entire answer because I'm going to  
23 ask you about it.

24 Are you saying that the Quadrex review is not  
25 an audit because it was a limited review and the results

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1 were sought promptly?

2 A No, I'm saying it was not an audit for a  
3 number of reasons. Audits usually are structured so  
4 that they take a sample and report from within a sample  
5 what they have found which might not satisfy  
6 requirements. We had biased this review, so it didn't,  
7 in fact, take a sample at random. We told the Quadrex  
8 reviewers exactly what we wanted them to look at and we  
9 were specifically instructing them that we were not  
10 interested in any feedback on what portion of their  
11 examination was good, we were only interested in that  
12 portion that was bad. So, there's absolutely no  
13 statistics available which is common from a normal  
14 audit.

15 Also, in an audit you usually have a sample  
16 plan. This wasn't an audit in that sense. This was a  
17 third-party limited review of a structure. Not to try  
18 to measure what Brown & Root was doing in contrast to  
19 what Brown & Root may have had in their procedures,  
20 which is usually the way audits are performed, but  
21 rather to benchmark where they were in the engineering  
22 activities and particularly the nuclear engineering  
23 activities. Our interest was not to establish so much  
24 the quality of the effort as it was to establish where  
25 was the effort, what difficulties were they having in

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1 getting that portion of the job done, which is or was  
2 from our vantage point perhaps the more difficult area  
3 for them because it wasn't of a common character when  
4 compared to, say, a non-nuclear power plant.

5 This was conducted more or less as an  
6 extension, if you will, of you might say HL&P's normal  
7 overview, normal management overview.

8 Q Quadrex referred to their methodology as a  
9 sampling. Are you taking issue with that  
10 characterization of it?

11 A Quadrex is free to characterize it as they  
12 wish.

13 Q You would not use the word sampling to  
14 describe this report?

15 A Not in the context of an audit sample, no.

16 Q That is because there was not a sample plan  
17 laid out?

18 A I think --

19 MR. AXELRAD: Asked and answered, Mr.  
20 Chairman. He explicitly referred to the reason why it  
21 was not considered to be a sampling, it wasn't simply  
22 because it wasn't a sampling plan, it was also because  
23 it was structured, it was a biased review, there was a  
24 benchmark where people stood. He gave three or four  
25 answers to that question.

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1 MR. REIS: This ground has been plowed  
2 before. If you remember the answer I didn't understand  
3 the word democratic, I didn't understand the context.  
4 Mr. Goldberg then went back and explained what he  
5 meant. There was not a generalized audit or sampling at  
6 that time. And, so, we're plowing the same ground for  
7 the second time.

8 JUDGE BECHHOEFER: I think that's true. We'll  
9 sustain that objection.

10 Q (By Mr. Sinkin) Had HL&P ever conducted to  
11 your knowledge as extensive a review of the technical  
12 adequacy of Brown & Root's design and engineering  
13 program as is represented by the Quadrex study?

14 A Not to my knowledge. I might add I'm not  
15 aware that anyone in the history of the industry has  
16 ever done it either.

17 Q As of May 7th, 1981, had Brown & Root begun  
18 the design of the unbroken piping system?

19 MR. AXELRAD: Repeat that question, please?

20 Q (By Mr. Sinkin) As of May 7th, 1981, had  
21 Brown & Root begun the design of the unbroken piping  
22 systems?

23 MR. AXELRAD: Does that term unbroken piping  
24 system mean something to the -- well, perhaps the  
25 witness knows what this --

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1 Q (By Mr. Sinkin) Does the witness know what an  
2 unbroken piping system means?

3 A That's a good system that the piping doesn't  
4 break.

5 Q That's all it means to you is an unbroken  
6 piping system is --

7 A I -- I could probably help you out of this,  
8 Mr. Sinkin.

9 Q Go right ahead, Mr. Goldberg.

10 A I don't know if this is considered good form.  
11 But if we talk inside containment, Brown & Root had had  
12 a postulated pipe break analysis performed. They had  
13 not yet started that work outside of containment.

14 Now, I'm going to take a guess that you may be  
15 referring to that portion of the pipe break analysis  
16 work outside of containment that had not yet been  
17 started.

18 Q Well, you can tell me what you mean by the  
19 term, Mr. Goldberg, at page 20, line 22.

20 A I think we have another editorial problem  
21 here.

22 Q The phrase you used is jet impingement  
23 protection on unbroken piping systems.

24 A It should have been postulated breaks in  
25 piping systems.

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1 Q So, you wish to correct your testimony from  
2 unbroken to postulated breaks?

3 A Piping systems outside of containment.

4 MR. AXELRAD: Mr. Chairman, may I suggest that  
5 we look at finding 4.7.3.1(a) which is what is referred  
6 to in that sentence?

7 Q (By Mr. Sinkin) Well, apparently this  
8 originates in the Quadrex report, Mr. Goldberg.

9 A Apparently so.

10 (No hiatus)

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1           Q     Mr. Goldberg, if you refer to question 20 which  
2 is referred to the the findings, it does speak in the  
3 effects of postulated pipe failures outside the  
4 containment.

5           A     From what I speculated.

6           Q     And that work had not yet been begun by Brown &  
7 Root. Is that correct?

8           A     That is correct.

9           Q     And the problem that Quadrex perceived was that  
10 there was an absence of the criteria for jet impingement  
11 protection that would be eventually be necessary when  
12 that design was done. Is that correct?

13          A     That's correct.

14          Q     If Brown & Root had proceeded to begin that  
15 design, without the criteria for jet impingement  
16 protection, would there have been a potential quality  
17 assurance problem?

18          A     I don't think so.

19          Q     Why would there not have been a quality  
20 assurance problem?

21          A     Well, once you postulate a pipe break, you have  
22 to then deal with two things: One, the pipe movement,  
23 which gets into the area of restraint, and the other has  
24 to deal with the consequences of the energy which emits  
25 from the pipe as it might affect adjacent equipment.

1           And there you are faced with a choice of either  
2 moving equipment or designing a shield to either go  
3 around the source or around the target. And all of this  
4 has been demonstrated in other power plants can be fitted  
5 into the plant after the fact. Not a very efficient way  
6 of doing it, clearly not a good commercial approach. But  
7 it doesn't represent a quality problem.

8           Q     Well, if they had proceeded to design this  
9 system, completed the design and when the design was  
10 evaluated, you were to find that they had not taken into  
11 account jet impingement, would you have considered that a  
12 notifiable 50.55 (e) problem?

13           MR. AXELRAD: Mr. Chairman, I object to the  
14 question. I don't know why we're dealing with  
15 hypotheticals that are not within the factual framework  
16 of the findings in the Quadrex report, which is the  
17 subject of this proceeding. I've let Mr. Sinkin ask a  
18 couple of questions. The answer specifically says that  
19 the criteria apply to pipe design which Brown & Root had  
20 not yet done. I don't understand why we should be taking  
21 valuable hearing time for a number of hypotheticals as to  
22 what would have happened if Brown & Root had, in fact,  
23 begun design without the criteria.

24           MR. SINKIN: Mr. Chairman, I think the question  
25 is at least relevant to testing Mr. Goldberg's view of



1 the application of 50.55 (e) and potentially reportable  
2 items.

3 JUDGE BECHHOEFER: I think we'll overrule the  
4 objection.

5 A You must give me a specific example so can I  
6 apply the test for 50.55 (e).

7 Q Well, the situation I'm setting up is that  
8 Brown & Root goes forward with the design of piping  
9 outside containment, they dealt with the postulated pipe  
10 breaks outside containment, they've done that. But in  
11 doing that, they did not have a criteria for jet  
12 impingement; the design is complete, no criteria for jet  
13 impingement has been applied. Are we then in a 50.55 (e)  
14 notification situation?

15 A When you -- I have to answer your question  
16 first with some further clarifications. When you say  
17 "the design is complete," well, that's an interesting  
18 point, the design is complete when the last designer's  
19 off the job. I think the more  
20 important question is: Is the system for  
21 which this design represents constructed, identified as  
22 having been completed, turned over to quality control for  
23 final inspection, and ultimately turned over to the  
24 operations department for tests.

25 You know, if you haven't finished building the

1 plant, it could be that that engineer is still designing  
2 it that, yes, he may have the pipe break restraints, but  
3 he hasn't yet gotten around to the jet impingement  
4 problem.

5 So I have to have a more specific case in order  
6 to apply this test.

7 Q Hypothetically, you, Mr. Goldberg, walk into  
8 the piping department, you go to the person in charge of  
9 this particular task, and you say, "Where do you stand;  
10 how are you doing?"

11 And he says " We have completed all the work  
12 necessary on this activity." You look at the drawings,  
13 you look at the criteria, and you see there's no criteria  
14 for jet impingement. Do you then think there's reason to  
15 notify pursuant to 50.55 (e)?

16 A If the man designing this particular system has  
17 said that he's completed all of his work and in effect  
18 there is a pipe break that was considered and he did not  
19 have -- and if he did not consider jet impingement, if he  
20 had overlooked that and we had built the plant thinking  
21 that the design was complete, that would have constituted  
22 a reportable deficiency.

23 Q You are saying only if the design had actually  
24 resulted in construction completion not that -- I'm  
25 walking you in; the design is not out in the field?

1           A     We're dealing with oatmeal here. You have to  
2     decide whether the design is find. And until the plant  
3     is built, if designers are still working on it. So I  
4     have to understand just what this characterization is.  
5     What if the man hasn't gotten to it yet.

6           Q     Well, I think what I was trying to create for  
7     you was a situation where you are talking to the man in  
8     charge of this activity. And he is telling you, "I've  
9     done everything we're going to do and now construction  
10    gets it, it's going to go on, I'm through, we're going on  
11    to some other task."

12          A     And if he has failed to take into account a  
13    situation for which we are committed to design for, and  
14    he has released that design and we have built it thinking  
15    that we had a finished design and then later find that  
16    this man was remiss and he hasn't undertaken to perform  
17    design activity that he was required by commitment to  
18    perform and if, as a result, we now have a deficiency in  
19    design which is going to impact safe plant operations,  
20    then we have a reportable deficiency.

21               JUDGE BECHHOEFER: Mr. Goldberg, could you  
22    clarify something? Were you saying that it wouldn't  
23    become a deficiency until the structure was built?

24               THE WITNESS: What I'm saying, Mr. Chairman,  
25    these hypothetical examples are very difficult to deal

1 with. The test for reportability has a number of  
2 conditions. When somebody says the design is find, what  
3 does that in itself constitute. If we can believe that a  
4 person responsible for designing a feature has said, "I  
5 am finished, I have done all I am going to do, I have  
6 released my design information to the people to build" so  
7 there's a pretty strong piece of evidence that that  
8 designer figured he was done, and then it's uncovered  
9 that this was a design deficiency that he failed to  
10 undertake a design activity that by our commitments, if  
11 you will, by, you know, our commitments by regulation,  
12 require us to perform, and the absence of that feature is  
13 a design deficiency which if left uncorrected corrected  
14 will pose an adverse situation to the safe operation of  
15 the plant, then with that kind of a test, it would be a  
16 reportable deficiency.

17 JUDGE BECHHOEFER: At the time the design was  
18 released for construction.

19 THE WITNESS: Yes, sir. Now, if instead of it  
20 being of that caliber, let's assume that there was a  
21 systematic failure to perform this activity and you  
22 hadn't yet reached hardware, but you had found a defect  
23 in the system, that that could constitute reportability  
24 because now the test might be a significant breakdown in  
25 quality assurance.

1 JUDGE BECHHOEFER: I take it you are saying  
2 that with respect to 4731-A, that that had not even  
3 reached that stage yet.

4 THE WITNESS: No, sir. My view of that  
5 situation was certainly one of the serious concern from a  
6 standpoint of the work was not being performed at the  
7 best point in the design sequence, it was clearly going  
8 to impact and delay other things. But I don't think that  
9 in itself, it constituted a belief that Brown & Root  
10 didn't know they had to do the work; they knew the work  
11 had to be performed. They just hadn't committed the  
12 resources to undertake the work. It wasn't a case of an  
13 oversight; it was a case they hadn't gotten to performing  
14 the work.

15 MR. SINKIN: I'm going to stick with this for  
16 one second.

17 Q (By Mr. Sinkin) Using the same example, this  
18 design work that was supposed to be done that we've been  
19 talking about, person in charge says, "I'm finished,  
20 we're going on to some other task"; it's turned over to  
21 construction; through some circumstance, the day after  
22 it's turned over to construction, someone discovers that  
23 that design does not incorporate the criteria for jet  
24 impingement. On that day one, is there a notification to  
25 the NRC of a potentially reportability deficiency?

1           A     You have to apply some tests here. It may well  
2     be that on inspection, you can determine that it is not a  
3     deficiency, which, had it gone uncorrected would have  
4     adversely, you know, impacted the safe operation of the  
5     plant. I mean, you just don't -- on the recognition of a  
6     situation, you don't instantly say, "Oh, my God, let's go  
7     report this to the NRC."

8                     You know, the system isn't structured for  
9     everyone to throw all the questions at the NRC. I mean,  
10    we will bury the administrative machinery so that nothing  
11    will every get done. The licensee has an obligation to  
12    make an evaluation to determine whether it even should be  
13    reported as a potential --

14           Q     I'm trying to stick with my example. Would you  
15    agree with me that -- well, let me stick with my example.  
16    We're talking about the jet impingement criteria, which  
17    is a requirement for this particular engineering  
18    analysis. And in my hypothetical, the design department  
19    is finished with this postulated pipe break analysis  
20    outside containment. They have released designs to  
21    construction that do not take into account the criteria  
22    for jet impingement. They do that on Monday.

23                     On Tuesday, an engineer in that department  
24    happens to go back and look at those drawings and the  
25    criteria that were used and discovers the criteria for



1 jet impingement isn't there and he calls you and says,  
2 "Mr Goldberg, the jet impingement criteria is not there."

3 Does that trigger, in your mind, notification  
4 to the NRC of a potentially reportable 50.55 (e)?

5 MR. AXELRAD: That was the question that was  
6 asked before and was answered, if it was evaluated to see  
7 if it satisfies the other requirements of 50.55 (e) to  
8 see -- I don't understand why Mr. Sinkin wants to ask the  
9 same question twice.

10 MR. SINKIN: Well, the hypothetical is the jet  
11 impingement criteria for postulated pipe breaks outside  
12 containment. I think we're in agreement -- maybe we're  
13 not.

14 Q (By Mr. Sinkin) Are we in agreement, Mr.  
15 Goldberg, that that satisfies by its nature that it is a  
16 significant deficiency in design, which if not corrected,  
17 could have safety implications?

18 A Depends on where we're talking. It may well be  
19 that there's nothing near that particular break that  
20 requires protection for jet impingement.

21 JUDGE SHON: Mr. Sinkin, your original  
22 postulation is that there are no criteria for jet  
23 impingement, It may well be that the pipe or piping  
24 system or something like that that you just released  
25 doesn't require jet impingement protection.

1 MR. SINKIN: Let me change the hypothetical.

2 Q (By Mr. Sinkin) You have a system that you  
3 know requires a jet impingement criteria; we're not  
4 worrying about that aspect. And it has been finished and  
5 it has been released and the day after it's released,  
6 someone discovers that the jet impingement criteria was  
7 not used. Do you then have a potentially reportable  
8 deficiency?

9 MR. AXELRAD: That question's been asked and  
10 answered.

11 JUDGE BECHHOEFER: That was the questions --

12 MR. SINKIN: With all of those elements in it.

13 JUDGE BECHHOEFER: What I was talking about,  
14 7.3.1 (a).

15 MR. SINKIN: Well, we now have the 7.3.1 can  
16 can be modified if the jet impingement was not required  
17 for a particular -- could have be responding to that.  
18 I'm trying to be sure that what he was responding to.

19 JUDGE BECHHOEFER: Mr. Goldberg, when you  
20 responded to me, did you have in mind a system that would  
21 potentially or that would require the jet impingement  
22 criteria, that it would amount to a safety question, if  
23 it didn't have it?

24 THE WITNESS: And it had been released for  
25 construction.

1 JUDGE BECHHOEFER: Yes. When I was asking you  
2 that series of questions, did you have in mind a that the  
3 criteria for jet impingement protection would be required  
4 for the particular piping in question?

5 THE WITNESS: It's extremely likely that if it  
6 required a jet impingement consideration and if that had  
7 been overlooked and had they released the design for  
8 construction, that that would very likely constitute a  
9 reportable deficiency.

10 JUDGE BECHHOEFER: Thank you.

11 Q (By Mr. Sinkin) After the my 7th meeting with  
12 Quadrex adjourned, Mr. Goldberg, did you or Mr. Sumpter  
13 or Mr. Robertson discuss the report further prior to the  
14 May 8th meeting?

15 MR. AXELRAD: Could I have that question  
16 repeated? I missed the beginning.

17 Q (By Mr. Goldberg) There's a meeting on May the  
18 7th. It adjourns in the early evening time. Between the  
19 adjournment of the May 7th meeting on Quadrex until you  
20 meet again to receive the Brown & Root response, did you  
21 have discussions with Mr. -- Dr. Sumpter or Mr. Robertson  
22 or both about the Quadrex report?

23 MR. AXELRAD: I still have difficulty, which  
24 meeting adjourned on May 7th? There was a meeting --

25 Q (By Mr. Sinkin) The meeting at which the

1 Quadrex report was delivered on May 7 adjourned, between  
2 that time and the time they reconvened on may 8th to  
3 receive the Brown & Root response, did you have further  
4 conversation with Dr. Sumpter or Mr. Robertson about the  
5 report?

6 A I believe during the afternoon of May the 7th,  
7 Dr. Sumpter and Mr. Stanley, I believe, came to my office  
8 and we discussed the report. I don't think Mr. Robertson  
9 was there. I think he was over with the Brown & Root  
10 people. And as a matter of record, I think Dr. Sumpter  
11 and Mr. Stanley came over, at my request, to talk about  
12 that report while the Brown & Root evaluation was in  
13 progress.

14 Q And why did you request them to come talk to  
15 you about the report?

16 A I wanted to discuss with Mr. Stanley my first  
17 impressions.

18 Q And what -- I'm sorry, I didn't mean to  
19 interrupt.

20 A When you pick up the Quadrex report for the  
21 first time, and you proceed to read it, it is a very  
22 provocatively worded document that does create  
23 considerable concern. I voiced as I recall to Mr.  
24 Stanley my feeling that I knew that we had problems, but  
25 it struck me that the magnitude of the problems on first

1 reading were beyond my wildest imaginations or  
2 expectations.

3 And then we got into a discussion of really the  
4 perception of the report, that I was being, to some  
5 extent, given some hope that, "It's really not as bad as  
6 you think, when you study it more fully, you'll come to  
7 understand that all these things are doable and they're  
8 not as a broad problem as you might first suspect.  
9 Certainly during the ensuing part of that afternoon, when  
10 Mr. Stanley and Dr. Sumpter went back; I know Dr. Sumpter  
11 went back to re join the Brown & Root review and I think  
12 Mr. Stanley was making himself available to assist in  
13 that review. I did continue to read on.

14 And then of course the next morning, I had the  
15 benefit of meeting with both Mr. Robertson and Dr.  
16 Sumpter, who could share with me the perspective that  
17 they were able to obtain by the more detailed review that  
18 occurred during the evening before. So I would say the  
19 bottom line is is that if all you do is pick up the  
20 report and read it, and don't proceed to get into any of  
21 the background. It is a very discomfoting feeling when  
22 you've read that report.

23 Q When you say that in that discussion you were  
24 given some hope that this was doable, you were of a frame  
25 of mind at that time, after first reading it, that maybe

1 it wasn't doable?

2 A At first reading, I must admit that it looked  
3 like an incredible workload to get that particular area  
4 straightened out, if my first impressions were accurate.

5 Q And who gave you hope?

6 A Mr. Stanley, for one, followed by far more, you  
7 know, detailed input that I received from Mr. Robertson  
8 and Dr. Sumpter the following day.

9 Q At the meeting, that interim meeting, with Dr.  
10 Sumpter and Mr. Stanley, did you discuss potentially  
11 reportable findings?

12 A No, I don't really believe so. I don't think --  
13 I don't think we got into a discussion of reportable,  
14 what was or what wasn't. I think the general tone was  
15 that if what one's feeling was at first blush was  
16 accurate, then this report suggested a broad problem in  
17 the design area, so much so that if it were accurate,  
18 then we had monumental task ahead of us to get that  
19 design back on track.

20 And I was frankly very discouraged at the  
21 prospect of what kind of a job that was going to turn out  
22 to be.

23 A But as I say, there were further insights  
24 provided by Mr. Stanley, and considerably more insights  
25 gathered the following morning from Mr. Robertson and Dr.



1 Sumpter. And it takes that kind of more detailed input  
2 to start, to separate, the drama of the words from the  
3 facts that prevailed.

4 Q Would you feel that Mr. Stanley had been too  
5 emotional in the way that he wrote the Quadrex report?

6 A I believe, I felt he was. But a lot of these  
7 things are in the eye of the beholder. After you've been  
8 in this business a lot of years, you get ice water in  
9 your veins and you don't tend to dramatise things, you  
10 tend to want to be a very dispassionate, reasonably  
11 precise observer. I had no problem in believing that  
12 Quadrex had done a competent job but my feelings about  
13 the dramatizations that were used, I was not pleased with  
14 those. I felt that they were dramatizations, they were  
15 too many instances where opinions were being expressed as  
16 opposed to hard findings of fact.

17 Q And you raised that particular problem with Mr.  
18 Stanley that afternoon after the May 7th meeting?

19 A I must believe I did. I was needless to say  
20 quite emotional myself that afternoon.

21 Q Did he suggest to that you one of the reasons  
22 it was written that way was to be sure it captured HL&P  
23 management's attention?

24 A I believe that he did allude to that. And he  
25 certainly had my attention.

1           Q     As it turned out, in order to respond to the  
2 Quadrex report, there was a monumental effort by Brown &  
3 Root undertaken, was there not?

4           A     There were, of course, different degrees of  
5 effort. There was, of course, the first business at hand  
6 which was -- there were a number of different degrees of  
7 review. The first one being to review the most serious  
8 findings for reportability, or potential reportability,  
9 to the Nuclear Regulatory Commission.

10                I had transmitted to Mr. Saltarelli, I believe,  
11 on May the 6th, an outline of a plan of action that I  
12 wished him to follow as part of the review process, which  
13 required that we undertake the review of the most serious  
14 findings first, and then I wanted his plan of action for  
15 the review of all the other findings and I believe I  
16 wanted any recommendations from Brown & Root as to any  
17 areas being constructed which owing to the Quadrex  
18 report information might suggest that it would be prudent  
19 to stop construction in that it might be in an area where  
20 there are some design concerns.

21           Q     After Quadrex, the dust had sort of settled and  
22 we're moving into the Brown & Root plan for resolving  
23 Quadrex, wasn't there a need for Brown & Root to commit  
24 tremendous resources to resolve all of the questions  
25 raised by Quadrex?

1           A     There was a need definitely to commit Brown &  
2     Root resources.

3           Q     So I'm tying that back to your initial reaction  
4     of it may not be doable, but turned out as I hear you  
5     that it was doable but it was a big job.

6           A     Well, as it turns out, the matters that  
7     ultimately, you know, resulted in additional work was  
8     considerably less after that first phase of the review,  
9     as opposed to when we had first received the report.

10          Q     One of the concerns that you reported or  
11     notified the NRC about was the computer code --

12          A     That's correct.

13          Q     -- verification problem. Was there any  
14     construction underway at that time where the designs  
15     being used were based on those computer codes?

16          A     I don't think there were. And I base that on a  
17     number of observations. There were virtually no  
18     significant amounts of piping or electrical work that had  
19     been released for construction.

20                 The civil work as I recall at that point, was  
21     in a state of semi-hold. I'd have to review the time  
22     sequence, but we had complex safety related concrete on  
23     hold; there was little construction work going on in the  
24     first place. I don't have a way of being certain whether  
25     there was something going on out there that might have

1 had some tie back to one of the computer codes in  
2 question. I don't -- I doubt that there was much if  
3 there was such a time.

4 Q Did you make any effort to determine for  
5 yourself whether there was such work going on?

6 A Well, that was one of the early things that was  
7 done. And that was the principal reason for my  
8 specifically asking Mr. Saltarelli to give careful  
9 consideration to the work that was in progress and need  
10 we stop any work, because there was a question of the  
11 design acceptability. So Mr. Saltarelli was of the  
12 opinion that Brown & Root had done an adequate job of  
13 computer code verification.

14 Houston Lighting & Power Company was not of  
15 that opinion; we felt there were still too many  
16 uncertainties and it was in fact reported under 50.55 (e).

17 Subsequent evaluation by Bechtel, to the best  
18 of my knowledge, did not turn up any hardware problems as  
19 a result of that question.

20 Q Did Mr. Saltarelli ever deliver to you a report  
21 on what was going on out in the field that might be  
22 affected by the computer codes?

23 A I don't recall that he did that, no. I do  
24 recall receiving a letter back Mr. Saltarelli where in he  
25 was of the opinion that we had nothing at risk that was

1 in progress.

2 Q Do you remember when you received that letter?

3 A I'm sure it was -- let me think. I think we  
4 have an exhibit here.

5 MR. GUTTERMAN: I'm handing the witness Exhibit  
6 62.

7 MR. SINKIN: Applicant Exhibit 62.

8 A I received a letter back from Mr. Saltarelli  
9 dated May the 8th, 1981, which was the same day that they  
10 completed their review of if Quadrex most serious  
11 findings. And it was based on Brown & Root's initial  
12 review that they had not found any problems which they  
13 felt justified issuing a stop work order in any  
14 construction area. With further caveat, however, that  
15 this will be evaluated further as these items are  
16 reviewed in greater detail.

17 Q When you decided that the computer codes did  
18 need to be verified, did you notify Mr. Saltarelli?

19 A I had a telephone conversation with Mr.  
20 Saltarelli from my office when Mr. Robertson, Dr. Sumpter  
21 and myself had completed our deliberations, and we spoke  
22 to the fact that we believed that the computer code  
23 verification question was not adequately addressed by  
24 Brown & Root; we felt the potential was still too strong  
25 to be overlooked and we made a report accordingly to the

1 NRC. We also discussed as part of the same conversation,  
2 our feelings about the shielding calculations.  
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1 Q Did you discuss in that conversation whether  
2 Mr. Saltarelli would go back based on review of two new  
3 determinations of notifiability and evaluate whether  
4 stop work order should be issued?

5 A Well, he had already come to the opinion that  
6 there was no substance to the matter of the computer  
7 code verification. He was convinced that it was a  
8 bookkeeping problem and he steadfastly maintained that  
9 during our discussion. I frankly was of the opinion  
10 that he might well be right, but until we had gotten  
11 into this further, we felt there was sufficient  
12 information to register it as a potential and reportable  
13 problem.

14 Q So, even up to the end of that conversation  
15 Mr. Saltarelli was still maintaining there was no  
16 problem in the computer code verification system?

17 A That is correct.

18 Q Well, do you have any reason to believe that  
19 Mr. Saltarelli then went forward with deciding whether  
20 construction work should be stopped if it was related to  
21 those computer codes?

22 A I think Mr. Saltarelli was of the opinion that  
23 we had little or no risk of continuing construction  
24 because he did not believe that we had any significant  
25 problem associated with the adequacy of his computer

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1 programs. It turns out that Bechtel's work supports  
2 that view. I still don't feel that it changed the  
3 rationale for reportability.

4 Q It appears from the letter at page 2 that Mr.  
5 Saltarelli is concerned about responding to the Quadrex  
6 item on a first priority basis.

7 MR. AXELRAD: That is a misstatement of the  
8 letter.

9 MR. SINKIN: The first paragraph at the top of  
10 page 2, I think it speaks for itself.

11 MR. PIRFO: Is there a question pending?

12 MR. SINKIN: I was just calling that paragraph  
13 to his attention.

14 Q (By Mr. Sinkin) I was going to ask, the  
15 concern I see expressed is the impact on cost and  
16 schedule and on proceeding with an orderly design  
17 process for the plant. Were those concerns that you  
18 shared?

19 MR. AXELRAD: I'm sorry. The concerns about  
20 doing what?

21 MR. SINKIN: That if they responded to the  
22 Quadrex findings on a priority basis, there would be an  
23 impact on cost and schedule and an impact on proceeding  
24 with the project on an orderly basis.

25 MR. AXELRAD: Mr. Chairman, the letter

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1 specifically says responding to all these concerns on a  
2 first priority basis. It doesn't say anything about  
3 responding to concerns --

4 If you wish to read the sentence to him and  
5 then ask him a question based on that sentence, that's  
6 appropriate. But do not mischaracterize the sentence.

7 MR. SINKIN: I'm not exactly sure what the  
8 difference is between what we're saying, but I'll try  
9 and do that.

10 Q (By Mr. Sinkin) You had asked Mr. Saltarelli  
11 to prepare a plan for responding to each of the items in  
12 the Quadrex report by May the 15th, 1981; is that  
13 correct?

14 MR. AXELRAD: I'm sorry. Can Mr. Sinkin  
15 identify where May the 15 comes from?

16 MR. SINKIN: Bottom paragraph of page 1. Are  
17 we looking at the same document?

18 MR. PIRFO: We're all on Exhibit 62.

19 MR. SINKIN: What are you looking at?

20 MR. AXELRAD: I understand, but you said that  
21 Mr. Goldberg had asked him to respond on May 15th. This  
22 letter says that he will submit the schedule by May  
23 15th. It doesn't say Mr. Goldberg asked him to submit  
24 it by May 15th.

25 MR. SINKIN: I'm sorry. I don't have Mr.

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1 Goldberg's letter in front of me. Fine. Fine.

2 Q (By Mr. Sinkin) Mr. Goldberg, do you have  
3 your letter of May 6, 1981? Are you aware of whether  
4 you requested Mr. Saltarelli to complete a plan by May  
5 15th, 1981?

6 A No. As a matter of fact, I asked him for a  
7 response by May the 8th. I identified a number of  
8 features that I expected to see in his response. I did  
9 not see any commitment date therein with respect to May  
10 the 15th.

11 Q All right. Referring to page 2 of the May 8th  
12 letter from Mr. Saltarelli, what is your understanding  
13 in the first sentence of his phrase these concerns?

14 A All these concerns. He has to be referring to  
15 each finding.

16 Q Each finding in the Quadrex report?

17 A That is correct.

18 Q I think I know what caused this problem. I  
19 was using the word concern to express his attitude as  
20 well. Let me not use that word.

21 A If you read my specific directions to Mr.  
22 Saltarelli, which is really what he's responding to, he  
23 was asked with regard to all findings that Brown & Root  
24 should undertake certain actions. And then I gave him  
25 four actions that we wanted them to undertake.

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1 Q Right.

2 A And I believe --

3 Q You're referring to Applicants' Exhibit 61?

4 You're referring to Applicants' Exhibit 61?

5 A Yes.

6 Q All right.

7 A And I believe he's referring, when he says all  
8 these concerns, to all the findings.

9 Q And his response to you is that if he were to  
10 do what you say, it could have an impact on cost and  
11 schedule in engineering and could interfere with the  
12 orderly design process of the project; is that correct?

13 A Well, there's no question it was going to have  
14 a cost and schedule impact. He was specifically asked  
15 to tell us what it was.

16 Q Right.

17 A He didn't really tell me -- he wasn't able to  
18 quantify it, obviously. But he was putting us on notice  
19 that these matters were going to take time and they were  
20 going to take some financial resources.

21 Q Going to the last sentence of that paragraph  
22 on page 2, the first paragraph, it says that we also  
23 question the rationale for responding to all of these  
24 items on a first priority basis to the exclusion of  
25 proceeding with an orderly design process.

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1           It seems to me that Mr. Saltarelli is  
2           expressing a concern to you, well, there's that word  
3           again, but expressing his worry that if they respond to  
4           the Quadrex finding on a first priority basis, it will  
5           interfere with the orderly design process for the rest  
6           of the project. Did he express that worry to you?

7           A     I think that's what his letter says.

8           Q     Was your response to this letter to indicate  
9           to Mr. Saltarelli that he should proceed with responding  
10          to the findings in the Quadrex report?

11          A     Basically had Dr. Sumpter work with the Brown  
12          & Root people to come up with an acceptable plan that  
13          would provide a priority and at the same time interface  
14          it where we could with the ongoing design activities.

15          Q     By priority you mean take the Quadrex findings  
16          and decide which ones were a priority to respond to and  
17          respond to those on a first priority basis?

18          A     That's right. And I think Dr. Sumpter can  
19          speak to the plan that they were able to work out with  
20          Brown & Root.

21          Q     After reducing the number of items to which  
22          they had to respond to that first priority group, was  
23          there still an impact on the orderly progress of design  
24          at the project because they had to respond to that  
25          group?

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1 MR. REIS: Mr. Chairman --

2 MR. AXELRAD: Mr. Chairman, I would like to  
3 object at this time. I've been patient because  
4 sometimes I believe that letting a line of questioning  
5 go on for some number of questions is easier than having  
6 to rule on objections. But at this point we are  
7 straying far from the reportability of the Quadrex  
8 report matters. The actual plan that was developed  
9 dealt with how the substance of the Quadrex report would  
10 be dealt with. That is not part of what this hearing is  
11 about, explicitly not. And I really believe it would be  
12 not truthful to this proceeding to continue that line of  
13 questioning.

14 MR. SINKIN: Mr. Chairman, in judging -- in  
15 judging the impact of the Quadrex report on this  
16 project, which is what these attempts at questioning  
17 are, we're taking a measure of how seriously they  
18 responded to this report. We're also taking a measure  
19 of what the exceptions would have been as to what the  
20 response to this report would have to be once it was  
21 received. We think that is relevant to the overall  
22 question of what kind of enforcement action would be  
23 taken if this report was found to have been held back  
24 rather than released. It's part of the criteria for  
25 that enforcement action that if it has an adverse

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1 economic impact on the project, then that item can be  
2 enhanced in its enforcement level.

3 If the reason for taking -- I'll try this -- I  
4 wasn't planning to go into this whole argument here, but  
5 it's part of the reason for the question. In deciding  
6 the level of enforcement that would have ensued had the  
7 NRC found that the Quadrex report was deliberately  
8 withheld or should have been turned over, one of the  
9 elements the NRC would have looked at, according to  
10 their own enforcement guidelines, is whether the act was  
11 taken in order to avoid an adverse economic impact on  
12 the project. What I'm trying to determine here is what  
13 the economic impact was on the project in their response  
14 to Quadrex.

15 MR. REIS: Mr. Chairman.

16 JUDGE BECHHOEFER: Mr. Reis.

17 MR. REIS: This is quite far removed. First  
18 of all, the economic impact on the project is quite far  
19 removed. I don't even think what level of enforcement  
20 action we would have taken is an issue in this  
21 proceeding. And certainly the questions don't go to 9  
22 and 10 of the present contention. There is no way they  
23 can.

24 It deals -- the question deals with the  
25 economic impact and the question is is there any failure

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1 to report Quadrex in a timely manner within the  
2 twenty-four hours, whether that adversely affects on the  
3 character and competence of the Applicant and their  
4 abilities to manage the project. There just is no -- it  
5 deals with the McGuire report but in a similar way. But  
6 there is just no nexus between one thing and another.  
7 We can go on forever with these economic questions.

8 The question is did they do their duty within  
9 a short time after receiving the Quadrex report of  
10 reporting those items to us and that is looked at by  
11 examining the items there and seeing what they did, what  
12 their process was within that time frame and what they  
13 reported.

14 MR. AXELRAD: Moreover, Mr. Chairman, the  
15 economic impact of various corrective action plans,  
16 whether they are all done on a first priority basis or  
17 whether they are done on a sequential basis has nothing  
18 to do with -- even if we take care of Mr. Sinkin's  
19 argument at face value, they have nothing to do with the  
20 economic impact of reporting or not reporting a report  
21 to the NRC.

22 JUDGE BECHHOEFER: We agree with that argument  
23 and we'll sustain the objection. The economic impact of  
24 the corrective actions has nothing to do with, that I  
25 can figure out, reportability. So --

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1 MR. SINKIN: Well, I want to make clear our  
2 purpose in asking this question because we will have  
3 other questions of a similar nature. We're not looking  
4 at the question of should these findings have been  
5 notified, we're looking at the second question. If they  
6 should have been notified, does it reflect adversely on  
7 the character of the Applicants.

8 One measure that has been used in this  
9 proceeding before, it's in the partial initial decision,  
10 is the level of enforcement for any given violation that  
11 has taken place. So, we are going to have to in a sense  
12 speculate since there was no enforcement. If you decide  
13 that the NRC staff was in essence wrong, it should have  
14 been reported to the NRC staff, then you have to decide  
15 what level of violation that is in order to determine  
16 how it reflects on the character of the Applicants.

17 MR. REIS: I believe they're two separate  
18 questions and I don't think one has any relation to the  
19 other and I don't think Mr. Sinkin has given any basis  
20 for relation of one to the other.

21 MR. AXELRAD: And even if he were right in  
22 this particular situation, economic impact has nothing  
23 to do with --

24 JUDGE BECHHOEFER: Right. Our upholding the  
25 objection is on the basis that both I explained and Mr. 11721

1 Axelrad really repeated it just now. On that basis we  
2 will sustain that objection.

3 Q (By Mr. Sinkin) Mr. Goldberg, when we were  
4 evaluating the relationship of computer codes to ongoing  
5 construction, you said that virtually no significant  
6 amounts of piping had been released for construction.  
7 But earlier today in our discussions about piping you  
8 mentioned four subcontractors that were working on the  
9 project in piping.

10 A Westinghouse had basically supplied the  
11 reactor coolant system, that was dressed down for  
12 Westinghouse code. EDS was working on pipe break  
13 restraints inside containment, so it was using EDS  
14 codes. Basic piping being fabricated over at Southwest  
15 was predominantly the non-alloy piping since few of the  
16 piping drawings for a nuclear plant outside of the  
17 reactor coolant system hadn't been issued for anything.

18 Q There was a fourth subcontractor, if I  
19 remember.

20 A NPS and they had a contract for the pipe  
21 supports for the turbine building.

22 Q And were those pipes being installed in the  
23 turbine building?

24 A Yes.

25 Q Would those pipes have had any relationship

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1 with the computer codes?

2 A They probably would, but they were outside the  
3 scope of nuclear interest.

4 Q They were not safety-related pipes?

5 A Not safety-related, correct.

6 Q Were they important to safety pipes?

7 A I doubt it. I'd like to know what important  
8 safety is.

9 Q I understand.

10 Is your understanding that Applicants' Exhibit  
11 62, the Brown & Root response on May 8th, was solely the  
12 product of the work done after the May 7th meeting at  
13 which Quadrex presented its report or were there other  
14 inputs to that document?

15 A I want to make sure I understand your  
16 question. You want to know is the Brown & Root response  
17 of May 8th the sole input?

18 Q No. Is this document a product solely of what  
19 Brown & Root was able to do overnight from May 7th to  
20 May 8th?

21 A As far as I'm aware, it was, yes. It may not  
22 obviously reflect all the product, this representing a  
23 summary of the product.

24 JUDGE BECHHOEFER: Maybe this is a good point  
25 to interject a question. Are you aware whether or not

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1 Brown & Root was briefed on the Quadrex report sometime  
2 earlier than the release date?

3 THE WITNESS: I believe there were or there  
4 was, I think, a preliminary briefing of Brown & Root  
5 that may have occurred the same time on the 30th, I  
6 believe, when Quadrex came to town and gave HL&P a  
7 briefing, I think Brown & Root was given a briefing.

8 JUDGE BECHHOEFER: Would May 1 sound  
9 reasonable?

10 THE WITNESS: May 1, yes, sir.

11 JUDGE BECHHOEFER: Because I was going to ask  
12 you what a certain document meant. I guess I'll pull it  
13 out now. It was Document Number 58 of the pile we  
14 received first. There's no date on this, but the  
15 transmittal letter -- it's this document here.

16 MR. SINKIN: Is that the group of slides?

17 JUDGE BECHHOEFER: These were sent to us under  
18 the nomenclature of certain slides.

19 You're welcome to borrow my copy. The red is  
20 mine, but the others are --

21 THE WITNESS: Apparently we were given a  
22 briefing on April the 30th and Brown & Root was given a  
23 similar briefing on May the 1st.

24 JUDGE LAMB: That's in your direct testimony  
25 on page 12.

1 JUDGE BECHHOEFER: Now, responding to the  
2 question about whether this letter of -- this  
3 Applicants' Exhibit 62 was based solely on the report  
4 itself, might it have been based on this briefing  
5 represented by these slides in part?

6 THE WITNESS: And this is with respect to  
7 what, sir?

8 JUDGE BECHHOEFER: Might the -- might  
9 Applicants' Exhibit 62, which is the May 8 response, be  
10 based at least in part on that May 1 briefing?

11 THE WITNESS: I guess that's possible. I'm  
12 not sure I'd have any way of knowing that.

13 MR. SINKIN: Mr. Chairman, I'm about to launch  
14 into a new area of questioning and I notice that it is  
15 6:00 o'clock. We can go for the -- it's two after  
16 6:00. We can go for the thirteen minutes that I took  
17 off of yesterday if you like.

18 JUDGE BECHHOEFER: Is what you're getting into  
19 going to take longer than that? If it's a real long  
20 line of questioning, perhaps we better start with it  
21 tomorrow.

22 MR. AXELRAD: May I suggest that instead of  
23 running later today, perhaps we can start fifteen  
24 minutes earlier tomorrow?

25 MR. SINKIN: Well, the only problem I have

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1 with starting early on any days down here is I travel  
2 thirty-five miles to get here.

3 MR. PIRFO: There's no reason we can't go  
4 fifteen minutes later tomorrow since we go to noon since  
5 and we have two hours until the limited hearing starts,  
6 to the extent that fifteen minutes is crucial.

7 JUDGE BECHHOEFER: Off the record.

8 (Discussion off the record.)

9 MR. AXELRAD: If Mr. Sinkin can promise to  
10 finish his cross-examination tomorrow, then we don't --

11 MR. SINKIN: By no means, Mr. Axelrad.

12 Mr. Goldberg will be coming back after  
13 Saturday anyway, so I don't think that -- I think it's  
14 just as well to go ahead and adjourn now. This is a  
15 fairly substantive discussion.

16 JUDGE BECHHOEFER: I guess we'll adjourn for  
17 the day.

18 (Hearing adjourned at 6:04 p.m.)

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CERTIFICATE OF OFFICIAL REPORTER

This is to certify that the attached proceedings before  
the UNITED STATES NUCLEAR COMMISSION in the matter of:

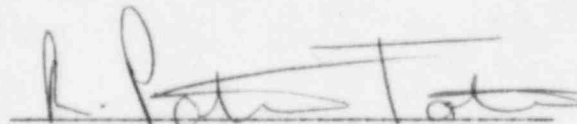
NAME OF PROCEEDING: EVIDENTIARY HEARING  
HOUSTON LIGHTING AND POWER COMPANY,  
ET AL (SOUTH TEXAS PROJECT, UNITS 1  
AND 2)

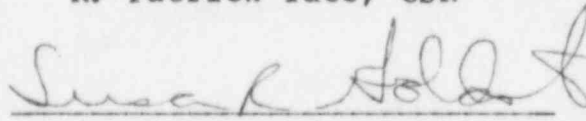
DOCKET NO.: STN 50-498-OL  
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PLACE: BAY CITY, TX

DATE: Friday, July 12, 1985

were held as herein appears, and that this is the  
original transcript thereof for the file of the United  
States Nuclear Regulatory Commission.

  
R. Patrick Tate, CSR

  
Susan R. Goldstein, CSR

Official Reporters