

ORIGINAL

# UNITED STATES NUCLEAR REGULATORY COMMISSION

IN THE MATTER OF:

DOCKET NO: 50-400-OL  
50-401-OL

SHEARON HARRIS NUCLEAR POWER PLANT

LOCATION: APEX, NORTH CAROLINA

PAGES: 5312 - 5573

DATE: WEDNESDAY, OCTOBER 24, 1984

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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In the Matter of:           :
                             :
CAROLINA POWER AND LIGHT COMPANY : DOCKET NOS.
and NORTH CAROLINA EASTERN      : 50-400-OL
MUNICIPAL POWER AGENCY         : 50-401-OL
                             :
(Shearon Harris Nuclear Power   :
Plant, Units 1 and 2)          :
----- X

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Ramada Inn  
Interstate 55  
ECU Room  
Apex, North Carolina

Wednesday, October 24, 1984

The above-entitled matter reconvened, pursuant to  
notice, at 9:18 a.m.

BEFORE:

JAMES L. KELLEY, ESQ., Chairman  
Atomic Safety and Licensing Board  
Nuclear Regulatory Commission  
Washington, D. C. 20555

DR. JAMES H. CARPENTER, Member  
Atomic Safety and Licensing Board  
Nuclear Regulatory Commission  
Washington, D. C. 20555

DR. GLENN O. BRIGHT, Member  
Atomic Safety and Licensing Board  
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Washington, D. C. 20555

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## APPEARANCES:

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25On behalf of the Applicants:

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Wells Eddleman, pro se.

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I N D E X

2	<u>WITNESSES</u>	<u>DIRECT</u>	<u>CROSS</u>	<u>REDIRECT</u>	<u>RECROSS</u>	<u>BOARD</u>
3	Richard M. Bucci)					
	Edwin J. Pagan )					
4	Edward M. McLean)					
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	Edwin J. Pagan )					
9	Kumar V. Hate )	5512	5519			
10	Armando Masciantonio	5565				
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Sim 1-1

P R O C E E D I N G S

1  
2 JUDGE KELLEY: Good morning. We are on the record  
3 again.

4 We have a couple of things to discuss this morning  
5 before we get back to the next panel.

6 First of all, yesterday we received from  
7 Mr. Eddleman a copy of an affidavit from Chan VanVo who is  
8 also known as VanVo Davis, and we are just going to refer to  
9 him for simplicity sake as Mr. Chan, who was a former employee  
10 at the Shearon Harris site.

11 And we also received from the applicants copies of  
12 two letters. I believe I mentioned this in the record yester-  
13 day. So I won't belabor these receipt points. The letters  
14 are dated September 13 and October 12 from the Department of  
15 Labor about a complaint that Mr. Chan filed with Labor.

16 The Board has now read these materials and we want  
17 to discuss with you how they should be addressed. We basically  
18 would like to hear the parties comments.

19 We would just like to say as an initial matter that  
20 we are familiar with the staff's practices of investigating  
21 complaints from citizens, and we simply assume without any  
22 prompting from the Board the staff would look into the matters  
23 that Mr. Chan has alleged.

24 We do feel that as a part of our independent obliga-  
25 tion as a Board in this proceeding, this affidavit having been

Sim 1-2

1 filed with us, that we as a minimal matter propose to treat  
2 it as a limited appearance statement and ask the staff to  
3 look into it. As we already indicated, we thought they would.  
4 Based on our reading, we are, without really commenting on  
5 other specific concerns, we are particularly concerned that  
6 the staff look into the safety of the steam generator feed-  
7 water pump matter discussed starting at paragraph 5 on page 5.  
8 It is pump No. 1A-NNS, and then there are other matters that  
9 I assume they will look into, too, but we wanted to mention  
10 this specifically, whether that pump is safe.

11           Beyond that, beyond treating it in that fashion  
12 as a limited appearance statement, let me turn first to  
13 Mr. Eddleman.

14           What beyond that, if anything, do you think the  
15 Board should do, or what would you like to do with the  
16 affidavit, Mr. Eddleman?

17           MR. EDDLEMAN: I haven't been able to check with  
18 all the other joint intervenors about this. What I would  
19 tentatively propose is I think he has said some things that  
20 certainly tie into Contention 41. He is working about his  
21 work in the pipe hanger area and defects and disregard for  
22 quality there. He alleges that when he tried to bring these  
23 things to people's attention, all the way up the organization,  
24 that he basically got no affirmative results. He got  
25 harassed and ultimately fired.

Sim 1-3

1 So I think that I would like to put him in as a  
2 witness on 41. As I say, his counsel has indicated he would  
3 be willing to appear sometime in November. So I take that to  
4 be after the 2nd because of the placement of Joint 4.

5 As to management ---

6 JUDGE KELLEY: Let me just interrupt so I am clear.

7 MR. EDDLEMAN: Yes, sir.

8 JUDGE KELLEY: When you refer to his counsel, are  
9 you referring to Mr. Guild?

10 MR. EDDLEMAN: Yes. Mr. Guild represents him. He  
11 doesn't represent any of the parties in this proceeding.

12 JUDGE KELLEY: I understand.

13 MR. EDDLEMAN: I also think if you look closely  
14 at that, Mr. Chan appears to contradict some of the statements  
15 made by Mr. Utley and Mr. McDuffy as to No. 1, whether they  
16 had ever been contacted by workers from the plant with QA  
17 concerns and, No. 2, as to what they would do if something  
18 like that happened.

19 I think that this would be relevant to Joint 1. It  
20 is new information to me. I am not absolutely certain that  
21 none of the other joint intervenors knew about it. But I  
22 haven't heard anything from them that indicates that they did,  
23 and I think it would be in the nature of rebuttal on Joint 1,  
24 that part of his information.

25 JUDGE KELLEY: This is just a reaction. I think

Sim 1-4

1 what the Board wants to do this morning is hear from the  
2 parties and then we can come back and give you our thoughts.  
3 But whatever I say right now is not a Board position. It is  
4 just that I am trying to feel out where you are.

5 With regard to 41, he does discuss in several para-  
6 graphs I think the pipe hanger program and his involvement in  
7 it. It seems to me that it is one thing to just say pipe  
8 hangers and it is another thing as to whether what he says,  
9 and it speaks to fits within 41 as drafted.

10 Would you, if you are trying to shape a proposition  
11 to work with, could you then parse it a little more finely  
12 in terms of just what it is you would propose to get into  
13 on 41. You know, if material is not traced right, it is one  
14 thing. If one's efforts to report safety problems are  
15 frustrated, that is something else, it seems to me.

16 MR. EDDLEMAN: Right. Well, I see where you are  
17 getting at, I think. 41 as drafted alleged the whole QA  
18 program was deficient, and the Board narrowed it down to the  
19 question of whether pipe hanger welds were being improperly  
20 approved.

21 Now as I recall, Mr. Chan didn't work directly in  
22 inspecting or approving pipe hanger welds at all. However,  
23 he was involved in quality assurance on pipe hangers. To the  
24 extent that it doesn't fit within 41, I guess I have got, you  
25 know, the standard thing about trying to pull in a late



Sim 1-5

1 contention, and say, well, I have got new information here  
2 and I have got a witness and I will try to address the five  
3 factors and all this stuff.

4 I think just off the top of my head, I mean there  
5 doesn't seem to be any other way to protect my interests on  
6 it than to get him into the case to testify about this.

7 The information just became available to me yesterday  
8 and I think the affidavit is dated October the 6th.

9 JUDGE KELLEY: I wasn't suggesting that we get into  
10 the five factors right now.

11 MR. EDDLEMAN: Okay. But, anyway, what I am saying  
12 is I am certainly able to address those and go through the  
13 standard program of what I am supposed to show and put that  
14 forward.

15 I think that to the extent that there are problems  
16 in the same area, it would probably be constructive to hear  
17 it in parallel with 41, if not under the actual title of 41.

18 JUDGE KELLEY: It is a technical point. I don't  
19 know that it matters too much, but in that kind of a case  
20 it might just be a late amendment to 41 broadening it in some  
21 respect.

22 MR. EDDLEMAN: Well, I could certainly go along  
23 with that because as 41 started off, it was broader and it  
24 was narrowed down by the Board, and it could be broadened  
25 out in the light of information.

Sim 1--6

1 JUDGE KELLEY: Okay, that is helpful. Why don't we  
2 move over to the applicants.

3 MR. BAXTER: Mr. Chairman, I am going to first give  
4 the Board some additional information that I think is relevant  
5 to the discussion and then I will address at the end  
6 Mr. Eddleman's proposed use of Mr. Chan and his information,  
7 and Mrs. Flynn may supplement me with respect to Joint Con-  
8 tention 1.

9 The affidavit that was provided to you yesterday  
10 morning, dated October 6th, 1984, was received by Carolina  
11 Power and Light Company about a week and a half ago as a result  
12 of an inquiry by the Harris plant quality check program to  
13 obtain more information from Mr. Chan on the quality concerns  
14 he raised in his complaint to the Department of Labor, a copy  
15 of which we have provided to you.

16 Mr. Chan was an engineer in the Mechanical Department  
17 of the Harris plant construction section. He as not an  
18 employee of the quality assurance or quality control organiza-  
19 tions.

20 In spite of several years during which his supervisors  
21 and members of CP&L management counseled with Mr. Chan in an  
22 effort to improve his job performance, he was placed on six  
23 months probation in August 1983 because of unsatisfactory work  
24 performance, and he was terminated in February 1984 because  
25 his performance had not improved.

1           On August 14, 1984, Mr. Chan filed a charge of  
2 discrimination with the Equal Employment Opportunity  
3 Commission. That charge of discrimination is based on race,  
4 and we believe that the EOC has no jurisdiction over the  
5 whistle blower or discrimination claims made under the Energy  
6 Reorganization Act, and that matter is still pending before  
7 the EOC.

8           On September 13, 1984, the Department of Labor  
9 received a complaint from Mr. Chan charging CP&L with a violation  
10 of the employee protection provisions of the Energy Reorganizatio  
11 Act. That complaint, which you have, is dated August 28th,  
12 and states that on or about July 31, 1984, Mr. Chan was advised  
13 by a representative of the government accountability project  
14 on how to file the complaint, and what his rights were.

15           Mr. Chan claims he was not previously aware of his  
16 right to file such a complaint, even though Carolina Power  
17 and Light Company posts notices throughout the plant site  
18 advising workers of this right.

19           I must comment in terms of this chronological  
20 development, it seems all too typical of the pattern we see  
21 following at plants around the country that information that  
22 was available to their representative, who I assume to mean  
23 Mr. Guild, who attended the management hearings in September  
24 here, was not provided to the rest of us except on the eve --  
25 practically on the eve of hearing the construction issues

1 in this case.

2 It was a result of receiving this Department of Labor  
3 complaint, however, that CP&L quality check personnel contacted  
4 Mr. Chan in search of any specific concerns to flush out the  
5 rather vague allegations in that Department of Labor complaint,  
6 and received in return the affidavit which you have been  
7 provided.

8 CP&L investigated Mr. Chan's charges in response to  
9 the EEOC complaint in August, and confirmed the results of  
10 that investigation when we received the Department of Labor  
11 complaint, and in each case found them to be without merit.

12 Because there is some additional information in the  
13 October 6th affidavit, CP&L has initiated through its quality  
14 assurance department, an additional investigation of the  
15 quality concerns raised by Mr. Chan, and has included in that  
16 group to do the investigation an independent consultant.

17 We expect that this report will be concluded and  
18 available by the end of October. On October 12, 1984, the  
19 Department o Labor issued its findings on the complaint which  
20 we provided to you, in which it found it was not able to  
21 substantiate that discrimination was a factor in the actions  
22 comprising his complaint, and determined that Mr. Chan had  
23 been terminated because of unsatisfactory work performance.

24 On October 15, 1984, as provided for by Department  
25 of Labor regulations, Mr. Chan requested a hearing and we

1 assume that hearing request will be granted as is customary  
2 in those practices, and that a hearing will be held before  
3 that agency to review the findings of the investigator.

4 There are some things to emphasize. That we have  
5 looked at Mr. Chan's concerns over not just this summer, but  
6 over the years.

7 His affidavit indicates he has met with Senior Vice  
8 President McDuffy on two occasions, one in 1982 on a Saturday  
9 at his request, again in mid-1983, and he has met with Mr.  
10 Utley.

11 Contrary to the affidavit however, rather than  
12 raising safety concerns, the general tenure of Mr. Chan's  
13 discussions with these gentlemen, as I know them to date,  
14 was that he felt there were too many errors going on the  
15 site that were causing cost and schedule penalties that  
16 were unnecessary, not that the errors were going undetected  
17 or uncorrected and causing a safety problem, but that he felt  
18 as an MBA student, he had some better ideas on how to manage  
19 the job, how to organize the site, how to do it more  
20 efficiently, so the work would not have to be redone, and  
21 those are the nature of the discussions he held.

22 With respect to the relevance to Contention 41,  
23 I would call to the Board's attention in case it hadn't  
24 occurred to you, that Mr. Fuller, who is discussed in Mr.  
25 Chan's affidavit, is one of the witnesses Applicants have

1 scheduled to appear on Contention 41.

2 He was Mr. chan's immediate supervisor in hanger  
3 engineering.

4 It also happens that Mr. Douglas, one of the  
5 subpoenaed witnesses, was a member of the QA Surveillance  
6 Team on pipe hangers during the Summer of 1983. It was that  
7 QA Surveillance Team which Mr. Chan was appointed by Mr.  
8 Fuller as a technical advisor. He was not, as I say, a  
9 member of the QA organization, and the report that issued  
10 following that surveillance was not Mr. Chan's report at all,  
11 but the report of the QA team.

12 We do not feel that the limited issue he has  
13 discussed in his affidavit about pipe hangers has anything  
14 to do with the contention before the Board which is whether  
15 pipe hanger welds have been improperly inspected and approved.  
16 He discusses material traceability and that is not part of the  
17 issue.

18 We also do not think that general allegations of  
19 harassment can be brought in under this contention. We do  
20 not have the kind of contention here that we had in Catawba,  
21 and absent some nexis showing that there is a quality concern  
22 with pipe hanger welds, and their inspection and approval,  
23 we don't think that Mr. Chan has anything relevant to  
24 contribute to the record, beyond which I find it -- I think  
25 the timeliness is unjustified by Mr. Eddleman. I find it

1 incredible to accept the proposition that he only learned  
2 of Mr. Chan this Monday, when the rest of the public and the  
3 press were advised by Mr. Guild of the complaint and the facts  
4 that are alleged by this, which Mr. Guild clearly knew at the  
5 end of July this year, and which can only have been part of  
6 the basis for some of the cross examination. We saw the  
7 management witnesses in September by the joint interveners.

8           With respect to the relevance to the record on  
9 Joint Contention 1, based on the information I provided you,  
10 and I said we are still investigating this, there seems to  
11 be nothing here that contradicts the statements made by Mr.  
12 Utley or Mr. McDuffy, because they genuinely did not consider  
13 this man to be raising safety or quality concerns, but  
14 rather someone who is trying to suggest a different means  
15 of organizing the site.

16           Finally, while it is not relevant to either  
17 Contention 41 or Joint Contention 1, the discussion in his  
18 affidavit at great length about a particular pipe that you  
19 have asked the Staff to investigate, and that is fine, there  
20 was an alignment problem with this pipe. It was properly  
21 documented as a nonconformance pursuant to site procedures,  
22 but I would call your attention to the designation you read,  
23 NNS, and that means non-nuclear safety.

24           This is not a safety related pipe in any sense of  
25 the word.

1 JUDGE KELLEY: I guess I was thrown off by the  
2 reference to -- what was it, page 5? Steam generator feedwater  
3 pump, -- sounds -- has a safety ring to it in my ear. But  
4 you say it is not?

5 MR. BAXTER: I am afraid I can't do justice to  
6 describing the configuration. I can only tell you that I have  
7 been assured by diverse numbers of engineers that NNS means  
8 non-nuclear supply, and that this is not, in any way, a safety  
9 system.

10 JUDGE KELLEY: Apart from the fact that NNS means  
11 that, are you also informed that the particular pipe in  
12 question is not a safety pipe?

13 MR. BAXTER: That is correct. Neither the pump  
14 nor the pipe.

15 JUDGE KELLEY: All right.

16 MR. BAXTER: We think Mr. Eddleman may be right.  
17 If he wants to inject the information Mr. Chan has at this  
18 point, that he has to pursue an additional contention. If  
19 he wants to do that, of course, he has the opportunity at  
20 any time to try and make his case on the five factors. We  
21 do not think that litigation of Contention 41, as admitted,  
22 ought to be held up in any way while that process goes  
23 forward.

24 JUDGE KELLEY: I just want to make a further  
25 comment. If the Staff confirms that this is not a safety



2-7-Wal

1 pipe, then the Board is going to lose interest right then and  
2 there.

3           You don't have to. I am just telling you -- we  
4 assumed it was a safety pipe. If it is not a safety pipe,  
5 then do you want to investigate it, that is fine. We don't  
6 care.

7           You have spoken to this already, but just in the  
8 interest of being a little bit fuller and precise as we can  
9 be, with regard as to whether Mr. Chan's concerns about the  
10 pipe hanger program are within admitted contentions.

11           Now, it seems to me, looking at the wording of, say,  
12 65, that to me is crystal clear. It doesn't involve harass-  
13 ment. It doesn't involve anything in this affidavit.

14           41, could you tell us how you are reading that,  
15 and how you conclude that -- I believe you mentioned that  
16 Mr. Chan was not a QA employee for one thing. Could you just  
17 walk us through that once more, and if it is your position  
18 that none of his concerns are within 41, we would just like  
19 to make sure we know exactly why, so that when we look at the  
20 transcript we have your full side of it.

21 End 2.  
22 SueT fols.

22

23

24

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#3-1-SueT

1 MR. BAXTER: Yes, sir. It's not -- my position  
2 isn't tied to the fact that he wasn't a quality assurance  
3 employee. We have witnesses who are not quality assurance  
4 employees also who are going to testify on Contention 41. I  
5 just was responding to Mr. Eddleman's characterization there.

6 The contention says: Applicants' QA/QC program  
7 fails to assure that safety-related equipment is properly  
8 inspected (e.g. the OK tagging of defective pipe hanger welds  
9 at SHNPP).

10 That's the language of the contention.

11 JUDGE KELLEY: Okay.

12 MR. BAXTER: Now, in its Memorandum and Order of  
13 September 22, 1982, admitting the contention, the Board clari-  
14 fied that the scope of the contention was going to be limited  
15 to the assertion "that there exists defective hanger welds  
16 that have been improperly inspected and approved" and held that  
17 it does not cover the entire QA/QC program.

18 And it is the welding of pipe hangers and their  
19 inspection and approval that have been the subject of this  
20 contention for two years, through the discovery process and  
21 now through the filing of testimony.

22 JUDGE KELLEY: Do you get into welding because in  
23 order to look at inspections you really have to look at the  
24 welds? Is that how this works in the real world?

25 MR. BAXTER: Well, no. The example raised in the

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1 language of the contention itself is defective pipe hanger  
2 welds. And when the Board admitted it then it said: We are  
3 going to look at the question of whether there exists defective  
4 hanger welds.

5 JUDGE KELLEY: Right.

6 MR. BAXTER: So, whether the material in the hanger  
7 is right or it is aligned properly --

8 JUDGE KELLEY: Okay.

9 MR. BAXTER: -- or it's the right hanger for the  
10 right pipe --

11 JUDGE KELLEY: So, it's both the welding function  
12 and the inspection function but only on pipe hangers?

13 MR. BAXTER: That's right. That's right. And  
14 what he talks about -- and, of course, there are lots of other  
15 things that people in Hanger Engineering where he worked are  
16 involved with with respect to pipe hangers other than just  
17 welding, and it is my view -- and I think it's fair from what  
18 he talks about -- that he is not addressing welding in his  
19 particular Affidavit here.

20 So, if he has concerns about welding he hasn't  
21 stated them here.

22 JUDGE KELLEY: Let's see, this starts on Page 10,  
23 I believe, Paragraph 16, and it looks like 10 through 14,  
24 Pages 16 through 24, in one way or another, are involved with  
25 piping or welds, correct?

#3-3-SueT

1 MR. BAXTER: No. I'm looking at it as you -- the  
2 pages you indicate, Mr. Chairman. I don't see a discussion of  
3 welds.

4 JUDGE KELLEY: Pipe hanger QA, more broadly.

5 MR. BAXTER: True.

6 JUDGE KELLEY: No, I didn't -- if I used the word  
7 "weld" I'm speaking loosely. But the whole point of this -- as  
8 long as we are talking about it, let's look at it right now  
9 and have you tell us why you think these matters are not with-  
10 in the contention. Then, we will at least have your side down.

11 Are you prepared to do that?

12 MR. BAXTER: I will do my best.

13 JUDGE KELLEY: All right.

14 MR. BAXTER: Let me explain, first of all, that  
15 this QA surveillance team, which as I said, Mr. Douglas, one  
16 of the subpoenaed witnesses, who is a quality assurance employee  
17 was a member of, they were assigned to go out and look at ten  
18 hangers and audit ten hangers because of suspected problems in  
19 connection with numerous attributes of the hangers.

20 Mr. Chan was assigned by Mr. Fuller to be the  
21 hanger engineering technical advisor to that group, and they  
22 went out and looked at the ten hangers.

23 JUDGE KELLEY: Right.

24 MR. BAXTER: They found some problems of various  
25 sorts, including welding, and it led to a larger inspection of

#3-4-SueT

1 a larger group of hangers and eventually to an enhanced pipe  
2 hanger installation program in December 1983. This is all  
3 laid out -- I know this, because it's all laid out in our  
4 written testimony.

5 JUDGE KELLEY: All right.

6 MR. BAXTER: This is not a surprise. It's not  
7 something we are all putting under the rug. So, Mr. Chan was  
8 involved with a surveillance group that looked at welds as  
9 well as other things.

10 Looking at Paragraph 16, however, I see nothing  
11 specific about welds. He talks about material substitutions.  
12 I'm looking about three-quarters of the way down. Use of  
13 surplus materials, construction material requisitions that  
14 did not match the hanger materials actually installed. This  
15 is not welding to me. He is talking about the material of  
16 the hanger itself.

17 JUDGE KELLEY: Okay.

18 MR. BAXTER: In Paragraph 17, he starts to talk  
19 about stress analyses. And he talks about inspections and  
20 deficiencies in general, but he doesn't tell you what they  
21 are.

22 JUDGE KELLEY: Right.

23 MR. BAXTER: I think we are not ready to assume  
24 they are.

25 JUDGE KELLEY: Okay. The next paragraph tells

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1 about the speed letter procedure.

2 MR. BAXTER: Yes. And he talks about problems  
3 but the first time he says anything particular, again it's  
4 about the third or fourth sentence in. He is talking about  
5 material traceability on the hangers.

6 And the plate that was used in the hanger, the  
7 purchase order, and whether it matched the drawing. And again  
8 this is the purchasing of the material of the hanger itself  
9 and not the welding.

10 JUDGE KELLEY: All right.

11 MR. BAXTER: And as far as I can tell, the rest of  
12 Page 12 is all still about that same incident, the same speed  
13 letter and the same material traceability concern.

14 JUDGE KELLEY: Okay.

15 MR. BAXTER: And he concludes --

16 JUDGE KELLEY: This is the one that ended up in  
17 the trash basket?

18 MR. BAXTER: Excuse me?

19 JUDGE KELLEY: Is this the document that ended up  
20 in the trash basket?

21 MR. BAXTER: According to him, yes.

22 JUDGE KELLEY: Okay.

23 MR. BAXTER: And, then on Page 13 again he returns  
24 to the concern he has about insuring that hanger numbers and  
25 purchase orders match up, and documentation of the materials,

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all of which I assume to be the pipe hanger materials again.

2

JUDGE KELLEY: Okay.

3

MR. BAXTER: And, then he returns to his work performance at the bottom of Page 13. And I don't think there is anything more about pipe hangers.

6

JUDGE KELLEY: No, not on 14, except Paragraph 24 at least implies -- he said: I carried with me all my documentation of safety concerns and deficiencies, including those described here.

10

Okay. Now, I don't know that there is anything about pipe hangers after that. It doesn't seem to be. Well, that's helpful, I think.

13

Let's go to the Staff and I will come back to Mr. Eddleman. Staff, what do you think we should do?

15

MR. BARTH: Thank you, Your Honor. I will address this on behalf of the Staff. If I repeat some of the arguments of the Applicant, I would appreciate your indulgence.

18

First, Your Honor, I would like to point out that at the request of the Staff, it does have the Affidavit and the Atlanta Regional Office will investigate the allegations regarding both the feedwater pump and material traceability which appears on Page 10 of the Affidavit.

23

I would like to point out as a matter of background that the construction of nuclear power plants, the construction occurs over a long period of times, sometimes up to ten years.

24

25

#3-7-SueT

1 There are thousands of employees at these plants. The matter  
2 of a present or a former employee making allegations of a  
3 delict or a defect is not something unusual, different or new.

4 The Commission has given this consideration and in  
5 all of the Area Offices, the Commission has established an  
6 office which will specifically look at every single allega-  
7 tion that is made, whether by a present employee or by a  
8 former employee. We check these out very carefully. Within  
9 the shop we refer to these as our allegators.

10 There are two issues raised in Mr. Van Vo's  
11 Affidavit which you received. The first notice to the Staff  
12 of this possible problem occurred when the Department of Labor,  
13 as a matter of courtesy, provided us with a copy of the com-  
14 plaint which Mr. Van Vo submitted to them. We then recently  
15 received the Affidavit which you now have before you, which  
16 I would like to address.

17 There are two safety issues. There are two issues  
18 that he raised in there, Your Honor. As you point out, on  
19 Page 5 he talks about a carbon steel piping line to a discharge  
20 nozzle steam generators. There is no contention before this  
21 Board that remotely relates to that kind of an issue and,  
22 therefore, this is new. And, then the question, of course,  
23 is in the back of my mind, how new is this?

24 If we will look at Page 5 we will find that this  
25 allegation of delict occurred twenty-seven months ago, two



#3-8-SueT

1 years and three months ago. I will come back to that, if I  
2 may, Your Honor.

3 The second allegation of delict occurs upon Page 10,  
4 as Your Honor has observed, and as Mr. Baxter has also observ-  
5 ed, it relates to traceability of materials used in pipe  
6 hangers. I would like to observe that the delict is alleged  
7 to have occurred in June of 1983, some fifteen months ago. And  
8 these time periods will become important later in my argument.

9 I would like to jump and go to the last question you  
10 asked Mr. Baxter. In our view, the alleged issue on Page 10 of  
11 material traceability is totally without the parameters of the  
12 Contention 41 which starts out: The Applicants' QA/QC program.

13 When Mr. Baxter addressed this matter in his  
14 initial addressment, he did discuss pipe hanger welds. In our  
15 view, the contention, the gravamen of the contention is whether  
16 or not Carolina Power and Light's QA/QC program for the in-  
17 spection of welds is adequate, not whether the welds themselves  
18 are adequate. There is a long inspection history, and welds  
19 have been found to be inadequate.

20 The issue before this Board and the basic matter  
21 which we have addressed in our testimony is whether the pre-  
22 sent program is adequate to detect any kind of bad weld and,  
23 therefore, have that remedied in order to protect the public  
24 health and safety. It does not go to the existence of whether  
25 or not the welds themselves were properly made. It goes to  
the Company's program, which is a matter separate.

Sim 4-1

1 I do not think that this is a distinction without  
2 a difference. I think this is a fundamental distinction.

3 All of our testimony is couched in terms of what  
4 kind of a program is in place at Carolina Power and Light  
5 Shearon Harris plant, and not the history of a bad weld here  
6 or there or how other programs are done. It is what is the  
7 present program.

8 In our view, the allegation on page 10 of Mr. VanVo's  
9 affidavit starting with paragraph 16 does not relate to such  
10 an issue. It relates to the material traceability of the  
11 materials used on the pipe hanger itself.

12 Having given this kind of a background, Your Honor,  
13 it is our view that the allegation of the pipe on the steam  
14 generator feedwater pump, and the allegation of material  
15 traceability on page 10 of the affidavit are both new,  
16 different and novel issues.

17 I would like to point out that we have previously  
18 considered this both in staff filings and in long discussions  
19 before this Licensing Board. In our view, this matter is  
20 governed by the Commission's decision in Catawba, which the  
21 Board is well familiar with. This has been long discussed  
22 in staff filings and I will not reiterate the parameters  
23 of that Commission decision at the present time.

24 How does the Commission decision apply? Mr. VanVo's  
25 allegation on page 5 sits today 27 months old. This is not ---

Sim 4-2

1 JUDGE KELLEY: Let me just be clear where we are. We  
2 understand the five factors approach, and I am not sure whether  
3 we want to argue the five factors this morning or not. Maybe  
4 we should, but I think for now rather than get into it you could  
5 just note the point.

6 MR. BARTH: Yes, Your Honor.

7 JUDGE KELLEY: Techincally there is no contention  
8 before you yet. There is just the possibility of one.

9 MR. BARTH: But Your Honor asked how should we treat  
10 this, and I am trying to cover all bases in case it were  
11 treated as a late contention.

12 JUDGE KELLEY: Well, I am trying to do it efficiently.  
13 That is the problem. I mean, we are sort of circling the  
14 affidavit and deciding what to do with it I think, and if each  
15 party goes through every conceivable ramification at this point  
16 when some of us may not be ready to absorb all that, I think  
17 it might not be the most efficient way to approach it.

18 MR. BARTH: Yes, Your Honor. We will follow your  
19 direction.

20 JUDGE KELLEY: It will take a late contention to  
21 get it in. I understand your point from your standpoint.

22 MR. BARTH: The other aspect, which Mr. Eddleman  
23 say he would like to use in 41, we have also covered.

24 This allegation by VanVo Davis on page 10 of his  
25 affidavit is totally unrelated to Contention 41 in our view.

Sim 4-3

1 There is no conceivable way this could ever be hooked into  
2 the applicants' QA/QC program on pipe hanger welds from the  
3 material traceability aspect.

4 Therefore, in our view, it is totally unrelated  
5 and should not be admitted in any kind of shape, form or  
6 manner.

7 May I have one moment, Your Honor?

8 JUDGE KELLEY: Sure.

9 (Pause.)

10 MR. BARTH: I would like to say, Your Honor, that  
11 of course when the Atlanta Regional Office has completed its  
12 investigation of the affidavit which you now have before you,  
13 we will make a public disclosure of the results of our investi-  
14 gation and send them to all parties, and I will commit now to  
15 provide them to all parties on the service list, Your Honor.

16 JUDGE KELLEY: I appreciate that.

17 MR. BARTH: The parameters of when that will be  
18 done, we hope that will be done within the next six to eight  
19 weeks. They are aware of this and they are actively investi-  
20 gating the concerns set forth by Mr. VanVo in accordance with  
21 the Commission's established procedures to do so in all cases.

22 Thank you, Your Honor.

23 JUDGE KELLEY: Thank you.

24 Let me just go back to Mr. Eddleman. It seems to  
25 me that we have got now sort of a general statement of what

Sim 4-4

1 all parties think about the VanVo -- Mr. Chan's document, and  
2 I asked Mr. Barth to hold up on the five factors because it  
3 seemed to me that I didn't have a new contention or amendment  
4 in front of me to hear an argument on.

5 But coming back to you and having heard what you  
6 have heard, do you feel that there is an arguable basis whereby  
7 you could get in aspects of Mr. Chan's pipe hanger allegations  
8 under the existing contention?

9 MR. EDDLEMAN: Well, in this sense, Judge. He  
10 refers to material traceability, and this is somewhat of a  
11 technical argument, but I have to go ahead and make it.

12 JUDGE KELLEY: Why don't you make it. I think we  
13 could hear that. We have heard the applicants on that and  
14 I think the staff agrees with it. And if we could rule at  
15 some elements, such as material traceability is or is not in  
16 or out, then we would have taken a step forward it seems to  
17 me.

18 MR. EDDLEMAN: Well, here is the point I wanted to  
19 make about that. Material traceability has to do with verifying  
20 that the right materials are traced back to a known lot of  
21 steel or whatever it is were used in one of these pipe hangers.

22 Now when you are welding, if the material that you  
23 are welding to is not the right material, that can certainly  
24 affect the quality of the weld and it might not show up on  
25 visual inspection.

Sim 4-5

1 JUDGE KELLEY: You mean like stainless instead of  
2 carbon, or vice versa, or something like that?

3 MR. EDDLEMAN: Yes, or even the wrong grade of steel  
4 or the wrong composition. That can happen. I am not saying  
5 for sure it happened here. I don't know enough about Mr. Chan  
6 VanVo's allegations and so on to say one way or the other,  
7 but it certainly is a possible link.

8 As to the rest of it, you know, Mr. Baxter quoted  
9 Contention 41 as the Board had narrowed it down, and I could  
10 argue that really what I am doing is in the nature of trying  
11 to amend or get the Board to reconsider in the light of new  
12 information there.

13 But that still would be, I think -- well I think it  
14 would be safest to treat it as if it were subject to these  
15 new contention rules and so on and just go through all of that  
16 simply to nail it down one way or the other. Whichever way  
17 the decision came down then, you would have your record and  
18 it could be argued further if either side wanted to do so.

19 And if it were admitted, then you would go ahead  
20 and hear the substance of it. I think that is about what I  
21 can think of off the top of my head on 41. There may be more,  
22 but I can't think of anything offhand.

23 JUDGE KELLEY: Well, taking that approach, and I  
24 think you may be right, since whether or not these concerns  
25 are within 41 seems to be at least debatable. It might make

Sim 4-6

1 more sense if you want to get some of this in, if you want  
2 to use Mr. Chan as a witness for some of these points, it is  
3 probably sensible for you to go ahead and treat it as an amend-  
4 ment to 41, a broadening of 41, if that is what you want to  
5 do, and that of course gets you into the five factor demonstra-  
6 tion.

7           What we would need would be the exact, it is called  
8 an amendment, if that is what you are interested in, but we  
9 need the text and maybe a sentence. But we would need words  
10 to look at and then an argument on the five factors.

11           If you want to pursue that, and you may want to think  
12 about it some more, but if you want to go down that road, do  
13 you think you could make an argument on that tomorrow morning?  
14 Or you can do it now for that matter.

15           MR. EDDLEMAN: I doubt it for this reason, and that  
16 is that as I understand from just a casual conversation with  
17 somebody who works with GAP, and not from Mr. Guild, Mr. Chan's  
18 counsel, Mr. Chan may have, and I was told does have, additional  
19 information beyond what is in the affidavit.

20           And if I were going to draft a contention about what  
21 he can say, I would want to know that, and I don't believe  
22 I am going to be able to get Mr. Guild to be able to consult  
23 on this at any length until next week because he is working  
24 on something in another case that is due I believe Friday.

25           JUDGE KELLEY: Correct.

Sim 4-7

1 MR. EDDLEMAN: So, I don't think I could do it. I  
2 also, you know, knowing how much trouble I have drafting  
3 contentions, I am a little reluctant to try to do it fast  
4 because I think whatever flaws I may have inherent in me  
5 will be amplified by a rush and trying to do things too fast.

6 JUDGE KELLEY: Let me just drop one observation. To  
7 the extent that Mr. Chan has yet more concerns that have not  
8 yet surfaced, these at least surfaced in this affidavit at  
9 some earlier time. It was drafted on the 5th or 6th and the  
10 applicants have had it for a week or so.

11 MR. EDDLEMAN: Right.

12 JUDGE KELLEY: And now though there is an indication  
13 that he has still more to say, if this is late, that is going  
14 to be really late. So there may be some different burden  
15 that rest upon the proponent of a late amendment or contention  
16 that doesn't even come in here until next week in terms of  
17 the facts.

18 MR. EDDLEMAN: Well, I understand that. I just  
19 would be reluctant to try to do it -- I mean I will, parti-  
20 cularly if the Board orders me to, I certainly well, you know.

21 JUDGE KELLEY: I'd say this, that if you want to  
22 make a presentation of a late contention (amendment), the  
23 sooner you do it the better. I can understand if you want  
24 to consult, maybe it would take some time, but you run a risk  
25 because the longer it takes. We are right in the midst of



Sim 4-8

1 a hearing. In fact, we are talking about hearing this parti-  
2 cular issue in the next couple of weeks. Time is of the  
3 essence. I'll put it that way. The longer it takes, the  
4 greater chance there will be that the whole thing will be  
5 rejected for lateness.

6 MR. EDDLEMAN: Well, I do understand that and I will  
7 do the best I can. Let me just say that I've had this thing  
8 for a day and a half now, and I was even -- Mr. Baxter was  
9 asking did I know anything about it. Again, I talked to some-  
10 body else who works with GAP. I believe it was about 10 days  
11 ago, and they said that an affidavit existed and I said can  
12 I get a copy. They said, no, we are not going to release it  
13 yet. And I asked them who else had a copy, and they said  
14 well, the Department of Labor they thought had it and they  
15 thought the staff had it.

16 So then I asked the staff about it last week and  
17 was told that the affidavit did exist, but for confidentiality  
18 reasons they couldn't give me a copy of it. So I have only  
19 had the thing for about a day and a half.

20 I will try to do the best I can with it. My problem  
21 is that I am just jammed for time on everything else. I mean  
22 this is about as much as I have been able to physically do to  
23 prepare and get ready for the next day, because I basically  
24 lost my month before the hearing due to illness.

25 So I am doing the best I can, and I understand your

Sim 4-9

1 point. You know, this is a real tight situation, and I will  
2 do the best I can about it.

3 Let me back up, if we are sort of finished with  
4 the 41 part of it.

5 JUDGE KELLEY: I will just make one further obser-  
6 vation. I think the Board could, and we will try to do that  
7 later today or tomorrow, issue a declaratory ruling just so  
8 everybody knows where they are on this question of whether  
9 we regard material traceability as within the contention.  
10 We have heard the arguments on it and we can make a ruling on  
11 that and then that will give all parties some guidance about  
12 how we feel about that point.

13 You were going to go to another point. Go ahead.

14 MR. EDDLEMAN: All right.

15 MR. BAXTER: Mr. Chairman, if I might just interrupt  
16 on the procedure for 41 because it doesn't relate to Joint 1.

17 JUDGE KELLEY: Let's stick with that then until we  
18 are through.

19 MR. BAXTER: I also want to do what I can to help  
20 expedite the Board's decisionmaking, but I wanted to forewarn  
21 you with respect to having all of it done orally with respect  
22 to a new contention or an amended contention.

23 It is quite likely we would not be able to respond  
24 on the spot to a new allegation like that. I usually have  
25 to consult with technical people and documents that aren't in

Sim 4-10

1 the room before I can address basis and lateness and those  
2 things.

3 JUDGE KELLEY: We are accustomed to staggering  
4 responses when we are going orally, and it may be the next  
5 day for one party and the day after that, or whatever, but  
6 we will take that into account, just as we don't expect  
7 Mr. Eddleman to be able to give an amended contention here  
8 this morning, and you may have to think about that or consult.

9 MR. EDDLEMAN: Just to put this on the record about  
10 lateness, as I would understand lateness, it is when the  
11 information is publicly available that triggers lateness for  
12 me.

13 In other words, if somebody has got something in  
14 their head out at the plant, I mean there may be, for all I  
15 know, a thousand people out there who have allegations in  
16 their heads, but I don't have any way to get ahold of that.  
17 If one of them puts it into a public record, then I have  
18 got it and at that point I think I am under an obligation, or  
19 any intervenor who wants to raise it is under an obligation  
20 to do something with it.

21 JUDGE KELLEY: Why don't we argue that in more  
22 detail when the actual contention is put forward.

23 MR. EDDLEMAN: Okay.

24 JUDGE KELLEY: That is where we are on 41. We will  
25 give a ruling quite soon on this scope of 41 with regard to

Sim 4-11

1 material traceability.

2           We understand that you are interested at least in  
3 possibly pursuing a new or amended contention with regard  
4 to Mr. Chan's allegations, and when you are ready to come  
5 forward with that and present it, when you are ready and  
6 we listen to it, we would just like to know a little bit in  
7 advance when you are ready. But the ball is in your court  
8 in that regard.

9           MR. EDDLEMAN: All right. Well, let me just say that  
10 I will try to have something sometime tomorrow, and I am not  
11 certain I can. But if Mr. Baxter is going to need another day,  
12 it seems to me that would be the most constructive thing. If  
13 I can get it in on Thursday, then perhaps they could respond  
14 on Friday and we would at least have something in this week.  
15 I will do the best I can.

16           JUDGE KELLEY: I have my doubts though about whether  
17 we ought to have what I will call sort of a bifurcated late  
18 contention, and that is to say something tomorrow and then  
19 more concerns from Mr. Chan next Tuesday or something. I mean  
20 what you are going to have is going to be what you are going  
21 to have, right?

22           MR. EDDLEMAN: Right. And I don't have any way to  
23 contact Mr. Chan, and his counsel asked me not to. So I  
24 don't know. I mean I could probably go against that, but I  
25 don't even know where the guy lives.

Sim 4-12

1 JUDGE KELLEY: Well, I was just going to say if you  
2 regard additional concerns of Mr. Chan as particularly signifi-  
3 cant, maybe you might just as well wait until you have got them.  
4 I don't want to make that judgment for you.

5 MR. EDDLEMAN: Well, what I want to do is try to  
6 get ahold of his counsel and see if I can find him and get  
7 a little bit of his time this evening and see what I can do.  
8 That is what I will try to do.

9 JUDGE KELLEY: Okay.

10 MR. EDDLEMAN: If I get some information that I  
11 can put down, you know, clearly, then I will try to just  
12 incorporate it all as fast as I can. I will give you a  
13 further report tomorrow. Let me put it that way.

14 JUDGE KELLEY: Fine. Okay. Good.

15 MR. EDDLEMAN: Let me say one other thing about this  
16 as long as we are tying this up. I believe that the sort of  
17 general concerns in paragraphs 25 and 26 of Mr. Chan VanVo's  
18 affidavit, pages 15 and carrying over on 16 would have to do  
19 with the pipe hangers as well as perhaps other things. But  
20 I think if you are looking at the things that could apply  
21 to pipe hangers in his affidavit, that those probably should  
22 be included. In my view, they should be included.

23 JUDGE KELLEY: You are saying then that in your  
24 view there are I will say elements of 26 that are encompassed  
25 within 41 as written?

Sim 4-13

1 MR. EDDLEMAN: Paragraphs 25 and 26, that is right.  
2 25 is talking about basically pressure on the inspection  
3 organizations, and 26 has to do with documentation of defects.  
4 It appears, I mean he talks in 26 about safety systems which  
5 have been identified, but I think it is pretty clear from  
6 context that that would include the safety systems that he  
7 mentions in his affidavit which included pipe hangers.

8 JUDGE KELLEY: Maybe we should just take this one  
9 at a time. Now again we are looking at points in the affidavit  
10 that arguably are within the scope of 41 as presently drafted.

11 25, we could take that one first, speaks of pressure  
12 and lack of freedom from -- freedom independent from cost of  
13 scheduling, et cetera.

14 Mr. Baxter, any response to that?

15 MR. BAXTER: Yes, sir. Mr. Chairman, our testimony  
16 on Contention 41 describes the roles of the quality assurance  
17 and construction inspection organizations. What we state  
18 in that testimony is that only the QA organization inspects  
19 and approves pipe hanger welds. Construction inspection looks  
20 at other pipe hanger attributes.

21 So there is absolutely no relevance to any allegation  
22 about the CI organization having any bearing on the acceptance  
23 and approval of pipe hanger welds. That is solely a QA  
24 function.

25 JUDGE KELLEY: Now 26, and let me just read this

Sim 4-14

1 over.

2 (Pause.)

3 I don't see any particular reference in 26 to pipe  
4 hangers or even to welding, Mr. Eddleman.

5 MR. EDDLEMAN: Well, no, but what he is talking  
6 about is the documentation of nonconformances. He is talking  
7 about using uncontrolled paperwork and he says that few of  
8 us were trained in which procedures were to be used when.  
9 Mostly we wrote things down informally. And he says he doubts  
10 the QA vault contains even a fraction of the deficiencies  
11 in safety systems which have been identified.

12 Now he refers to speed letters and quality documents  
13 here that he says have not been properly handled, the  
14 deficiencies have not been properly handled and documents  
15 not properly controlled by CP&L. And when he is talking  
16 about meeting Mr. Utley back up in paragraph 24, he said  
17 he carried with him this documentation of safety concerns  
18 and deficiencies, including those described here.

19 Now I presume, and I might be wrong, but I presume  
20 he is referring to the same kind of thing here and he is  
21 basically amplifying the problem and saying that in addition  
22 to not properly following these things up, that these documents  
23 aren't properly controlled and you don't have a record of  
24 the deficiencies.

25 JUDGE KELLEY: Okay.

Sim 4-15

1 MR. BAXTER: In my view, Mr. Chairman, Mr. Eddleman  
2 is asking you to guess on absolutely no basis in this para-  
3 graph that there is anything at all specific to pipe hangers  
4 or pipe hanger welding in here. Somebody writes down they  
5 have got some quality concerns and you can't automatically  
6 assume because Mr. Eddleman is interested in pipe hanger  
7 welding that that is what they are talking about, and I don't  
8 think you should be required to read that into it or should  
9 even be inclined at all to read anything specific into it other  
10 than what it says.

11 MR. BARTH: Your Honor, may I address paragraph 25?

12 JUDGE KELLEY: Yes.

13 MR. BARTH: I think a clear reading of paragraph 25  
14 of Mr. VanVo's affidavit leads you to the conclusion this is  
15 motherhood statement that the QA program gives the concerns.

16 This type of attitude was addressed in Vermont Yankee  
17 Nuclear Power Corporation versus Natural Resources Defense  
18 Council, Inc., in 435 U.S. 519. And on page 31 of of the  
19 Slip opinion, and I don't have the bound volume, Your Honor,  
20 the Supreme Court observed that the administrative proceedings  
21 should not be a game or a forum to engage in unjustified  
22 obstructionism by making cryptic and obscure reference to  
23 matters which ought to be.

24 There is no particular matter in issue raised  
25 by paragraph 25 which could be resolved by an evidentiary



Sim 4-16

1 hearing. This is a generalized statement that I am worried  
2 about QA. Assuming Your Honor would let this in right now  
3 today, what could the witness say? What part of QA? What  
4 QA manual. You are talking about thousands and thousands of  
5 procedures from pages. There is no identifiable issue.

6 If you recall, Your Honor, the Commission's decision  
7 under 2.714 for the admission of a contention require that  
8 there be specificity in the basis of the contention. There  
9 is no specificity in 25 or 26, and in no way do they even  
10 relate remotely to Contention 41, in our view.

11 Thank you, Your Honor.

12 JUDGE KELLEY: Thank you.

13 MR. EDDLEMAN: May I respond?

14 JUDGE KELLEY: Yes.

15 MR. EDDLEMAN: I have no idea whether any of this  
16 was drafted in terms of contention. I gather no. I mean,  
17 as I understand it, this was subitted to CP&L as to his  
18 concerns and I don't know, you know. The form, and basis  
19 and specificity may not have had anything to do with it. I  
20 simply don't know.

21 I would say, however, that it is more specific than  
22 the staff counsel appears to allege. When we talk about the  
23 pressure on the organization lacking the freedom and  
24 independence from cost and scheduling considerations to  
25 effectively perform their QA duties of identifying and

Sim 4-17

1 documenting deficiencies, that to me reads like a pretty  
2 good contention, and I think it is specific enough to  
3 litigate.

4 I likewise think that the allegations about  
5 uncontrolled paperwork on nonconformances and safety concerns  
6 in paragraph 26 are specific enough to be litigated. Now  
7 whether they fall within 41 or not, I still have the option  
8 of trying to pull them in in a new contention or an amended  
9 contention.

10 So what I am saying is I don't think it stands or  
11 falls on whether these things fit 41, although I do think  
12 they have some relevance.

13 Sim  
14 end Take 4

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1 I have already said I think it is general that  
2 these kind of things were going on, and he talks about  
3 document problems and construction inspection -- quality  
4 assurance problems with the pipehangers specifically. That  
5 is why I thought these were relevant in the first place to  
6 41, but that really covers everything I have to say about that.

7 JUDGE KELLEY: I might just make an observation  
8 that this is not an affidavit from an employee who is  
9 unsophisticated in NRC proceedings, and might really have  
10 some specific information but doesn't know how to write it  
11 down.

12 This is an affidavit that was given to Mr. Robert  
13 Guild, who is an attorney -- not just an attorney, but he  
14 he is something of an expert in NRC QA procedures, by virtue  
15 of his participation in the Catawba proceeding, if nothing  
16 else.

17 So, Mr. Guild knows all about specificity, and the  
18 need for it. I think we can take this on its face in terms  
19 of what it says, or what it fails to say.

20 Anything else, Mr. Eddleman?

21 MR. EDDLEMAN: Yes. I have one thing about that,  
22 and then I would like to go back to Joint 1, and some of the  
23 arguments that were made about that earlier. I don't question  
24 Mr. Guild's expertise, but I have no idea what the intent of  
25 this affidavit was.

1           As best I understand it from just talking to him  
2 briefly about it, and not really questioning him about it,  
3 this thing was not set up specifically for use in an NRC  
4 proceeding, and does not contain, as far as I know, all the  
5 information that Mr. Chan has available.

6           I will talk with him further about that, and see  
7 what I can report back to the Board.

8           As to Joint 1, let's see here -- the -- let me  
9 just say that Mr. Baxter raised a question about the QA  
10 questions that were asked of the witnesses on Joint 1, and  
11 as far as I know, I am the one that drafted the vast majority  
12 of those. I don't know what Mr. Runkle asked when I wasn't  
13 there. But when I was there, he was asking questions I had  
14 drafted up, and when I drafted them up I had no reference to  
15 Mr. Chan or knowledge of what he might have alleged at all  
16 that impacted those questions.

17           I did know that Mr. Chan existed.

18           JUDGE KELLEY: Incidentally, maybe we all know this,  
19 but as I understand the situation, if you want to get Mr.  
20 Chan's concerns into the case on Joint 1, the burden would be  
21 on you to move to reopen to do so, correct?

22           MR. EDDLEMAN: I am not enough lawyer to say. You  
23 may very well be right. I would have to check with Mr. Runke  
24 on that.

25           JUDGE KELLEY: We closed the record on that

1 contention, right? We left it open for the sole purpose of  
2 filing some FOI documents. We didn't leave it open to hear  
3 further testimony from witnesses.

4 So, I would assume that would be the way in which  
5 that would be done. Do the Applicants have any reaction to  
6 that.

7 MS. FLYNN: Applicants agree with that. After  
8 Mr. Eddleman has spoken, if I could have just a few minutes  
9 to respond.

10 JUDGE KELLEY: Yes. Sure. Again, where are we  
11 mechanically? And if that is where we are, does the Staff  
12 agree with that?

13 MR. BARTH: Yes, Your Honor. I think you well  
14 stated our view of what the record shows.

15 JUDGE KELLEY: Just have to have the Motion, good  
16 cause, and the other elements to reopen the record, to put  
17 in -- I assume it wouldn't be affidavits. I assume it would  
18 be bringing Mr. Chen in and having testimony, and having, in  
19 effect, a new hearing of some sort, unless people stipulated  
20 affidavits, which I very seriously doubt they would do.

21 So, I think that is the context in which your  
22 comments are made.

23 MR. EDDLEMAN: Okay. It wasn't the context I was  
24 thinking about, and like I say, I will have to check with the  
25 lawyers about it.

1           To me, just looking at it, and -- let me see -- I  
2 think it was -- I am trying to remember when I was first  
3 informed that Mr. Chen had --

4           JUDGE KELLEY: I guess part of my reason for  
5 interrupting was unless you are prepared to make a Motion  
6 now and support it, we don't really need to know. I don't  
7 care. There is no Motion here. I shouldn't worry about it.

8           MR. EDDLEMAN: Right. Well, since it appears that  
9 a Motion would be required for legal purposes, and I am not  
10 the one who really should do that, and don't know what I am  
11 doing about it, I think I had better put that off and try  
12 to check with counsel.

13           I had sort of a vague understanding that Mr. Runkle  
14 was going to be here today, but he is not here and I am going  
15 to have to try to get in touch with him.

16           JUDGE KELLEY: I mentioned to Mrs. Flynn we assumed  
17 that Mr. Runkle would be the one who would speak to this FOI  
18 documentation problem also, and did you reach him, or did you  
19 try?

20           MRS. FLYNN: No, not yet.

21           JUDGE KELLEY: Some time today or tomorrow we would  
22 like to see him on that, too.

23           MR. EDDLEMAN: Right. Now, I actually have a few  
24 things to say about that, too, since it appears that the NRC  
25 -- one of the requests came from me.

1 JUDGE KELLEY: That is right. I din't mean to  
2 exclude you, I just meant to include him.

3 MR. EDDLEMAN: Okay. Right. So, let me see here.  
4 I may have left something out. I don't want to suggest that  
5 I have made a full and complete response, but I think what  
6 we are dealing with here is to just go through what we need  
7 to and no more, so I will just leave it at this.

8 JUDGE KELLEY: Okay. Then the Board understands  
9 we have had some discussion of this. We know what we will  
10 look to you for Mr. Eddleman, a Motion for -- possibly a  
11 Motion to reopen on the Contention 1 point, possibly Motions  
12 for late contentions or amended contentions on the pipe hanger  
13 matter.

14 We will make a couple of declaratory rulings on  
15 scope of 41 so hopefully shed some light on the situation.  
16 I want to get back to Mrs. Flynn who wanted to say something  
17 about Contention 1, and I will check with the Staff, and maybe  
18 we can get back to the witnesses.

19 MR. EDDLEMAN: One point of clarification if I  
20 might. You said you were looking to me for a Motion on  
21 Joint 1. I think it would be another joint intervener instead  
22 of me.

23 JUDGE KELLEY: Okay, fine.

24 MRS. FLYNN: I would just like to add a few points.  
25 Applicants are primarily concerned here on Joint 1 with the

1 principle of what is involved.

2 We know what -- to the best of our knowledge what  
3 the facts are. We know that the testimony that Mr. Utley and  
4 Mr. McDuffy gave was in good faith to the best of their  
5 knowledge and belief, and would not change.

6 Moreover, we also, out of every possible desire to  
7 be conservative in these matters, have initiated yet another  
8 investigation through our QA Department, with the assistance  
9 of an outside consultant to confirm the facts as we believe  
10 them to be now.

11 I don't know, obviously, what Mr. Runkle knew  
12 during the management hearing as a certainty. I do know  
13 that Mr. Guild was present during those proceedings on many  
14 days while the management capability panels were testifying.

15 The affidavit -- the complaint to the Department  
16 of Labor was dated August 28th, before the management hearing  
17 began, and it had been received by the Department of Labor  
18 on September 13th, before the hearing terminated.

19 Therefore, there is a very strong inference that  
20 can be drawn that obviously Mr. Guild knew about it. He was  
21 here, present many days during the hearing. There is an  
22 inference, at least, that the knowledge was available to  
23 Mr. Runkle.

24 During some questioning by Mr. Runkle of Mr. Utley  
25 and Mr. McDuffy and Mr. Banks on questions of whether or not



1 someone had ever -- a line worker had ever come to them with  
2 allegations of harassment or with quality concerns.

3 Applicants invited Mr. Runkle at that point to  
4 please offer some specific example rather than a hypothetical  
5 so that the men could address it directly.

6 He didn't do that. We do believe that that  
7 information was available at the time. I do think that beyond  
8 that, however, what Mr. Chan's affidavit demonstrates is  
9 exactly what Mr. McDuffy and Mr. Utley testified to. Their  
10 doors are open. Mr. Chan got an audience, and with both  
11 of them; with Mr. McDuffy on a Saturday, because that was the  
12 only time that was convenient to Mr. Chan. It does demon-  
13 strate the receptiveness of our senior management to hear  
14 the concerns of a line worker, and we think that is  
15 extremely important.

16 Finally, we do have a copy of a document. We have  
17 enough copies for all parties and the Board members, of a  
18 document that Mr. Chan brought to both Mr. McDuffy and Mr.  
19 Utley as an example of his work product, and that is the  
20 basis for discussing his concern.

21 And what it is is a plan that he had for reorganizing  
22 the Harris nuclear project. I think that this, at least,  
23 helps to put in context the way in which he presented his  
24 concerns to these gentlemen. He wanted to reorganize the  
25 project. He had a management theory that he thought was better

1 than CP&L's, and I thought it might be useful, at least, for  
2 the Board to have this to look at, pending any further  
3 discussions on this issue.

4 JUDGE KELLEY: We can look at it. What I want  
5 to stress here, we have talked about various Motions, various  
6 kinds of Motions. The Board is neither encouraging nor dis-  
7 couraging Motions of that sort.

8 We are just pointing out that that is where we are  
9 procedurally, and it is up to the parties to make Motions.  
10 We are not going to make any Motions. We will just rule on  
11 them.

12 MR. EDDLEMAN: I understand.

13 JUDGE KELLEY: That applies across the board.  
14 Anything else from the Applicants?

15 MR. BAXTER: Just one last item, Mr. Chairman. In  
16 light of the concluding discussion on Contention 41 with  
17 respect to the purposes for which the affidavit was prepared,  
18 we are having copied and will distribute, and I just wanted  
19 to state it on the record, a two page press release that  
20 was given out Monday along with the affidavit.

21 JUDGE KELLEY: All right. Thank you. Does the  
22 Staff have anything else?

23 MR. BARTH: Your Honor, I would like to make one  
24 concluding remark, which goes back to my opening remark.  
25 I pointed out when I opened, allegations by employees and

1 ex-employees do arise. The Commission has a procedure for  
2 this. I would like to set an aura of how I would like the  
3 Board to view this whole issue at this time.

4 We are dealing with 27 and 15 month old concerns.  
5 The NRC has resident inspectors in this plant who have white  
6 hats on their head, who walk through this plant every day.  
7 We have signs posted which say if you have a concern, see the  
8 NRC.

9 Every employee is instructed by signs and by  
10 agency policy. If a concern exists, you should see the NRC.  
11 We have now had over two years elapse without the NRC being  
12 informed of these kind of concerns. I think this does not go  
13 to the law, Your Honor. I am well aware of that.

14 But it does go to the equity of how you view at  
15 this stage of the game, you should treat this. I would like  
16 to point out that the Commission's statement of policy, which  
17 was published in 46FR28533, admonishes that any time extensions  
18 for actions to be taken are to be preceded by a good hard  
19 look at good cause.

20 This is set forth in paragraph iii(a). I think  
21 that regardless of how we treat this matter, even as limited  
22 appearance, that the good cause to bring it up at this time  
23 simply does not exist. And I hope in the back of your minds  
24 as you make your decision, whether it is a petition to  
25 intervene, whether it is additional witness or additional

1 evidence, that this kind of aura of how this arose, when  
2 it arose, and what the background of the agency's procedures  
3 to look at these kind of things are, I hope you will bear  
4 that in your mind.

5 Thank you, Your Honor.

6 JUDGE KELLEY: Thank you. It is time for a coffee  
7 break, but have we cleared away everything? We have nothing  
8 else that we need to raise.

9 MR. EDDLEMAN: Judge, I wanted to cover a couple  
10 of things on this, too.

11 JUDGE KELLEY: One thing, could you give me that  
12 reference again, the policy statement?

13 MR. BARTH: 46 Federal Register, 28533. It was  
14 published on May 27, 1981.

15 MR. EDDLEMAN: Okay. Let's see here. The questions  
16 that Mr. Runkle asked that were hypotheticals are ones that  
17 I drafted under the circumstances I mentioned before. I  
18 have no knowledge as to what knowledge he might have had.  
19 The argument about allegations and so on, I think it also  
20 needs to be considered whether intimidation does exist, and  
21 whether people fear to bring forward allegations, and I think  
22 that is covered in affidavit, and I will let it speak for  
23 itself.

24 That is really all I have to say about it at this  
25 point.

1 JUDGE KELLEY: Excuse me, I want to make sure I  
2 understand. You are saying that intimidation and fear of  
3 employees to bring forward concerns is within 41?  
4 Or should be considered by this Board?

5 MR. EDDLEMAN: I am definitely saying that in  
6 viewing the time in which concerns are brought up, that  
7 the existence of intimidation and so on should be considered  
8 at least as far as it is alleged here. I think a lot of times  
9 you get something like this --

10 JUDGE KELLEY: I think that is going to go to a  
11 Motion.

12 MR. EDDLEMAN: Right, okay. But what I am saying  
13 is -- I was just responding to the argument, that is all.

14 JUDGE KELLEY: All right.

15 MR. EDDLEMAN: As to the question of whether it is  
16 within 41, I think that also would probably tie into the  
17 Motion -- to the extent there is intimidation of the  
18 inspectors, to the extent that that is true, and paragraph 25  
19 talks about that some, and there may be other places in it  
20 I just haven't looked at, but again I think the best thing  
21 to do is tie that into a Motion rather than argue it out here.

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JUDGE KELLEY: Okay. The point that Mr. Baxter reminded us about, we put to the parties yesterday a proposition about changing the schedule. It's not a definite proposal but rather to get your reaction and see whether you thought it was a good, bad or indifferent idea.

And just quickly, it was to -- week after next, we would have been here, the week of the 5th, election week, if you want to call it that. The proposal was to cancel that week and then presumably we would be through everything but 41 at that time. And then come back the week of the 12th, starting on the 13th perhaps, and do 41.

That's the proposition. Reactions?

MR. BAXTER: Rather than say whether it's a good or bad idea, Mr. Chairman, we will say that we have no objection if that's necessary to support your other work. And we can accommodate having the hearing the week of the 12th. Our witnesses on that contention all happen to be right down the road at the Shearon Harris.

I would hope that if we had any window of time, either just before November 1st, next week, whether it's part of Tuesday, or at the end of the TLD litigation if it doesn't consume all of the 1st and 2nd, to get in some of the pipe hanger welding testimony. Because, as I say, our witnesses are here. The testimony is long filed, and we would like not to have gaps next week if we can get something done while we are

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1 here.

2 JUDGE KELLEY: Fine. I understand that. We will  
3 try to make full use of the time.

4 Mr. Barth, Ms. Moore?

5 MS. MOORE: The Staff has no objection to going on  
6 the week of the 12th.

7 JUDGE KELLEY: Okay. Again, we have been using  
8 this four-day pattern. I think the 12th itself is actually a  
9 Federal holiday. I think we are talking about starting  
10 Tuesday, the 13th, with a four-day week, so it's understood.

11 Mr. Eddleman, what do you think of that?

12 MR. EDDLEMAN: I think it's a good idea. I refer  
13 jokingly to this proceeding as being the environmental qualifi-  
14 cation test to my voice. I've been asking questions -- I don't  
15 know -- on the order of six hours a day, and this is the sixth  
16 day in the last nine that I've been having to do that. And I  
17 think a week's break around the 6th of November would be very  
18 helpful.

19 JUDGE KELLEY: Okay. We will make an announcement  
20 on that then shortly. Let's have a coffee break. Ten minutes.

21 (The hearing is recessed at 10:35 a.m., to re-  
22 convene at 10:46 a.m., this same day.)

23 JUDGE KELLEY: Back on the record. Mr. Barth had  
24 a word about the pipe referred to in Mr. Chan's Affidavit.

25 MR. BARTH: Your Honor, thank you. Since the Board

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1 asked the question I had the chance to confer with our  
2 technicians, both here and the Auxiliary Systems Branch in  
3 Washington, and I'm assured that the steam generator feed-  
4 water pump referred to on Page 5 of Mr. Van Vo's Affidavit,  
5 and the pipes to the pump and from the pump are not safety-  
6 related, Your Honor.

7 JUDGE KELLEY: Thank you, Mr. Barth. I appreciate  
8 your confirming that.

9 So, I guess we get back to cross-examination; is  
10 that right?

11 MR. O'NEILL: Mr. Chairman, I have one correction I  
12 would like to make to a statement that was made yesterday by  
13 Mr. Miller. I had hoped we would have the transcript in  
14 order to give you the citation to it, but we don't have them  
15 yet.

16 Yesterday, Mr. Miller indicated that it was his  
17 recollection that in November of 1983 a 50.55.E report was  
18 submitted to NRC. He believed it was to I&E with respect to  
19 the thermo nonrepeatability and negative shift issue. The  
20 NRC Staff, in their cross-examination, indicated some surprise  
21 in that they had not seen such a report. And, indeed, CP&L  
22 personnel also did not recall such a report, nor did counsel.

23 We checked, both in CP&L's files and Westinghouse  
24 files, the Westinghouse computer, and it turns out that Mr.  
25 Miller's recollection was incorrect with respect to such a



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1 report. The only report that has been filed by Westinghouse  
2 on this issue was a Part 21 report. That was also referred  
3 to. And that was filed in October of 1983.

4 Mr. Miller is here this morning, but I believe that  
5 the statement corrects the record and I just wanted to make  
6 sure that everyone was aware of that.

7 JUDGE KELLEY: Thank you. You can tie the transcript  
8 to that later when we get them?

9 MR. O'NEILL: Yes.

10 JUDGE KELLEY: Thank you. Mr. Eddleman, I guess we  
11 can take up where we left off.

12 MR. EDDLEMAN: Okay.

13 MS. MOORE: Your Honor, before we start, could I  
14 ask Mr. O'Neill just briefly the date of the Part 21 report he  
15 is referring to and whether that talks about the set point  
16 for Shearon Harris?

17 JUDGE KELLEY: Yes.

18 MR. O'NEILL: I can check that information and get  
19 it to Mrs. Moore, check with Westinghouse.

20 JUDGE KELLEY: You might just put it in the record  
21 when you get it, as long as we have raised the point.

22 MR. O'NEILL: Fine.

23 JUDGE KELLEY: Thank you. Okay.

24 Whereupon,

25 RICHARD M. BUCCI,

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1 EDWIN J. PAGAN

2 and

3 EDWARD M. McLEAN

4 resumed the stand as witnesses who were called by and on  
5 behalf of the Applicants, Carolina Power and Light Company  
6 and North Carolina Eastern Municipal Power Agency, and having  
7 previously been duly sworn, were further examined and testi-  
8 fied as follows:

9 CROSS-EXAMINATION RESUMED

10 BY MR. EDDLEMAN:

11 Q Gentlemen, I believe we had gotten down to about  
12 Question 5 on Page 3 of your joint testimony yesterday.

13 Mr. McLean, in the beginning of your Answer 5,  
14 at the very bottom of Page 3, what is the name of this group  
15 that you have supervised at the Harris plant?

16 A (Witness McLean) It's the equipment installation  
17 group. We don't -- the title could vary, depending upon how  
18 we are expressing it. It appears in the organization chart,  
19 I believe, as the equipment installation group.

20 Q And what organization is the equipment installation  
21 group part of?

22 A At the time that I was supervising the group, it  
23 was part of the resident engineering unit.

24 Q At the plant?

25 A That's correct.

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1 Q Now, is that part of the Harris plant engineering  
2 section?

3 A We have two engineering groups basically out  
4 there. We have a construction engineering group and a design  
5 engineering group.

6 The group that I was in was part of the construc-  
7 tion engineering group.

8 Q Okay. Construction engineering for the Harris  
9 site?

10 A That is correct.

11 Q Okay. The -- did you say you were supervising it?  
12 Does that mean you no longer supervise it, or have you moved  
13 up to a higher position?

14 A I no longer supervise it. I'm now in a group that  
15 provides support to both equipment and HVAC.

16 Q Support for equipment and HVAC, is that --

17 A That is correct.

18 Q So, does that mean that you no longer are dealing  
19 with the installation of this equipment that's covered in your  
20 Answer 5?

21 A No, it doesn't mean I'm no longer dealing with it.  
22 It means that I no longer provide direct field support. Most  
23 of the support I supply now for either equipment or HVAC is  
24 in the form of office engineering support, preparation of work  
25 packages, preparation of seismic weld data records, administrative

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1 support.

2 Q Okay. And about when did this change, Mr. McLean?

3 A About three weeks ago.

4 Q Okay. But the group that you are working with now  
5 would still be generating work packages; is that correct?6 A That's correct. We have not started generating work  
7 packages for equipment. Actually, we haven't started generat-  
8 ing work packages for any of those three groups yet.

9 But we are preparing to do so.

10 Q And that refers to the group that you transferred  
11 to or took over about three weeks ago, right?

12 A That's correct.

13 Q Okay. Now, when you were supervising this group  
14 before the equipment installation group, that's what Answer 5  
15 as prefiled refers to, right?

16 A That is correct.

17 Q Okay. When you develop work packages, is there a  
18 procedure that says what kind of design information you need  
19 to put into them?

20 A Yes, there is.

21 Q What is the title or number of that procedure?

22 A WP-105.

23 Q Uh-huh.

24 A And the title is -- I'm sorry, I can't remember  
25 the exact words to the title.

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Q Uh-huh. But it has to do with preparation of work packages?

A It has to do with the installation of equipment.

Q Okay.

A And that includes preparation of work packages.

Q All right. So, the standards for preparing work packages are included within this, and it also has to do with installation?

A That is correct.

Q Is it the only procedure that covers orientation and installation, to your knowledge?

A It is the only procedure, only work procedure, that covers the orientation and installation of equipment. There are other procedures on site that would cover the installation of other -- orientation of other items.

Q Well, you said of equipment there. What items would not be equipment?

A Instrumentation, pipe, valves, electrical components. Electrical equipment is included in the WP-105 procedure.

Q Okay. Maybe I should have asked you what was within the WP-105 instead of what was outside it.

The electrical equipment that is included would be things like valve operators, electric motors, that sort of thing, but not instrumentation?

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1 A It would not include valve operators. It would  
2 include any of the equipment that we set in the plant with  
3 the exception of instrumentation and valves and simple wall  
4 mounted electrical equipment.

5 Q Can you give me some examples of the simple wall  
6 mounted equipment, electrical equipment, you are referring to  
7 there?

8 A A breaker such as the one that you have at your  
9 home. That would be a wall mounted piece of electrical equip-  
10 ment that would not be set by us.

11 Q Uh-huh. Those normally are put in a standard  
12 orientation anyway, right?

13 A Yes.

14 Q Okay

15 A (Witness Bucci) Could I ask you to just clarify  
16 something? You asked if that was the only work procedure.

17 You are talking about CP&L construction department  
18 work procedures?

19 Q Well, that's what I was asking Mr. McLean about.  
20 Now, does Ebasco have some sort of procedure that specifies  
21 what information will be delivered for these work packages?

22 A Not for the work packages, no. But I believe your  
23 question was on any procedure having to do with orientation or  
24 physical installation of equipment.

25 Q Yes.

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1 A There are a lot of procedures that apply to  
2 physical orientation aspects.

3 Q Well --

4 A Both at Ebasco and CP&L engineering as well as  
5 the CP&L construction department.

6 Q Okay. Let me ask Mr. McLean another question or  
7 two about this and I will come back to you on that.

8 Mr. McLean, does WP-105, that procedure, require  
9 that you specify the orientation in all work packages?

10 A (Witness McLean) We have to specify all quality  
11 aspects in the work package. When we put a piece of equipment  
12 in, location and the direction which it must face must be shown  
13 in the work package. And we must obtain that from the design  
14 documents.

15 One of the checks in the procedure, Exhibit 1,  
16 states that orientation is one of the specific items that we  
17 check.

18 Q You say the procedure, Exhibit 1?

19 A I'm referring to Procedure WP-105, not to your --  
20 not to the document we submitted.

21 Q Okay. So, it is an exhibit attached and, I guess,  
22 a part of Procedure WP-105 that you are talking about?

23 A That is correct.

24 Q And does that exhibit to WP-105 describe what  
25 information needs to be included in the work packages?

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1           A       The exhibit does not describe what information  
2 needs to be included. The procedure describes what design  
3 documents we will include or may include, not all work  
4 packages will contain everything that is in the procedure.

5           The exhibits require what must be checked. And  
6 by requiring what must be checked, you must have a design  
7 document to check it.

8           Q       Uh-huh. Does that complete your answer?

9           A       Yes.

10          Q       Okay. Now, just to clarify, does that Exhibit 1  
11 require you to check orientation for every item that you  
12 generate a work package for?

13          A       When you use the word "every" I can only say that  
14 to my knowledge there is nothing that -- where we don't have  
15 to check orientation that I can think of.

16                   It is on Exhibit 1 that we will check orientation.

17          Q       Okay. So, as far as you know, there are no ex-  
18 ceptions?

19          A       As far as I know.

20          Q       The process control sheets, are they technically  
21 part of the work package?

22          A       I used the term "process control sheets" so that  
23 I would be using a term that would be generally understood  
24 by other people in the industry.

25          Q       Uh-huh.



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A We call -- Exhibit 1, I consider a process control

2

sheet.

3

Q Exhibit 1 to WP-105?

4

A That's correct.

5

Q Okay. And this is sort of a form that you fill out

6

for each package that gives this process control information?

7

A Yes. We fill out the title of the equipment and

8

other information such as its location, the design documents

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that we used to install it, and then the form lists the checks

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that will be made.

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1 Q Now would that sheet or any other part of the  
2 work package give you a reference back to the appropriate  
3 qualification test if somebody wanted to check the orientation  
4 from it?

5 A (Witness McLean) It would not give you a reference  
6 to the qualification test. It would give you a reference to  
7 the design drawings that tell us how to install the equipment.

8 Q Do the drawings have to reference the EQ test?

9 A (Witness Bucci) The design drawings do not have  
10 to reference the EQ test.

11 Q Do the process control sheets there include the  
12 inspection hold points? Do you establish those generally  
13 in advance?

14 A (Witness McLean) Well, that is what the process  
15 control sheet is. That is exactly what it is for. It is  
16 an inspection point for all quality aspects to that parti-  
17 cular piece of equipment, and yes, they are specified in  
18 advance.

19 Q And so at each point, and I think this may be  
20 covered later on in the testimony, but I just want to get  
21 this here, at each point when you have done a step or set  
22 of steps that can be inspected all at once, then you have  
23 a hold point to inspect them? Is that the idea that this  
24 is set up on?

25 A We have a hold point, and let's not refer to it

Sim 7-2

1 as a hold point because that implies that it must be done  
2 in a particular time. We have all the quality aspects that  
3 are required to ensure that piece of equipment is set properly.

4 They are listed on the exhibit. They must be  
5 completed in a certain order according to the procedure,  
6 although the procedure is somewhat flexible in that it allows  
7 you to complete some items out of step because they are not  
8 necessarily hold points. They are items that must be  
9 inspected, but when they are inspected, it is not always a  
10 concern.

11 Q Let me see if I understand this. A hold point would  
12 be a point where you would have to stop work and inspect,  
13 right?

14 A That would be my definition of a hold point, yes.

15 Q On these processed control sheets you would lay  
16 out an order of operations to set the equipment, and by set  
17 I take it it means install, including its orientation; is  
18 that true?

19 A That is correct.

20 Q And this order in the process control sheet is  
21 somewhat flexible; that is, it is not just a rigid order of  
22 do this and then do that and the next?

23 A The order as set up on this process control sheet  
24 consider the normal method in which a piece of equipment is  
25 installed. For example, you quite commonly set a piece of

Sim 7-4

1 equipment by setting it on anchor bolts, shimming it and  
2 grouting it. As written in the procedure, the first thing  
3 you do is you make sure that the pad is clean, and we also  
4 say that the concrete is scarified, meaning the concrete  
5 is roughened up so that it will hold the grout. You make  
6 sure the anchor bolts have nuts on them.

7 Then the next step is we land the equipment and  
8 we have it checked for the rigging superintendent to have  
9 the equipment landed.

10 The next thing we do is set the equipment, and in  
11 the setting process prior to grouting it we check such  
12 items as orientation, the components on the equipment are  
13 correct, the location is correct, the elevation is correct  
14 and then we grout it.

15 So the procedure is blocked in those particular  
16 steps that normally occur in the installation.

17 Q And each one is checked at an appropriate time; is  
18 that the idea?

19 A That is correct.

20 Q Now is QA involved in these checks?

21 A You would more correctly say QC I believe. The  
22 quality control does the welding inspections. The other  
23 inspections are done by the CI organization.

24 Q All the other inspections are by CI?

25 A You make it hard on me when you use the word "all."

1 Q I am sorry.

2 A But I can't think of any example where QC makes  
3 any checks other than the welding inspections.

4 Q And as to the orientation inspections, that would  
5 be all CI, to your knowledge?

6 A That is correct.

7 Q Mr. Bucci, before we were talking a little bit  
8 about there being some other procedures in Ebasco about  
9 orientation. I think these may come up logically in questions  
10 I had prepared on some of your later questions, but can you  
11 give me some kind of an overview? Is there one overall  
12 procedure that Ebasco uses for determining proper orientation  
13 of safety related electrical equipment that Ebasco would be  
14 supplying to the Shearon Harris plant?

15 A (Witness Bucci) No, there isn't an overall pro-  
16 cedure. It is just Ebasco has a series of engineering  
17 procedures. On page 7 of the testimony I describe what  
18 these procedures are without specifically listing each  
19 and every one of them.

20 Q But are you familiar with all those procedures?

21 A Yes.

22 Q Well, maybe we can just go through and when we come  
23 to that part of the testimony go over them, if that is all  
24 right.

25 In Answer 7, which I believe is attributed to all

Sim 7-6

1 three of you in the way the testimony is outlined, and please  
2 feel free on any question if you have anything to add, to just  
3 go ahead and add it, you describe a process by which physical  
4 orientation of safety related electrical equipment at Harris  
5 is controlled.

6 Well, let me ask you, first, when you talk about  
7 orientation being a potential concern, is orientation always  
8 set up in accordance with the way the equipment was oriented  
9 in tests?

10 A No, it is not always exactly the way it was  
11 oriented in tests. Our testimony discusses the various  
12 ways that the equipment may be oriented in tests and how we  
13 assure that the physical orientation differences are  
14 acceptable.

15 Q Acceptable to who?

16 A That it is technically acceptable.

17 Q Well, I mean acceptable to Ebasco?

18 A Well, it depends on what document you are  
19 preparing. If it is an Ebasco document, it would be  
20 acceptable to Ebasco and sometimes these documents are  
21 approved by CP&L. You have to be more specific.

22 Q All right. Well now, for a design document that  
23 would be sent down to Mr. McLean's group, or the group that  
24 he was formerly working with, the equipment installation  
25 group, would that have to be approved by both Ebasco and

Sim 7-7

1 CP&amp;L?

2 A Yes.

3 Q Okay. To the extent that documentation of  
4 installation orientation were to be examined by the NRC,  
5 would any more stringent than just those approvals that would  
6 normally happen be required?

7 A I think you have to be more specific in your  
8 question. What kind of requirements?

9 Q Well, I guess what I am getting at is if you have,  
10 and this may tie back to Mr. McLean again, but the work  
11 package I gather is used to document all of the work that is  
12 done in installing a piece of equipment; is that correct?

13 A (Witness McLean) That is correct.

14 Q And the process control sheet would reflect the  
15 steps taken to do that and the inspections that were made  
16 and the results of those inspections, correct?

17 A It would record the results of the inspections  
18 if the inspections were acceptable. When the inspections  
19 are not acceptable, the inspection is just not signed. We  
20 would not record the results of an unacceptable inspection.

21 Q All right. Well, now, what procedure takes over  
22 if it is found unacceptable?

23 A Two procedure. One is CQA-3, which says that they  
24 will write us a nonconformance, and the other is if the  
25 nonconformance is not of a serious nature where it could be

Sim7-8

1 corrected quickly, then it can just be handled by simply  
2 not signing the process control sheet.

3 If the process control is not completed, then the  
4 job is not through, and that is our control.

5 Q Who makes the determination as to whether the thing  
6 is serious enough to go to CQA-3?

7 A The inspector would make the first determination  
8 and then he has available to him his supervisors to also  
9 determine whether a nonconformance is applicable.

10 Now in addition to that, anyone on site can write  
11 a nonconformance. As a matter of fact, we wrote one just  
12 recently. I can't remember what the nonconformance was for,  
13 but engineers as well as inspectors can write nonconformances.

14 Q So what you are saying is if something had failed  
15 inspection during installation and some engineer or some  
16 other person came by and noticed that, they could on their  
17 own initiative write up a nonconformance on it?

18 A That is correct.

19 Q And let me ask you also about the inspectors  
20 there. Are those inspectors required to check their decisions  
21 on whether to go with CQA-3 or not with their supervisors,  
22 or do they just have them available if they feel they need  
23 to talk to them?

24 A Well, inspectors are trained in their job before  
25 they are allowed to inspect in the field. But to my



Sim 7-9

1 knowledge, they do not have to check with their supervisors  
2 when they make that determination.

3 Q So it is their option?

4 A Yes.

5 Q Mr. Bucci, we are talking about -- strike the  
6 direction to who it is -- gentlemen, I ask any of you  
7 regarding Answer 7, the process by which the physical  
8 orientation of equipment at Harris is controlled. That  
9 process, I take it, incorporates all these things, the  
10 qualification testing itself is being able to find out what  
11 orientation it was tested in, the design that Ebasco does  
12 and the physical installation that Mr. McLean's group would  
13 prepare the directions for and the craft people would actually  
14 carry out; is that correct?

15 A (Witness Bucci) Yes. That is part of Answer 7.

16 Q Okay. I just wanted to make sure I understood it.

17 In Answer 8 you refer to a set of rectangular  
18 coordinates. Would that be reference to vertical and to  
19 directions like North, South, East and West?

20 A Yes.

21 Q I thought that was obvious, but I thought I had  
22 better check.

23 Now angular position would be the tilt or rotation  
24 on a level, right?

25 A (Witness McLean) That is correct.

Sim 7-10

1 Q Location with respect to other items in the plant,  
2 that would be nearby items?

3 A (Witness Bucci) It would include nearby items, yes.

4 Q But it could include other items, is that right?

5 A It includes any items that it is located with  
6 respect to.

7 Q And then installation interfaces, does that  
8 basically mean connections to support or other components?

9 A Yes.

10 A (Witness McLean) That is correct.

11 Q Now is all of that specified in the work packages,  
12 Mr. McLean?

13 A What we specify in the work package is to put it  
14 in its design location. We would also specify in the work  
15 package what the vendor manual might say.

16 To give you an example that would be very familiar  
17 to anyone, if you are setting an air condition unit and  
18 the vendor manual might very well say set this unit two feet  
19 from any wall. Well even though it may not be in the design  
20 document that we set it two feet from the wall, it will be  
21 in our work package that we will use the vendor manual and  
22 therefore we will have to set it two feet from the wall.

23 If that were to conflict with the design document,  
24 then we would have a conflict in design information and have  
25 to write a field change request which would go back to

Sim 7-11,

design engineering for them to analyze.

2 Q Okay. So that would be sent then back to Ebasco  
3 under those conditions?

4 A Not necessarily. It could be design engineering  
5 at the Harris plant.

6 Q Okay. Would it go first to the Harris design  
7 engineering and then they would decide whether it went to  
8 Ebasco, or would that decision come out of the field people?

9 A They would decide. Design engineering would decide.

10 Q Harris plant design engineering would decide?

11 A That is correct.

12 Q As to Answer 9, the question is on page 4 and the  
13 answer is on page 5, I think this may have been covered, but  
14 if installation of electrical equipment allowed in positions  
15 that it was not tested in?

16 A (Witness Bucci) Not tested in, yes.

17 Q Under what circumstances and why is that allowed?

18 A I believe our answer is given to that on page 6,  
19 at the top of page 6. We describe how orientation is  
20 addressed and point out that the vendor may test the equipment  
21 in a number of different positions. However, the equipment  
22 must be qualified for the installed condition either by  
23 direct testing in that position or analysis.

24 Q Okay. And who does the analysis?

25 A The analysis could be done by the vendor in his

1 qualification report.

2 Q And if it is not, would it then be Ebasco's  
3 responsibility?

4 A Yes, Ebasco or CP&L, a design engineering  
5 responsibility to qualify the installation.

6 Q Now would that analysis be part of the equipment  
7 qualification record maintained for the equipment at Shearon  
8 Harris regardless of who did it?

9 A Yes.

10 Q If you will bear with me a second here.

11 (Pause.)

12 I think I want to go back to page 5 in a moment.

13 (Pause.)

14 Question and Answer 10 about test reports. Do the  
15 sketches or photographs always show the physical orientation  
16 of the tested equipment, and I am trying to distinguish that  
17 from the test equipment. I could imagine taking a picture  
18 of some things where you can see the test equipment, but  
19 couldn't necessarily see the orientation of the item being  
20 tested.

21 A Well, the reports either describe or provide  
22 sketches or photographs which include physical orientation  
23 of the tested equipment. Test set-up means tested equipment  
24 with the set-up.

25 Q And if in your review you didn't find adequate

Sim 7-13

1 information on it, you would check back with the vendor  
2 or the tester to find out what it was?

3 A Yes,.

4 Q And would you have to verify that by inspection  
5 of their records or anything like that?

6 A Could you clarify that?

7 Q Well, what verification would you use? What  
8 verification process would you use when you didn't have the  
9 orientation clear to you from the documentation supplied  
10 on the EQ test, that is you didn't have the orientation in  
11 which the equipment was tested clear to you and you checked  
12 back with the tester or vendor to find out what it was. How  
13 would you verify that the information you had gotten on  
14 checking was correct? That is my question.

15 A (Witness Pagan) The answer to that question  
16 appears on page 7. It is the last part of our answer to  
17 Question 12.

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1 Q As to items that aren't qualified by actual tests,  
2 do you always have an orientation documented for them as to  
3 what is acceptable orientation.

4 A (Witness Bucci) I don't agree with your assumption  
5 that there are items not qualified by tests.

6 Q Well, are there any items of electrical equipment  
7 for insulation at the Shearon Harris plant that you know of  
8 that are qualified by similarity or analysis, rather than by  
9 actual tests? Do you know if there are any of those?

10 A Any qualification test is a type test. It is not  
11 a test of the equipment itself, so there is -- it is a type  
12 test.

13 Q Let me see if I can clear that up. Now, a type  
14 test is a test of a certain type of equipment, is that  
15 right?

16 A That is correct.

17 Q So, in other words, if I have a 105 cable, then  
18 you are testing a typical sample, or supposedly a typical  
19 sample of that cable, right?

20 A Yes.

21 Q And then that test is a test for that type of cable.  
22 In other words, if you have 105 cable, that type of cable,  
23 that is qualified by that particular test, right?

24 A Well, to determine whether the tested sample is  
25 typical of the equipment you are trying to qualify is a type

1 of that equipment, some analysis is required. Engineering  
2 analysis to determine that. That is part of our review.

3 Q All right. Let me just start off though with the  
4 simplest case. If they have tested type 105 cable, and you  
5 have type 105 cable, supposedly made to the same specs and  
6 so on as given in the test, then that is qualified by that  
7 test, right?

8 A Yes.

9 Q Okay. Now, if the cable is a little bit different,  
10 whether it is labeled the same type or not, is that what you  
11 are talking about analyzing, to see if it fits within that  
12 type test?

13 A Yes.

14 Q All right. Now, would that analysis take into  
15 account possible orientation effects caused by the differences  
16 between the thing you are qualifying by analysis, and the thing  
17 that was actually tested?

18 A I am not sure what orientation effects have to do  
19 with whether the equipment type is representative of the  
20 equipment type you are qualifying. But if orientation effects  
21 do have anything to do with that comparison, they are  
22 considered, yes, and analyzed.

23 Q And how do you determine whether orientation effects  
24 need to be considered?

25 A By engineering knowledge.

1 Q So, it is not a procedure that lays down certain  
2 criterias; just based on your knowledge and experience.  
3 Your judgment?

4 A If I am answering your question correctly, there  
5 is not an engineering procedure that tells you how --  
6 technically how to do an engineering analysis. This is  
7 part of your knowledge and expertise as an engineer.

8 There are procedures that tell you what steps  
9 must be taken and what items must be considered and  
10 addressed. But the procedures don't instruct you if you  
11 don't have the engineering knowledge.

12 Q Well, I understand that. I guess what I am trying  
13 to get at, let me ask you this. In the listing of things  
14 you have to consider, is orientation one of those?

15 A Yes, it is.

16 Q Okay. Now, again, let me come back to what I was  
17 trying to get to before there for Answer 10.

18 Do you have some explicit orientation information  
19 either that you generate by analysis, or somebody else  
20 generated by analysis, or otherwise, for equipment where the  
21 actual type -- specific type of equipment was not the same  
22 thing or same type of item, say model of item, that was  
23 subjected to the actual environmental qualification test.

24 A Even if it was the same type, we do have orientation  
25 addressed in the qualification documentation.



1 Q Did you say if it was the same type?

2 A Even if it was the same type.

3 Q Okay. And if it wasn't, you would also have that  
4 addressed.

5 A Yes.

6 Q All right. Turning over, continuing with that  
7 answer on top of page 6, is the vendor required to test  
8 equipment in this most limiting orientation?

9 A No. The vendor is not required to test it in the  
10 most limiting orientation.

11 Q All right. Now, when you say that that orientation,  
12 most limiting orientation, is determined by engineering  
13 analysis, are you talking about basically the same kind of  
14 knowledge and judgment you used for this other analysis  
15 that we were just talking about?

16 A No, in this case the vendor is doing this analysis.  
17 Also, by most limiting orientation, we mean most limiting  
18 orientation to the piece of equipment, not most limiting  
19 orientation as to how that equipment may be used in the plant.

20 If you are speaking of limiting orientation as to  
21 how it will be used in the plant, yes, it does have to be  
22 -- meet the most limiting orientation.

23 Q Now, I am a little bit confused here.

24 A The equipment itself has its own limitations.

25 Q Right. And the most limiting orientation for that

1 is what you say here, is what the -- the orientation that  
2 exposes it to the most severe environmental conditions. I  
3 guess the greatest likelihood of failure, is that another  
4 way of looking at that?

5 A The conditions which cause the most stress, or the  
6 most load on the equipment.

7 Q The most potential for the damage, then, is that  
8 a way of looking at it? Potential for failure?

9 A The most stressful test of the equipment's  
10 capability.

11 Q Okay. And you are distinguishing that from the  
12 orientations that it might be used in in the plant, is  
13 that right?

14 A Yes; it is normal to use the equipment in a less  
15 severe application than what it is capable of doing.

16 Q Okay. Now, the -- if you test in what analysis  
17 claims is the most limiting condition, as you say in the  
18 third full sentence there on the top of page 6, that will be  
19 qualified in any position if that analysis were correct, right?

20 A That would be -- that is true, yes.

21 Q Okay. Now, it says the vendor may also test in  
22 a single orientation, which is not the most limiting condition.  
23 Now, how often do you get that with the vendor specifying we  
24 tested in this position, and that is the only place you can  
25 install it, which is one of the options you talk about there.

1 How often does that happen?

2 A Infrequently. It is not the usual case.

3 Q So for most equipment, either by qualification test  
4 or by analysis from a testing other than the most limiting  
5 condition, you would have some sort of range of allowable  
6 installation orientations, is that --

7 A As we stated -- the answer is, yes. As we stated  
8 in Answer 9, the physical orientation of electrical equipment  
9 generally does not effect environmental qualification. It  
10 is generally not the most critical aspect of the qualification.

11 Q Is the analysis to show that orientation is not  
12 critical required for all pieces of equipment?

13 A Not to show that it is not critical, but to show  
14 that it has been adequately considered in the qualification.

15 Q In other words, some analysis which demonstrates,  
16 or says it demonstrates that orientation of the equipment  
17 has been adequately considered in qualification must be  
18 documented?

19 A Yes, regardless of the type, kind of equipment,  
20 there is a section on physical orientation aspects that must  
21 be addressed in the documentation.

22 Q Okay, and that documentation would be part of the  
23 qualification package, or information that is retained for  
24 inspection by the NRC?

25 A Yes, it is.

1 Q Okay. Then the final option is the vendor may test  
2 the equipment in several orientations. Would that geneally  
3 mean that -- you would have separate pieces of equipment,  
4 each oriented in a different way, and they would all be  
5 tested?

6 A Could you repeat the question?

7 Q I will try. Would this testing of equipment in  
8 several orientations, as described here, be typically taking  
9 similar or identical pieces of equipment, putting them in  
10 different orientations, and then testing them?

11 A Yes.

12 Q Okay. And how often is that done. Is that a  
13 common qualification method?

14 A No, it is not.

15 Q So, then, the most common ones would be -- I didn't  
16 ask you. How common is testing in the most limiting  
17 orientation?

18 A This is the most common of the three.

19 Q And then qualification by analysis is not really a  
20 test method, but how often is that done?

21 A Well, engineering analysis is using -- low  
22 qualification.

23 JUDGE KELLEY: We are on a track, I believe, and  
24 we talked about our timing yesterday, to get through these  
25 Applicant panels, the one we are on now, plus the next two,

1 some time today, is that correct?

2 MR. EDDLEMAN: We were until we ate up an hour and  
3 something in discussion on Mr. Chan this morning.

4 JUDGE KELLEY: Remind me what we said yesterday.  
5 Is that where we were -- that is where we were until we ate  
6 up an hour on Mr. Chan.

7 MR. EDDLEMAN: Yes, sir.

8 JUDGE KELLEY: Well, the Board has an observation.  
9 I think this testimony we are on right now, and I am speaking  
10 as a non-technician, is probably the simplest, most straight  
11 forward testimony we have got of this whole contention.

12 Is the thing in upside down, or backwards, or  
13 does it make any difference, it is not technical. The Board  
14 unanimously thinks the last ten minutes on this top paragraph  
15 of page 6 has not gotten us anywhere.

16 It says what it says. It is plain. It is English.  
17 And we would like to stay on yesterday's schedule, because  
18 we just don't think this warrants that kind of time.

19 MR. EDDLEMAN: I will go as fast as I can. I am  
20 done with that paragraph.

21 JUDGE KELLEY: Okay.

22 MR. EDDLEMAN: Are we approaching a point where we  
23 might take a break?

24 JUDGE KELLEY: Not normally. Do you want a short  
25 break?

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MR. EDDLEMAN: If I could get five minutes.

JUDGE KELLEY: Let's take five minutes. All right.

(Short recess taken)

End 8.  
SueT fols.

#9-1-SueT

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(The hearing is resumed after the recess at 11:45 a.m., this same day.)

JUDGE KELLEY: All right. Back on the record.

MR. O'NEILL: Mr. Chairman, just to put on the record the information that Mrs. Moore requests, the letter, which is a Part 21 report to the NRC from Westinghouse, dated October 13, 1983, identified in that letter the three operating plants, Indian Point 2, D. C. Cook 1, and Trojan, that had the specified Barton transmitters and did not identify Shearon Harris or any other plants under construction.

JUDGE KELLEY: Thank you. Okay. Back with Mr. Eddleman.

MR. EDDLEMAN: In going through this, I think I will be able to finish with these folks at, or before, the noon break.

JUDGE KELLEY: Okay.

MR. EDDLEMAN: And that would leave us on schedule, I think, for finishing everybody else from CP&L by the end of today if we go until 6.

JUDGE KELLEY: Fine. I appreciate that.

CROSS EXAMINATION

BY MR. EDDLEMAN: (Continuing)

Q Gentlemen, as to the discussion of installation instructions and mounting drawings, those are required to show orientation?

#9-2-SueT

1 A (Witness Bucci) Yes.

2 Q Okay. In Answer 11 it says it's sent by the  
3 vendor to the responsible design organization.

4 Is Ebasco the only one?

5 A For a given vendor, that is only one responsible  
6 design organization. CP&L has a design organization, as you  
7 know.8 Q So, in other words, some of it might come to you  
9 and some of it might come to CP&L; is that right?

10 A That's correct.

11 Q Is there anybody else who functions as a design  
12 organization, such as Westinghouse?

13 A Well, yes. Westinghouse is a design organization.

14 Q Uh-huh. I just want to make sure I've got them  
15 all. Mr. McLean, does that cover all of the design organiza-  
16 tions for the Harris plant, to your knowledge?17 A (Witness McLean) To the best of my knowledge, it  
18 does.19 Q All right. Do Ebasco's procedures require review  
20 of the test orientation or orientations against design draw-  
21 ings?

22 A (Witness Bucci) Yes.

23 Q Are you gentlemen familiar with the procedures  
24 followed by other design organizations for the Harris plant?

25 A Well, I am familiar with CP&amp;L's procedures, because



#9-3-SueT

1 we have a common set of procedures for the Shearon Harris pro-  
2 ject. And they do have other procedures which are not. The  
3 ones that are common with us, yes.

4 Q And is this procedure that requires checking orienta-  
5 tion against design drawings one that is in common with CP&L?

6 A I -- it is common. It's not one procedure. It is  
7 a set of procedures, or a subset of those procedures. Yes,  
8 it is in common with CP&L.

9 I'm referring to the Shearon Harris project pro-  
10 cedures.

11 Q Let me ask you this. Has that procedure always been  
12 in effect from the beginning of the construction of the Harris  
13 plant?

14 A (Witness McLean) What procedure are you referring  
15 to?

16 Q The procedure or group of procedures which has  
17 this effect we are talking about, of requiring checking test  
18 orientation or orientations against design drawings for equip-  
19 ment at Harris plant?

20 A (Witness Bucci) Well, the set of procedures has  
21 always existed. But it has been refined as the project has  
22 gone into different stages of design.

23 So, I cannot say for sure whether this aspect would  
24 have been in effect before we reached that stage of the project  
25 where it would apply.

#9-4-SueT

1 Q Well, when do you first know that it applied, if  
2 you can answer that?

3 A I'm sorry. I don't understand the question.

4 Q When, in your knowledge or experience, did this  
5 requirement for checking orientation and tests against the  
6 installation drawings first apply to Shearon Harris?

7 A I can't recall right off the year and date.

8 Q Okay. Can you recall at all? I'm just asking.  
9 Has it been some years now or some months?

10 A It has been some years.

11 Q Okay. Now, Mr. McLean, if you know, does this  
12 requirement go back to the beginning of construction on  
13 Harris?

14 A (Witness McLean) Well, I can't address the pro-  
15 cedures you use for environmental qualification, a check  
16 against the design drawings. I do know that we do have a  
17 program at the Harris plant.

18 If you are asking me when that was started, I can't  
19 answer it. I can say that we have not always had a design  
20 engineering organization at the Harris plant.

21 So, it was not started there since the inception of  
22 the plant.

23 Q All right. Did a design organization out of the  
24 general office have the sort of duties that your onsite  
25 organization has before that?

#9-5-SueT

1           A       I can't address these questions adequately. I  
2 believe they could be better addressed by someone in the de-  
3 sign engineering group.

4           Q       All right, sir. Let's turn over to the top of  
5 Page 7. There are some "musts" in the sentence that begins  
6 at the end of Page 6. Must have identical orientation of  
7 the installation shown on the drawings, the equipment must be  
8 able to be qualified by analysis.

9                   Now, would you gentlemen check the analysis if  
10 you didn't do it yourselves?

11           A       (Witness Bucci) We would review the -- as a  
12 minimum, we would review the analysis results of the analysis.

13           Q       Uh-huh. And you might go into more detail on it?

14           A       Yes.

15           Q       Okay. Now, if you did the analysis who would check  
16 it?

17           A       The analysis is -- any engineering analysis that  
18 we do is checked by another engineer who did not perform the  
19 analysis.

20           Q       And that's, I take it, a requirement?

21           A       That's a requirement of our quality assurance  
22 program, yes.

23           Q       Okay. When you are talking about reviewing for  
24 consistency of orientation, does consistent mean within the  
25 ranges of allowable orientation specified?

#9-6-SueT

1 A (Pause.)

2 Yes. To the extent that a qualification test set-  
3 up is specified.

4 Q And if it's analysis, would the same thing apply?

5 A Yes.

6 Q Okay. Now, then it says if there are any dis-  
7 crepancies, inconsistencies or ambiguities, Ebasco requests  
8 further information as necessary.

9 Is this a requirement, something that would be  
10 done in every case where you identify one of those problems?

11 A Yes. It's required to identify any concerns dur-  
12 ing a review, and then the concern becomes an open item until  
13 it is resolved.

14 It could be resolved, depending on what it was,  
15 without requesting further information from the vendor, but we  
16 say further information from the vendor is necessary.

17 Q So, if you can resolve the ambiguity or discrepancy  
18 or whatever within your own organization, you do that. And if  
19 you can't, you go back to the vendor; is that what you are get-  
20 ting at?

21 A Well, yes, except it's not a matter of can we do  
22 it and if not we will ask the vendor. The normal practice  
23 would be to ask the vendor.

24 (Mr. Bucci and Mr. Pagan are conferring.)

25 It's also normal to confirm with the vendor when we

#9-7-SueT

1 do our own analysis.

2 Q Okay. The procedures you refer to in Question 13,  
3 are they all written procedures?

4 A Yes, they are.

5 Q Have they undergone any significant revisions within  
6 the last couple of years, say, with respect to review of  
7 orientation of equipment?

8 A They have undergone revisions. I'm not familiar  
9 with all the revisions. I'm also not sure what you mean by  
10 significant. You would have to be a little more specific, or  
11 clarify that question.

12 Q Well, if you can't remember specifically, then I'm  
13 not going to try to define significant on top of it. I  
14 think that would cause a problem.

15 The specific physical conditions at the equipment  
16 location, are those the harsh environment conditions? Is  
17 that what we are talking about there?

18 A (Witness Pagan) What are you referencing right  
19 now?

20 Q Answer 13.

21 A (Witness Bucci) The main subject there is physical  
22 orientation, not environmental parameters.

23 Q Okay. Do you have a standard for when you would  
24 send those drawings back to the vendor for review?

25 A There is no written standard that tells us when we

#9-8-SueT 1 need to send it to the vendor.

2 Q Okay. And when you say these vendor qualification  
3 reports are reviewed, you are the people who would do that?  
4 Or, your department?

5 A Ebasco?

6 Q Yeah.

7 A Yes.

8 Q I sometimes have trouble with a lot of these things  
9 that are just all in passive voice, it says that our review is  
10 done. I just want to know who does it.

11 And consistent here would be the same as we have  
12 discussed the word "consistent" above in Answer 12?

13 A (The witnesses are looking at a document.)

14 Which line is this in?

15 Q The third from the last on Page 7.

16 A Well, in the previous answer we said consistent  
17 with the qualification test setup, and in this answer we said  
18 consistent with the installation drawings.

19 So, the point being that all three would have to  
20 be consistent.

21 Q And the standard of consistency is the same? That's  
22 what I'm getting at.

23 A Yes.

24 Q Okay. When you say prior to considering the equip-  
25 ment environmentally qualified, does that mean prior to ya'll

#9-9-SueT

1 determining that for purposes of the package it's environ-  
2 mentally qualified?

3 A Yes.

4 Q Okay. The design in change notices, are there  
5 exceptions to having to issue one of these DCNs if the drawing  
6 is changed, or must they always issue a DCN?

7 A By our procedures, it's the only way to change the  
8 drawing.

9 Q Okay. And then you go through the same review as  
10 in the original drawing, as you state there, for the DCN,  
11 right?

12 A Yes.

13 Q Okay. And, then sending to all effected personnel,  
14 this is again analogous to what you were doing with the  
15 original drawing. You would send it around to all the effected  
16 disciplines at Ebasco or CP&L to comment on the change.

17 A Yes.

18 Q Okay. Now, are there specific standard for approval  
19 of DCNs?

20 A Procedures?

21 Q Procedures or criteria written into the procedures?

22 A Yes.

23 Q Procedures with criteria?

24 A Could you more specifically define criteria?

25 Q Well, for example, a criterion might be that the

#9-10-SueT 1 change does not affect the safety of the equipment or the  
2 qualification of the equipment. Other criteria might be a  
3 lot more detailed than that, but that's what I'm getting at  
4 by criteria.

5 A Yes, that's included in the procedures.

6 Q Okay. What are those criteria? Do you know?

7 A Well, you just mentioned one of them. Each change  
8 reviewed against the criteria is stated in the FSAR.

9 Q For environmental qualification?

10 A Not only for environmental qualification. But,  
11 for example, if it's for an electrical piece of equipment,  
12 it could be other criteria that is effected by this change.

13 Q And those would be as stated in the FSAR?

14 A Yes.

15 Q All right. On the installation record drawing,  
16 is that put in before installation actually takes place?  
17 The change that's at the bottom of that first paragraph on  
18 Page 8?

19 A Could you repeat the question, please?

20 Q The -- given that the DCN has been approved, the  
21 DCN -- it says then it will be subsequently incorporated on  
22 the installation record drawing.

23 What I asked you was, is that done before the  
24 installation is done?

25 A No, not usually. It may be.



#9-11-SueT

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Q It --

A The DCN itself is a function as an installation drawing.

Q So, it could be after the installation the change is approved; is that right?

A No. After final approval, the DCN becomes an installation drawing.

Q Well, what I may be confused about, I thought you said that the DCN didn't necessarily have to be incorporated on the installation record drawing before the installation was done, that it might be incorporated in the drawing after installation.

A (Witness McLean) He did say that.

(Witness Bucci) Yes, I did. I was referring to the larger original drawing. A DCN is normally a portion of that drawing.

Q A little change that will be indicated on the drawing?

A Yes, or indicated on a portion of the drawing, and then part of the DCN package would include that part of the drawing. Everything needed to define the change would be part of the DCN package.

Q Right. And that would then be included in the qualification package for the piece that's installed, the equipment as installed, pardon me?

#9-12-SueTl

A The --

2 (Witness McLean) The qualification package would --

3 (Witness Bucci) Not in the package. It's part of  
4 the quality documentation. I mean, it's a controlled design  
5 drawing and it's part of the documentation that went into the  
6 design. But, it wouldn't be put into the package normally.

7 Q But that's a QA record and --

8 A That's right.

9 Q -- would it be referenced? In other words, if  
10 someone from the NRC or otherwise were checking the qualifica-  
11 tion of these pieces of equipment and looked at the qualifica-  
12 tion package, would they know from information contained in  
13 that package that a DCN as to orientation had been issued or  
14 approved?15 A They wouldn't know it from the package alone. They  
16 would know it from the procedures that we have. Our program  
17 requires a change to be implemented via a DCN.

18 Q And --

19 A (Witness McLean) They could also trace that down  
20 from the design information shown on the drawing. If they  
21 know the design drawing that demonstrates that or shows that  
22 installation, they can go to the document control log and  
23 determine what DCNs are applicable to that design drawing and,  
24 therefore, determine what DCNs are applicable to the installation  
25 of that piece of equipment.

#9-13-SueT 1 Q And, then would they have to actually go look at  
2 the DCNs to see if they affected the orientation of the equip-  
3 ment?

4 A Yes.

5 Q All right. Now, as to the description of Attach-  
6 ment B that is given in that middle paragraph on Page 8, are  
7 the orientations always required to be that clear on drawings  
8 released to the field Harris plant?

9 A Let me turn to it. I think I can answer that  
10 question.

11 (Mr. McLean is looking at a document.)

12 This drawing alone would give me problems. I  
13 wouldn't have enough information from this to install it, and  
14 I would have to write some FCRs. The -- we expect the draw-  
15 ings or the design documents, the total package of whatever  
16 design documents we may have, to completely describe all  
17 quality aspects that have to do with the installation of a  
18 piece of equipment.

19 So, we would need to know all this information.

20 Q All right. And the requirement for a complete  
21 description of those quality aspects is in your procedures  
22 at the Harris plant; is that right?

23 A We require ourselves to check all quality aspects.  
24 We can't check it if we don't have a design. So, we have  
25 what I consider a foolproof method to make sure that we cover

#9-14-SueT 1 all quality aspects. And, in effect, by doing that it would  
2 make sure that the design documents cover all quality aspects.

3 Q Because if you can't find it you can't complete  
4 your check and you have to do something about that, right?

5 A That's exactly right.

6 Q And that's all part of your standard procedure,  
7 right?

8 A Yes.

9 Q Okay. Let me ask you, sir, how often do you have  
10 to do that? Is it a large percentage of these drawings for  
11 installation that have to be checked -- I mean, not that have  
12 to be checked but where you find that you can't document all  
13 the quality aspects?

14 A We quite often have to write FCRs. It's not always  
15 for documenting a quality aspect.

16 In some cases, we may write an FCR for tolerance.

17 Q Uh-huh.

18 A It may be exactly specified, but we can't do things  
19 exactly. There is nothing without tolerance, so we would have  
20 to write an FCR for tolerance.

21 I'm trying to think of some other examples for  
22 which we write FCRs. We do quite often have to write them.

23 Q Uh-huh. I believe that's discussed further on in  
24 the testimony about what you do with FCRs, right?

25 A That's correct.

#9-15-SueT 1

2 Q Now, the detailed procedures that CP&L has for  
3 control design documents, Mr. McLean, is that WP-105 or is  
4 that some other procedures?

5 A That's another procedure.

6 Q Do you happen to know what its number is?

7 A No.

8 Q I gather from that that there are several such  
9 procedures?

10 A There are procedures in document control for con-  
11 trol of those design documents. I'm partially in error when  
12 I say WP-105 does not apply to control of design documents.  
13 We do say that we will put the design documents in the package,  
14 we will list those design documents that we do put in the work  
15 package.

16 So, in effect, it does provide some control over  
17 the design documents.

18 Q All right. Now, all documentation of problems with  
19 orientation is required to be retained; is that right?

20 A All design documents are required to be retained.  
21 So, any design document would be --

22 Q Right. But what I'm saying is if you have any docu-  
23 ment where a problem with equipment orientation is identified,  
24 is that required to be retained by these procedures that were  
25 discussed here?

A I'm not -- I don't understand your question.

#9-16-Sue

Q Let me rephrase it a little bit. Would it be consistent with the procedures that you work under, that you are referencing here, since you are the one that gives this answer, for a problem in orientation to be documented and that document then not be kept?

A No. We keep all design documents, and we keep all revisions to design -- we keep a record of all revisions to design documents.

So, if we had a problem with a design document and we changed it, we would change it almost -- in all probability -- via an FCR. When that FCR was incorporated into the design document, if that design document were Rev 7 and it then became Rev 8 we could still produce Rev 7 and Rev 8.

Q And the FCR request and DCN request and all that sort of thing would also be retained?

A Yes.

Q Okay. There are procedures -- let's see, the procedures for preparation of installation work packages, that is principally WP-105, right?

A Yes.

Q Okay. Then, the installation in the field those are other procedures, right?

A No. That's 105.

Q That's still WP-105?

A There are exceptions to this. Some pieces of

#9-17-SueT 1 equipment such as the NSSS system, we prepare a work procedure  
2 specifically for those items. We prepare work procedures  
3 specifically for the reactor vessels, steam generator, the  
4 pressurizer, and the reactor coolant pumps.

5 105 handles the majority of the equipment on  
6 site but not all of it.

7 Q So, where there wasn't a special procedure for the  
8 equipment, then 105 would apply, right?

9 A Yes. As I have stated also in Answer Number 20, we  
10 sometimes prepare a special procedure for a piece of equip-  
11 ment by the use of a form in 105 where we have to -- the  
12 setting of the equipment is so unique that we cannot have pre-  
13 designated hole points. We must actually study the design  
14 documents and designate the hole points for it.

15 Q I see. The inspection of how that work procedure  
16 is carried out in this quality inspection, is that a QA  
17 function?

18 A Most of your inspections done on equipment are CI  
19 inspections. As I discussed before, QC does the welding  
20 inspections and there are additional inspections that they  
21 have done.

22 You asked me if I could recall any, and I have re-  
23 called some others after considering it. Cleanliness inspections  
24 are done by QC. There was -- during the installation of some  
25 of the NSSS equipment, we had QC there to do welding, to do

#9-18-SueT1

hydrostatic testing, to do some cleanliness inspections. Since we had that group there we also asked them to do other inspections such as torquing.

Q So, they did that rather than CI doing it because they were there?

A Yes.

Q Now, control of installation drawings and documentation, all these control procedures we are talking about would apply to the items we discussed in the previous answer?

A I'm not sure I understand what you are saying. We control drawings by putting them in the package and keeping a record of the package.

We also have an internal control within our own group to make sure that the package has all the applicable drawings. We get audited by our document control group to make sure that we are controlling the drawings that are issued to us.

The control of an FCR, we control the accomplishment of an FCR because we have to sign the FCR to say that we have either implemented it or incorporated it on a design drawing. The procedures that you asked about, I'm not sure what you are talking about.

But that's basically how we control our design documents.

Q Okay. I think that covers it generally. Let me



#9-19-SueT 1 try to go through this.

2 Do all the installation design drawings, whether  
3 they come from Ebasco or not, come through the document  
4 control center to your knowledge, gentlemen?

5 A Yes. When you use the word "all" it's difficult.  
6 There may be some possible exceptions but I can't think of  
7 any.

8 Q As far as you know, you have never seen an  
9 exception to it, right?

10 A That's correct.

11 Q And then the construction engineer, is that a  
12 CP&L person or Daniel person, or does it vary?

13 A It could be either.

14 Q Okay. And they follow a procedure which includes  
15 document control requirements I guess to get that drawing,  
16 right?

17 A Yes.

18 Q And then the revisions go to all the holders of  
19 the control documents?

20 A Yes.

21 Q And, say, if, for example, the document originated  
22 with Ebasco, a revision would be sent back to Ebasco when it  
23 was made?

24 A I don't think that question is applicable here.  
25 If you ask to be on control for a drawing, then you must have

#9-20-SueT 1 a control number.

2 Q Uh-huh.

3 A If you request the drawing, you are given the  
4 drawing. if the drawing is changed you automatically are  
5 given a copy of the change.

6 Q Uh-huh.

7 A This is our document control system. The document  
8 control system used by Ebasco, I can't discuss.

end #9 9  
Mary flws

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Sim 10-1

1 Q Okay. Well, do the people from Ebasco here know  
2 if there is a change made to a drawing which you all have  
3 basically sent or specified for the Harris plant for installa-  
4 tion of equipment showing orientation and there is a design  
5 change or FCR made on it, would you get notification of that  
6 proposed design change or FCR?

7 A (Witness Bucci) Either during the proposal stage  
8 or once it was approved.

9 Q Well, first, let's take the proposal stage.

10 A As we state in our description of the FCR process,  
11 CP&L may ask Ebasco for assistance in resolving an FCR.

12 Q But they wouldn't have to, right?

13 A They wouldn't have to.

14 Q All right. Once it is approved, the FCR or DCN  
15 or any other change, would you then have to get notification  
16 of it back to Ebasco?

17 A To my knowledge, yes. I can't recall the specific  
18 procedure, but I know we get copies of all FCR's and DCN's.

19 A (Witness McLean) I might add that Ebasco changes  
20 the drawing if CP&L doesn't change them, and they can't  
21 incorporate an FCR without getting it.

22 Q Do you mean that if Ebasco made a change in the  
23 drawing, CP&L would not receive the change?

24 A No.

25 Q I am sorry.

Sim 10-2

1           A     If there is an FCR produced, it will eventually  
2 be entered into the drawing or made a part of the drawing.  
3 And Ebasco can't change the drawing without getting the FCR's,  
4 and Ebasco is the group that changes our design drawings.

5           Q     Oh, I see. So they would have to get the copy to  
6 make the change. That is what you are saying?

7           A     Yes.

8           Q     Then the work package in Answer 16, is that,  
9 Mr. McLean, the same thing we discussed generally before  
10 under WP-105?

11          A     Yes.

12          Q     Is the field superintendent in Answer 17 where  
13 it says ensure the equipment is installed according to  
14 design documents, that person is supposed to check it and  
15 then turn it over to the proper quality inspector? Is that  
16 the way that works?

17          A     The person ensures that it is checked, although he  
18 may not check it himself. It could be a general foreman or  
19 foreman who would do the checking. But a craftsman checks  
20 it prior to the CI inspector being asked to check it.

21          Q     Okay. And that would be CI that would inspect,  
22 right?

23          A     In most cases, yes.

24          Q     Now the inspection documents, are they standard  
25 forms? I am looking at the top of page 10.

Sim 10-3 1 A Yes, they are. Now as I said earlier, we use a  
2 process control sheet in some cases that we tailor make to  
3 a particular piece of equipment, and the inspector would also  
4 do the same thing.

5 Q Right. Now are the inspectors required to refer  
6 to the work package when they make their inspection?

7 A I can't honestly say that I know their procedure  
8 requires them to refer to the work package. They have to  
9 refer to the design documents, and there would certainly  
10 be no practical reason for them to refer to anything else.

11 Q Okay. To the knowlege of any of you, is there  
12 any requirement on how fast these inspections need to be done,  
13 that is, is an inspector supposed to get through a certain  
14 number a day or is it really up to them to take whatever time  
15 is necessary?

16 A To my knowledge, there is no requirement for  
17 production on inspections. It would be correct to say that  
18 we expect to be supported in the field, but there is never  
19 any pressure, to my knowledge, at the Harris site to hurry  
20 an inspector beyond that which he thinks he is capable.

21 Q All right. Now in your Answer 18 you refer to  
22 design tolerances. Are those the allowed variability in  
23 orientation that is put in the design document?

24 A Yes. We quite often get -- well we can get a  
25 design tolerance from the vendor, we can get a design

Sim 10-4

1 tolerance on the drawing or in the absence of such, we have  
2 our own design tolerances built into the procedure. For  
3 example, we say set a piece of equipment within plus or minus  
4 a half an inch of its design location unless otherwise  
5 directed by the design document.

6 We may try to put that piece of equipment in and  
7 find that it is three-quarters of an inch off and we have  
8 to write an FCR.

9 Q Okay. So in any case where you get outside any  
10 of these tolerances, you would have to write an FCR and check  
11 it back. Would you have to check the FCR against the test  
12 report orientation?

13 A That would come under engineering to do that. I  
14 think that question could better be directed to the design  
15 engineering group which would more than likely be the  
16 Harris site on the FCR's.

17 Q Is that correct to the best of your knowledge,  
18 Mr. Bucci?

19 A (Witness Bucci) Well, I can address the question  
20 for an FCR that I would receive either from CP&L or anyone  
21 else, yes. The answer is yes, I would check to see if the  
22 change had any effect on the qualification report.

23 Q An FCR is a field change request, right?

24 A Yes.

25 Q It says a design change in the form of a DCN

Sim 10-5

1 might also come from Ebasco. Does that mean that Ebasco  
2 might issue a design change that you all find is necessary  
3 independently of the field? Is that what we are getting  
4 at there?

5 A Yes.

6 Q Now it says this would occur if the equipment  
7 were installed prior to Ebasco having received a vendor  
8 qualification test report. Now according to the previous  
9 bulk of this testimony, you prepare all these drawings before  
10 installation. So how is this possible?

11 A There is no contradiction there. The drawings are  
12 prepared before installation, but a test might be done after  
13 the drawings are prepared, or it might not even be a test.  
14 I mean it might not be a Shearon Harris test. It could  
15 be someone else's test where there was a problem and it  
16 affected orientation. Whatever the reason is, that is what  
17 the DCN process is about. It is to issue a change after  
18 you have issued the installation drawing.

19 Q Okay. So what you are saying is where the installa-  
20 tion drawing either were not based on a test or another test  
21 were done, the you could issue a DCN based on that? Is that  
22 the idea?

23 A That is one of the conditions. You could issue  
24 a DCN for other reasons also.

25 Q Such as?

Sim 10-6

1 A Such as any discrepancy or problem found with the  
2 original design drawing. A change as necessary could be  
3 implemented by a DCN.

4 Q Which might result, say, from further review of the  
5 design drawing by you all, Ebasco I mean?

6 A Which might -- I am sorry?

7 Q The discovery of the problem with the design  
8 drawing or discrepancy might result from further review  
9 by Ebasco; is that the kind of thing you are talking about?

10 A It might, yes.

11 Q Do you, gentlemen, any of you, have any idea about  
12 how much equipment gets installed before Ebasco would get a  
13 qualification report on the equipment?

14 A Very few. It is the exception.

15 Q Okay. Limiting conditions and consistency as  
16 discussed in the rest of Answer 18 at the top of page 11 are  
17 the same things we have talked about before, right? I mean  
18 you are not using them in a different sense there?

19 A They are the same limiting conditions we referred  
20 to in our earlier testimony.

21 Q And the same kind of determination of consistency?

22 A Yes. That is to reference it. It is in our  
23 written testimony.

24 Q Okay. Now if Ebasco initiates the DCN, then would  
25 Ebasco okay it or would somebody else have to okay it, too?



Sim 10-6

1 A All of our DCN's are sent to CP&L for their  
2 approval, just as the original design drawings were.

3 Q All right. Mr. McLean, in Answer 19 it says an  
4 FCR is seldom denied. Do you have any idea what percentage  
5 are denied?

6 A (Witness McLean) Well, let me explain what I mean  
7 by denied.

8 Q Yes, sir.

9 A That is in FCR's they can answer it with the "not  
10 approved." Quote often the engineer may disagree with the  
11 proposed recommendation and write a conditional approval. I  
12 can't give you a figure on a percentage, the times that  
13 may happen. But as far as the percentage of time that an  
14 FCR is just denied, that is marked "not approved," I would  
15 say that is certainly less than five percent of the time, and  
16 I really think I could safely say less than that.

17 Q Okay. And if they don't approve it fully, they  
18 can write condition approval?

19 A That is correct.

20 Q And that would specify the conditions and then that  
21 would go through review just like an approval, right?

22 A That would be in accordance with the design  
23 engineering procedures.

24 Q Now that is the alternate resolution that you are  
25 talking about? Is that what a conditional approval might

Sim 10-7

1 be? In other words, if the design engineer does not agree  
2 with the resolution proposed by construction engineering, the  
3 design engineer should provide an alternate resolution? Is  
4 that what the conditional approval is?

5 A Yes. And it may also be partial approval just as  
6 you said earlier. It could be either a completely different  
7 solution or it could be partial approval of the solution that  
8 was recommended by the construction engineer.

9 Q Okay. But the design engineer can either do that  
10 or outright disapprove it?

11 A He can out right disapprove it.

12 Q Right. If work stops, then what happens? If it is  
13 outright disapproved and work stops, what is the next thing  
14 that happens?

15 A Well, in some cases we can proceed with the  
16 original installation. As I have stated in here, if you have  
17 have a reason, for say economic reasons you want to do some-  
18 thing different and the design engineer says no, you cannot  
19 do it that way, and he flatly disapproves the FCR, you can  
20 still put it in as it was originally designed.

21 Now if we have a problem where it cannot go in  
22 as originally designed and we write an FCR, if he were to  
23 deny it without any alternate resolution, then work just  
24 stops and we don't go anywhere.

25 We don't have procedures to cover an impossible

Sim 10-8

1 situation. Obviously what we would do would be to go back  
2 to the engineer and make sure that he thoroughly understood  
3 that he was preventing work from occurring and certainly he  
4 would be responsible and give us an alternate solution.

5 Q So you would seek an alternate solution again  
6 in that situation, right?

7 A That is correct.

8 Q Now the inspection point specified, as discussed in  
9 Answer 20, those have to be met; is that correct?

10 A Yes.

11 Q And then for the instalations where you can't  
12 specify them, that is what is discussed in the rest of that  
13 answer, right?

14 A The condition in your question was incorrect. You  
15 said to where we can't specify them. I think what you were  
16 meaning to say is where we cannot have the process control  
17 sheet, or use a process control sheet that predesignates them.

18 Q Right. So they haven't been predesignated, and  
19 then they are designated during installation. Is that the  
20 idea?

21 A No. Let me explain this a little more carefully.  
22 Exhibit 1 to WP-105 that you asked me some questions about  
23 earlier, is primarily designed for a piece of equipment that  
24 installs by setting it on anchor bolts, shimming and grouting  
25 it, or setting it on embeds and welding it. These are very

Sim 10-9

1 type of installations. So we prepared a form that would  
2 allow us to check all of the quality aspects on those type  
3 of installations.

4 Let's imagine that we are setting something that  
5 doesn't fall into that category such as a crane. If you are  
6 setting a crane, you have got to set it on the rails and you  
7 have to make sure that it rides the rails correctly, the  
8 rails are a certain distance apart, the crane is square with  
9 respect to the rails. There are numerous checks that you would  
10 make that we couldn't predesignate for every piece of equip-  
11 ment on a job.

12 Therefore, we have a form that we prepare and we  
13 predesignate prior to the installation, but it is not pre-  
14 designated in the procedure.

15 Q I see. So you actually do predesignate on the form  
16 even in that case?

17 A Even in that case; that is correct.

18 Q And as with the standard procedure, if at any hold  
19 point it is not accepted, then you have to go back and  
20 resolve that, right?

21 A Yes.

22 Q Okay. Can you tell me how much of the safty  
23 related electrical equipment for which orientation is a  
24 concern has now been installed at the Harris plant? Can you  
25 estimate that?

Sim 10-10

1 A We have completed the installation of approximately  
2 1300 pieces of equipment out of a total of 1700. Of those  
3 pieces of equipment I couldn't tell you how much was  
4 electrical. Orientation is in most cases on electrical  
5 equipment not a major concern. It has to be installed in its  
6 correct location and the orientation is obvious. It is by  
7 its design.

8 Q Okay. So about three out of four pieces of all  
9 equipment have been installed, and you are not sure how many  
10 of those are orientation sensitive electrical equipment?

11 A Correct.

12 Q Is that right?

13 A Three out of four is correct.

14 MR. O'NEILL: Mr. Chairman, that question was  
15 just asked and answered, and this is getting repetitious.  
16 I think we could move along without him repeating himself  
17 each time.

18 MR. EDDLEMAN: I have one more question I think and  
19 then I will be done with this panel.

20 JUDGE KELLEY: Okay.

21 MR. EDDLEMAN: Well, I am wrong about that, but  
22 just a couple more.

23 BY MR. EDDLEMAN:

24 Q The discrepancy nonconformance reports and so on,  
25 those are QA records that have to be retained?

Sim 10-11

1 A (Witness McLean) That is correct.

2 Q And those would be something you could look up in  
3 the files on the equipment even if though they might not  
4 be referenced directly in the qualification package, right?

5 A You could look it up in files. I don't not know  
6 if QA files them with the equipment. I don't know how they  
7 file them.

8 Q All right. It says reporting potential problems  
9 is encouraged by management in the middle of Answer 22 on  
10 page 13. Are there any factors that you know of on the  
11 job at Harris that work against that, that tend to discourage  
12 it despite management's encouragement?

13 A No. I can't think of any factors where management  
14 does not encourage or the job itself does not encourage  
15 reporting problems.

16 Q So, in other words, anybody who reports a problem,  
17 if anything, it would help them rather than do them any  
18 harm to have reported it?

19 A That is correct.

20 Q All right. Would the tolerances for the lineup  
21 of a shaft on a pump be an orientation problem, in your view?

22 A No.

23 MR. EDDLEMAN: All right. I have no further  
24 questions of this panel.

25 Thank you.

Sim 10-12

1 JUDGE KELLEY: Thank you.

2 I would just like to leave a Board question with  
3 the parties because it is more a legal question and you  
4 might think about it over the lunch if you don't have a ready  
5 answer.

6 In my sort of quick reading of 50.49 this morning  
7 I don't see any explicit reference to physical orientation.  
8 And physical orientation doesn't come within my sort of  
9 normal understanding of the term "environment," and I am  
10 just wondering why we are considering physical orientation  
11 under the heading of environmental qualification.

12 Maybe we can speak to that after lunch. I will just  
13 say it now.

14 Why don't we take a break until 25 of 2.

15 MR. McNEILL: Mr. Chairman?

16 JUDGE KELLEY: Yes.

17 MR. McNEILL: Mr. McLean has got a very, very busy  
18 schedule. I don't have any redirect. Depending on how many  
19 questions the Board has, it would be certainly beneficial  
20 if we could excuse him.

21 JUDGE KELLEY: Let me check with the staff.

22 Does the staff have questions of the panel of  
23 Mr. McLean?

24 MS. MOORE: No, Your Honor.

25 (Board conferring.)

Sim 10-13 1

JUDGE KELLEY: I think we can excuse the panel

2 then.

3

Gentlemen, thank you very much.

4

You are excused. I think Mr. Pagan and Mr. Bucci

5

are going to be back on something else, right?

6

(Mr. Pagan and Mr. Bucci nodding affirmatively.)

7

JUDGE KELLEY: Mr. McLean, we appreciate your

8

coming.

9

Lunch break.

10

(Whereupon, at 12:35 p.m., the hearing recessed,

11

to reconvene at 1:35 p.m., the same day.)

12

end take  
end Sim

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(1:35 p.m.)

AFTERNOON SESSION

JUDGE KELLEY: Back on the record.

MS. FLYNN: The Board will recall during the management hearing, Mr. McDuffy discussed the fact that CP&L's management was reviewing the schedule of the Harris construction project, and that there were some items that were behind, and the schedule might have to be adjusted.

The Company will be announcing today, and this has not been made public yet, but we are anxious for the Board to know everything as soon as possible, that management will be recommending a schedule change to the Board of Directors, and these dates are subject to approval by the Board.

They are that the commercial operation date will be September 1986. It is currently schedule for March 1986, with fuel load in March of 1986.

JUDGE KELLEY: Fuel load in March of '86, as opposed to previously June of '85?

MS. FLYNN: That is correct.

JUDGE KELLEY: Appreciate your bringing that to the Board's attention. We had some indication of that back in the last hearing, and this nails it down, and we undertand that is subject to approval by the Board.

MS. FLYNN: Thank you.

1 JUDGE KELLEY: Before we go to the next panel, just  
2 a couple of things.

3 I left one question hanging, and I just wanted to  
4 hear briefly from the parties and counsel. How we get into  
5 the physical orientation problem, as an aspect of environmental  
6 qualification.

7 Is that something that is really pretty clear, and  
8 if so, why? Applicants?

9 MR. O'NEILL: It is clear that a good engineering  
10 practice is to ensure the orientation with respect to  
11 environmental qualification. IEEE standard 323 --

12 JUDGE KELLEY: Wait a minute, I lost you. I  
13 thought you were going to say it is clear you should get the  
14 orientation right as a matter of putting something into a  
15 plant. Sure, that is obvious, I think.

16 How does it come to be environmental qualification  
17 within the meaning of the NRC term?

18 MR. O'NEILL: That is where I am going.

19 JUDGE KELLEY: Okay.

20 MR. O'NEILL: IEEE Standard 323 addresses directly  
21 at Section 6.3 that installed condition should reflect the  
22 testing condition for environmental qualification.

23 IEE Standard 323 is endorsed by Reg Guide 1.89, and  
24 is also referenced in NUREG 0588. NUREG 0588, which was a  
25 precursor to 10 CFR 50 49, and is referenced in 50 49, and

1 is referenced in the statement of considerations in the final  
2 rule that was released by the Commission.

3           Therefore, when technical people go through their  
4 review with respect to environmental qualifications, certainly  
5 orientation, physical orientation is one of the things they  
6 take into consideration. This is the hip bone connected to the  
7 neck bone sort of approach.

8           JUDGE KELLEY: Okay. It is -- in so many words,  
9 it is not in 50 49 as far as I can tell.

10           MR. O'NEILL: That certainly is correct.

11           JUDGE KELLEY: The Staff, I understand, takes the  
12 position that it is properly considered as an aspect of that.  
13 Do you agree essentially with what Mr. O'Neill said?

14           MS. MOORE: Yes. I would also add that the  
15 statements of consideration also reference Reg Guide 1.89  
16 as providing the methodology acceptable to the Staff for  
17 meeting 50.49, and that, as Mr. O'Neill said, 1.89 references  
18 IEEE 323.

19           JUDGE KELLEY: Mr. Eddleman?

20           MR. EDDLEMAN: I have nothing to add. I left my  
21 stuff on that at home, and I wouldn't want to have to run back  
22 and get it.

23           JUDGE KELLEY: That is fine. It ties us down on  
24 something that was sort of pre-floating in my mind. But  
25 that is fine. I appreciate that.

1           We have given a little more thought to the questions  
2 raised this morning about the scope of 41 with reference  
3 to three different topics, and I wanted to ask the parties  
4 a question about it.

5           Now, the three topics again are: Materials trace-  
6 ability, production pressure -- if I can just choose a phrase  
7 out of paragraph 25 -- and deficiencies in documentation of  
8 a sort of general sort.

9           And the question is whether the parties in the course  
10 of discovery under 41 discovered on those particular topics  
11 -- I don't know whether you remember or not, it seems to me  
12 insofar as scope of contention, it has something to do with  
13 notice.

14           If you conducted discovery, that would mean you at  
15 least thought about it. If you didn't, that might suggest  
16 that you didn't. And I wondered -- can you respond to that,  
17 Mr. Eddleman?

18           MR. EDDLEMAN: I don't have my 41 discovery here.  
19 I have it a little closer than home, but I can't respond  
20 specifically. I don't recall off the top of my head stuff  
21 on this. I think the problem I had in discovery was whatever  
22 I asked, usually the Applicants would try to construct the  
23 contention as narrowly as possible and object. I know we  
24 went through some Motions to Compel on 41, but I can't recall  
25 whether any of this was involved in it.

11-5-Wal

1 JUDGE KELLEY: Okay. Mr. -- would it be Mr. O'Neill  
2 for that, or Mr. Baxter?

3 MR. BAXTER: I am relatively certain that there was  
4 no discovery about material traceability or pressure on  
5 inspectors. Documentation certainly was the subject of  
6 inquiry, and Mr. Eddleman was trying to gain an understanding  
7 of what the various forms and papers were that we used to  
8 document our inspections and the results of the inspections,  
9 and how engineering interacted with that.

10 But -- and weld symbols on drawings were part of the  
11 initial basis for the contention. But nothing that I -- I  
12 can't tell what Mr. Chan is talking about when he says  
13 documentation. So, I can't relate it very well.

14 But naturally, on any construction QA issue like  
15 this, you get into a lot of things about documentation.

16 JUDGE KELLEY: I don't think in paragraph 26 he  
17 explicitly ties it to the pipe hanger welds. He is just  
18 speaking generally about alleging deficiencies in documentation  
19 of one kind or another, but do you have any recollection on  
20 that, the Staff, Mr. Barth or Ms. Moore?

21 MR. BARTH: Mr. Chairman, the Staff conducted no  
22 discovery at all regarding traceability of materials used on  
23 pipe hangers, as it was not within the purview of the contention  
24 in our view.

25 We conducted no discovery, and in terms of

11-6-Wal

1 paragraph 25 of the Van Vo affidavit quotes the QA for the  
2 entire Shearon Harris plant.

3 We felt that was beyond the scope of any contention.  
4 And we conducted no discovery at all regarding pressure on  
5 inspectors, as in our view that is not raised in any of the  
6 contentions, Your Honor.

7 JUDGE KELLEY: Okay.

8 MR. BARTH: Okay. I would like to recall, Your  
9 Honor, at the first prehearing conference, which was held,  
10 and it was raining in Raleigh, and it was something like three  
11 years ago. This matter was raised when we had the prehearing  
12 conference in the Government buildings.

13 And at that time, the interveners were not then  
14 interveners; they were trying to become interveners. They  
15 raised the issue of improper pressure upon inspectors, and  
16 at that time, the transcript will reflect that I then  
17 informed them that any proper, improper pressure or suppression  
18 of information was certainly disclosable to the NRC, and should  
19 be disclosed right then and there.

20 I think that you should bear that in mind. There  
21 has been full adequate warning that any impropriety should  
22 have been brought to the attention of the NRC. And this was  
23 at the very first prehearing conference we had, Your Honor.

24 JUDGE KELLEY: Okay. That is helpful. Let me just  
25 suggest, Mr. Eddleman, if you have got time, and you want to

11-7-Wal

1 look into it, you might take a look this evening and see if you  
2 can find discovery under 41 that went to these topics.

3 MR. EDDLEMAN: I don't think it would be practical  
4 for me to get hold of that stuff this evening, and do what else  
5 I have to do, but I will try the best I can.

6 Let me just tell you what I remember when Mr. Baxter  
7 was talking. There is reference in the 12,000 pages of weld  
8 data reports I believe they are called for pipe hangers at  
9 Hzrris.

10 There is reference in there to checks against  
11 material. I think some of them had little pieces clipped on  
12 them that said: Material status submitted; or, material  
13 status verified.

14 In other words, it wasn't that I specifically asked  
15 about it, but I believe it is in the documents.

16 JUDGE KELLEY: I guess I was asking in order to find  
17 out whether you could then look at discovery and conclude that  
18 both affected parties, or all three affected parties, realize  
19 if something was a valid topic within a contention, and treated  
20 it as such.

21 The fact that materials traceability might have gotten  
22 mentioned in some paper you got back from the Applicants  
23 wouldn't necessarily prove that, I wouldn't think.

24 MR. EDDLEMAN: No, I don't think so. Let me put it  
25 this way: I don't think there was any digging into this

11-8-Wal

1 through questions in discovery. I don't think so. I would have  
2 to look to be absolutely certain. I can try to check on that,  
3 but it is not my recollection.

4 Discovery was concluded, oh, I don't know, some time  
5 in April or May, when the last documents came in, as best I  
6 recall.

7 And I don't recall these issues being raised up to  
8 that time anyway.

9 JUDGE KELLEY: Well, we are willing to take your  
10 recollection on it. It is just that when we think about it,  
11 and we are ruling on the scope question, if in fact the parties  
12 had active discovery on the very point at issue, then it seems  
13 to us has something to do with whether it is in or its is out.

14 What we are hearing right now is to the best of  
15 collective recollections, it was not -- these were not topics  
16 of active discovery, and we can take that factor into account  
17 in our analysis of the legal problem we are looking at.

18 MR. EDDLEMAN: Let me say one thing. I think there  
19 was a general question I threw in, something like: Do you  
20 have any documents that contradict this? And the anser to  
21 tht always came back, no.

22 That is not a specific thing about documentations.  
23 That is the only one that I recall.

24 JUDGE KELLEY: Okay, thank you. Anything else before  
25 we pick up with the next panel?



1 Mr. O'NEILL: I would like to have one issue that  
2 was raised by Mr. McLean clarified for the record before we  
3 take up the next subject, if I could.

4 JUDGE KELLEY: Okay. Would that be by you?

5 MR. O'NEILL: No, I will just have, --

6 JUDGE KELLEY: So we are still on the prior sub-part,  
7 essentially?

8 MR. O'NEILL: Yes. Mr. Yandow has previously been  
9 sworn.

10 JUDGE KELLEY: All right.

11 MR. O'NEILL: Mr. Yandow, do you have any clarification  
12 with respect to Mr. McLean's statement that all changes on  
13 design drawings are made by EBASCO?

14 MR. YANDOW: Yes. We have recently started to  
15 receive the original design drawings from EBASCO, and started  
16 to make changes on our own. This is CP&L now. I might add  
17 that is an on-going process in the evolution of a plant  
18 where we are starting to take over the design control of the  
19 drawings.

20 At this point, the drawings are all being done  
21 -- any drawings we receive and are changing are being also  
22 sent back to EBASCO for their review also, and concurrence.

23 MR. O'NEILL: Thank you. I just wanted to make  
24 sure the record was clear on that. Mr. McLean was not aware  
25 of it.

1 JUDGE KELLEY: Appreciate that. Thank you.  
2 So, can we -- I believe we have met everybody already.  
3 Whereupon,

4 RICHARD M. BUCCI,

5 EDWIN J. PAGAN,

6 and

7 PETER M. Y ANDOW,

8 resume the stand, and having previously been duly sworn,  
9 testify as follows:

10 MR. O'NEILL: For the record, Mr. Yandow has joined  
11 this panel.

XXXX INDEX

12 DIRECT EXAMINATION

13 BY MR. O'NEILL:

14 Q Gentlemen, Do you have before you a written statement  
15 that was filed with the Board and the parties in this proceeding  
16 on August 31, 1984?

17 A (Collectively) Yes.

18 Q Mr. Tandow , will you please identify that document  
19 for the record?

20 A (Witness Yandow) The document is Applicant's testimony  
21 of Richard M. Bucci, Edwin J. Pagan and Peter M. Yankow in  
22 response to Eddleman Contention 9F (Lubricants and seals)

23 Q And does that document consist of eight pages of  
24 questions and answers?

25 A (Collectively) Yes.

1 Q Was this testimony prepared by you or under our  
2 supervision?

3 A (Collectively) Yes, it was.

4 Q Are each of your answers identified by your initials?

5 A (Collectively) Yes, they are.

6 Q If you will turn to page 4, and to page 6 of your  
7 prefiled written statement, there appears a blank after  
8 Applicants Exhibit. Should that blank be filled in with the  
9 numeral 8 for Applicants Exhibit 8 in both cases?

10 A (Witness Pagan) Yes, it should.

11 Q Do you have any other changes or corrections to make  
12 to your prefiled written statement?

13 A (Collectively) No.

14 Q Is your statement then true and accurate to the best  
15 of your knowledge, information, and belief?

16 A (Collectively) Yes.

17 MR. O'NEILL: Mr. Chairman, I move that the  
18 Applicants testimony of Richard M. Bucci, Edwin J. Pagan, and  
19 Peter M. Yandow in response to Eddleman Contention 9F,  
20 (Lubricants and Seals) be incorporated into the record as if  
21 read, and received into evidence.

22 JUDGE KELLEY: Motion granted.

23 (Prefiled testimony follows)

24

25

August 31, 1984

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

In the Matter of )  
 )  
CAROLINA POWER & LIGHT COMPANY ) Docket No. 50-400 OL  
and NORTH CAROLINA EASTERN )  
MUNICIPAL POWER AGENCY )  
 )  
(Shearon Harris Nuclear Power )  
Plant) )

APPLICANTS' TESTIMONY OF RICHARD M. BUCCI,  
EDWIN J. PAGAN AND PETER M. YANDOW  
IN RESPONSE TO EDDLEMAN CONTENTION 9F  
(LUBRICANTS AND SEALS)

Q.1 Please state your names.

A.1 Richard M. Bucci, Edwin J. Pagan and Peter M. Yandow.

Q.2 Mr. Bucci and Mr. Pagan, are your addresses, occupations, employers, educational backgrounds and professional work experiences described elsewhere in the record of this proceeding?

A.2 (RMB, EJP) Yes, the relevant information is provided in "Applicants' Testimony of Richard M. Bucci and Edwin J. Pagan in Response to Eddleman Contention 9D (Instrument Cables)."

Q.3 Mr. Yandow, are your address, occupation, employer, educational background and professional work experience described elsewhere in the record of this proceeding?

A.3 (PMY) Yes, the relevant information is provided in "Applicants' Testimony of Robert W. Prunty and Peter M. Yandow in Response to Eddleman Contention 9 (Environmental Qualification of Electrical Equipment)."

Q.4 What is the purpose of this testimony?

A.4 (RMB, EJP, PMY) The purpose of this testimony is to respond to Eddleman Contention 9F, which states:

The effects of radiation on lubricants and seals have not been adequately addressed in the environmental qualification program.

Q.5 How is your testimony organized?

A.5 (RMB, EJP, PMY) First, we provide background information on lubricants and seals used in safety-related

electrical equipment for the SHNPP. Second, we discuss how Ebasco assures that the effects of radiation on lubricants and seals used in safety-related electrical equipment which it supplies for SHNPP are adequately addressed. Then we describe CP&L's program to assure that the effects of radiation on lubricants used in non-Ebasco supplied safety-related electrical equipment are adequately addressed.

Q.6 What is a lubricant?

A.6 (PMY) A lubricant is an oily or greasy substance which provides a near-frictionless film on two or more surfaces which roll, rub or rotate against each other.

Q.7 What kinds of safety-related electrical equipment at the SHNPP use lubricants?

A.7 (PMY) Motors, valve operators and pumps are three examples of safety-related electrical equipment which use lubricants.

Q.8 What is a "seal," as addressed in Eddleman Contention 9F?

A.8 (PMY) A seal is a device -- static or dynamic; metallic or organic -- that prevents foreign substances from entering equipment or retains a required substance within the equipment.

Q.9 What kinds of safety-related electrical equipment at SHNPP have seals?

A.9 (PMY) Transmitters, valve operators, pumps and resistance temperature detectors are examples of safety-related electrical equipment which have seals.

Q.10 What safety-related electrical equipment does Ebasco supply for the SHNPP?

A.10 (RMB, EJP) Ebasco supplies all balance-of-plant ("BOP") safety-related electrical equipment for SHNPP, i.e., equipment which is not part of the Nuclear Steam Supply System ("NSSS"). This equipment is listed in Table 3.11.0-2 of the Shearon Harris Nuclear Power Plant Final Safety Analysis Report ("FSAR") (Applicants' Exhibit *8*).

Q.11 How are lubricants and seals in BOP safety-related electrical equipment environmentally qualified for radiation effects?

A.11 (RMB; EJP) All BOP safety-related electrical equipment for SHNPP which is located in a harsh environment is qualified by test. Equipment which normally contains lubricants or seals is tested with those components as part of the equipment.

Qualification testing consists of accelerated thermal aging, irradiation, and a design basis accident simulation (if applicable). During the irradiation portion of the testing program, electrical equipment is irradiated as a whole, including any seals or lubricants. The qualification test reports identify the radiation dose to which the equipment is exposed. In every case, the radiation exposure of the electrical equipment during testing exceeds the maximum total integrated radiation dose to which the equipment could be exposed over its qualified life. The required radiation exposure is based on

normal operating conditions, design basis accident conditions (if applicable), and post-accident conditions (if applicable). (Not all safety-related electrical equipment is located in areas of the plant which will be subjected to accident and/or post-accident conditions.)

Q.12 How does Ebasco assure that the lubricants and seals tested are the same as the lubricants and seals supplied or recommended by the vendor?

A.12 (RMB, EJP) For BOP equipment, Ebasco reviews the vendor test reports to identify organic components of the tested equipment, including lubricants and seals. Ebasco compares the lubricants and seals identified in the test report to the lubricants and seals supplied or recommended by the vendor in order to verify that they are the same.

Q.13 What steps are taken if lubricants or seals are not identified in the test report, or if there is a discrepancy between the lubricants or seals identified in the test report and those recommended by the vendor?

A.13 (RMB, EJP) If there is a discrepancy, ambiguity or omission concerning the identification of a lubricant or seal which was tested, supplied or recommended by the vendor, Ebasco then attempts to resolve the open item by requesting additional information from the vendor. If the vendor cannot demonstrate that the lubricant or seal supplied or recommended is the same as that tested, corrective action is required to qualify the different components. Any corrective actions must be documented in the environmental qualification package.



Q.14 Who supplies the NSSS safety-related electrical equipment for SHNPP?

A.14 (PMY) Westinghouse supplies this equipment, which is listed in FSAR Table 3.11.0-1. (Applicants' Exhibit 8).

Q.15 Are lubricants and seals used in NSSS safety-related electrical equipment?

A.15 (PMY) Yes, some NSSS safety-related electrical equipment use lubricants and seals. Either metallic seals, which are not degraded by the environmental conditions for which electrical equipment must be qualified, or organic seals, which are qualified as part of the equipment tested, are used.

Q.16 How are lubricants in NSSS safety-related electrical equipment environmentally qualified for radiation exposure?

A.16 (PMY) Westinghouse does not identify the specific lubricants used during testing. Rather, Westinghouse recommends a general type of lubricant and provides the specifications the lubricant must meet to assure operability of the equipment.

Therefore, CP&L has contracted for and received a lubrication study performed for the SHNPP by the Mobil Oil Company, a leading lubricant vendor. The purpose of the study was to identify, for each piece of electrical equipment which requires lubrication, the specific brands of lubricants which can be used with that equipment. CP&L currently is reviewing the adequacy of the study.

In the study, the results of radiation stability

testing is provided. Radiation stability testing included standard performance tests which were conducted both before and during irradiation to measure the effects of radiation. For each lubricant to be used in a piece of NSSS electrical equipment, the radiation dose received during lubricant testing will be compared to the total integrated dose which the equipment must be qualified to receive at SHNPP. The radiation dose received during testing must be higher than the dose for which the equipment is required to be qualified. In addition, the performance of the lubricant during testing will be reviewed to verify that the equipment manufacturer's lubricant performance specifications have been met.

Q.17 How will information regarding the qualification of lubricants for radiation exposure be documented?

A.17 (PMY) CP&L will develop an environmental qualification package which will document the tests described in the lubricant study, as well as the analyses which apply the test results to specific electrical equipment at SHNPP.

Q.18 In conclusion, have Applicants adequately addressed the effects of radiation on lubricants and seals in their environmental qualification program?

A.18 (RMB., EJP, PMY) Yes. For lubricants and seals in Ebasco supplied BOP safety-related electrical equipment, the seals and lubricants are exposed to radiation during qualification tests as components of the electrical equipment tested. Ebasco verifies that the seals and lubricants supplied with

safety-related electrical equipment are the same as those tested. Seals in NSSS safety-related electrical equipment are either metallic seals, which need not be qualified, or organic seals, which are qualified as part of the equipment tested. CP&L has contracted for a lubricant study to qualify lubricants to be used in NSSS safety-related equipment and elsewhere in the SHNPP, including qualification for radiation exposure.

1 BY MR. O'NEILL: (Continuing)

2 Q Mr. Bucci and Mr. Yandow, would you please  
3 summarize this testimony?

4 A (Witness Bucci) The purpose of our testimony is to  
5 address Eddleman Contention 9F which states: The effects of  
6 radiation on lubricants and seals have not been adequately  
7 addressed in the environmental qualification program.

8 We disagree with the allegations in this contention  
9 because EBASCO supplied electrical equipment, seals and  
10 lubricants are exposed to radiation during the qualification  
11 tests as components of the equipment tested.

12 In our testimony, we provide background information  
13 on lubricants and seals used in electrical equipment at Shearon  
14 Harris nuclear power plant.

15 Secondly, we discuss how EBASCO assures that the  
16 effects of radiation on lubricants and seals are adequately  
17 addressed.

18 Mr. Yandow now will describe the program for  
19 addressing the effects of radiation on lubricants and seals  
20 for NSSS supplied electrical equipment.

21 A (Witness Tandow) My testimony discusses how  
22 lubricants and seals and NSSS safety-related electrical  
23 equipment are environmentally qualified.

24 Seals are qualified by Westinghouse as part of the  
25 equipment tested. Testing includes radiation testing.

1           With respect to lubricants and NSSS safety related  
2 electrical equipment, the Mobile Oil Company has performed  
3 a lubrication study based on testing, including radiation  
4 testing, independent of Westinghouse in order to identify  
5 specific brands of lubricants which are qualified for use  
6 with each piece of electrical equipment.

7           CP&L presently is evaluating the Mobile Study. The  
8 results of that evaluation will be documented in equipment  
9 qualification package, which will be available for the NRC  
10 Staff's review.

11           In conclusion, our testimony shows that the  
12 Applicant has adequately addressed in our QE program, the  
13 effects of radiation on lubricants and seals.

14           MR. O'NEILL: Thank you, gentlemen. This panel  
15 is available for cross examination.

16           JUDGE KELLEY: Mr. Eddleman?

17 End 11.  
18 SueT folws.

19

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#12-1-SueT1

## CROSS EXAMINATION

2

BY MR. EDDLEMAN:

INDEXXXX

3

Q Mr. Yandow, before we get into this panel I did have a question, or maybe it's a clarification, concerning what you just brought out in response to Mr. O'Neill before we started this panel.

4

5

6

7

You said, I believe, that now all of your design changes that you would approve at the plant on drawings would be referred to Ebasco for concurrence, right?

8

9

10

A (Witness Yandow) What I stated was that there are design drawings now being changed by personnel on the -- who work at CP&L. But those changes are also being sent back to Ebasco for their review.

11

12

13

14

Q Okay. Is it contemplated in the evolution of this system that at some point Ebasco would not be doing the review on those?

15

16

17

A I could -- I can only hypothesize. I can think that that probably could happen, yes. But it will not be for quite a while.

18

19

20

Q And it's not planned?

21

A Not that I'm aware of.

22

Q And can you put kind of a number of months or years on quite a while there, or is that just a general feeling?

23

24

MR. O'NEILL: Objection. This question has no relevance to either set of testimony. It's more curiosity if

25

#12-2-SueT 1 anything.

2 MR. EDDLEMAN: I think if it might change before  
3 the plant goes on line, it's relevant.

4 JUDGE KELLEY: Would you repeat it, please?

5 MR. EDDLEMAN: The question was, in regard to your  
6 previous answer that such a change of Ebasco not revealing  
7 the changes made by the Harris plant site wouldn't happen for  
8 some time. I may have misphrased that.

9 But --

10 JUDGE KELLEY: I thought we started on lubricants.  
11 Now, are we back on --

12 MR. EDDLEMAN: I started in asking about Mr. O'Neill's  
13 question. I didn't get in on that when I started to, when he  
14 did it.

15 JUDGE KELLEY: Well, Mr. O'Neill made his clarifica-  
16 tion through Mr. Yandow and I thought that was the end of that.

17 Did you want to ask a question about that?

18 MR. EDDLEMAN: That's what I was doing, yes.

19 JUDGE KELLEY: All right, go ahead.

20 BY MR. EDDLEMAN: (Continuing)

21 Q Mr. Yandow, do you recall the question?

22 A (Witness Yandow) It would not occur before fuel  
23 load. I'm definite about that.

24 Q Is that fuel load under this schedule that Ms. Flynn  
25 just mentioned or --

#12-3-SueT1

MR. O'NEILL: Objection. There is no relevance to this line of questions. He has asked three questions, and now he has gone into what if at some point --

MR. EDDLEMAN: This is not a what if. It's a question of what he means by fuel load.

JUDGE KELLEY: All right, gentlemen. As I understand it, you've got a question or two on the clarification made after lunch on the prior panel's testimony, correct?

You got an answer on when or whether Ebasco would start or stop doing something, correct? Making changes in design. And the question is when is that going to happen and the answer was fuel load. And the next question was which fuel load.

And that seems fair enough. We will just change the fuel load by many months. Which fuel load did you have in mind, June or March? June '85 or March '86?

WITNESS YANDOW: I was speaking of June '85, since I didn't know about the fuel load change until just a few minutes ago myself.

MR. EDDLEMAN: Okay. That's it.

JUDGE KELLEY: Okay. Now, go on to the next one.

BY MR. EDDLEMAN: (Continuing)

Q With respect to your testimony as a panel on the Contention 9.F, lubricants and seals, let me ask you this. Your qualifications have been stated before. Are any



#12-4-SueT 1 of you -- do any of you have a background in lubrication  
2 engineering or that sort of thing?

3 A (Witness Bucci) Would you clarify what you mean  
4 by that sort of thing?

5 Q Well, let's ask it first, do any of you have a  
6 background specifically in lubrication engineering?

7 A (Witness Pagan) No.

8 (Witness Bucci) No.

9 (Witness Yandow) Not in lubrication engineering,  
10 no.

11 Q All right. Now, as --

12 A (Witness Bucci) I assume you mean a degree or  
13 working --

14 Q Or work experience, yes.

15 A Not lubrication as it applies to electrical engineer-  
16 ing or environmental qualification?

17 Q I'm speaking of lubrication in general.

18 A Yes. I have experience with lubrication in  
19 general.

20 Q Ah --

21 A As it applies to environmental qualification, for  
22 example.

23 Q So, you then have, oh, an academic or a work back-  
24 ground in the properties and testing of lubricants for  
25 environmental qualification; is that what you are saying?

#12-5-SueT 1

A Yes.

2 Q And what does that consist of?

3 A My experience as explained in previous testimony  
4 on environmental qualification.5 Q Well, let me see. Does your first occur under --  
6 I'm trying to look here.

7 Is that 9.D? Is that where yours appears?

8 A Yes.

9 Q All right. If we can refer to that since it is  
10 referenced in this testimony on F, can you tell me where in  
11 this it refers to lubrication experience?

12 It's in the first three pages, as I read it.

13 A Qualification of lubricants is -- and testing of  
14 lubricants is part of environmental qualification. It's  
15 part of the environmental qualification program which I  
16 state I was involved in on Shearon Harris project and in other  
17 ways at Ebasco.18 Q And that reference is the statement toward the top  
19 of Page 3 of the 9.D testimony where your qualifications are  
20 given? One of these activities was the implementation of the  
21 environmental qualification program for all electrical equip-  
22 ment?

23 A Yes.

24 Q All right. And have you attended any course, taken  
25 any seminars, anything like that specifically on lubricant

#12-6-SueT1

qualification testing?

2           A       Lubricant qualification testing wasn't the only  
3 subject at seminars I attended. It was one of the topics.  
4           My experience is as stated.

5           Q       Well, I guess -- what I'm trying to get at there  
6 is that the word "lubrication" is not used in your stated  
7 qualifications, is it?

8           A       No.

9           Q       Okay. So, the only way I can find out what your  
10 qualifications are in that area is by asking about them,  
11 right?

12          A       In which area?

13          Q       Lubrication.

14          A       Yes.

15          Q       Okay. Now, let's go back to the 9.F testimony if  
16 we may. With regard to the background information on lubricants  
17 and seals, this is Answer 5 in Pages 2 and 3 on 9.F, is there  
18 a list of those lubricants and seals in any of the documenta-  
19 tion either attached to this testimony or in Applicants'  
20 Exhibit 8?

21          A       (Witness Yandow) No.

22          Q       Okay. Why not?

23          A       As is stated in the testimony, it's usually part of  
24 the test report for the equipment. We don't list everything in  
25 the equipment in that list. That's a general list of just the

#12-7-SueT 1 equipment that's covered. We don't list the relays and every-  
2 thing else that's in that. That lubricant is part of that.

3 Q Uh-huh. Was there any indication in Exhibit 8 or  
4 anywhere else as to which of these things have lubricants and  
5 seals?

6 A (Witness Pagan) No.

7 Q Okay. Is that correct, Mr. Yandow?

8 A (Witness Yandow) Not that I'm aware of.

9 (Witness Bucci) It's stated in our testimony which  
10 equipment typically has lubricants and seals.

11 Q What I'm saying, it's not in the exhibit, right?

12 A (Witness Pagan) The exhibit is just a list of  
13 equipment as a whole. It doesn't break the individual equip-  
14 ment items to a component level.

15 Q Right.

16 A And lubricants would be considered a component  
17 level of that equipment.

18 Q Okay. So what you are saying is, for example, if  
19 I've got a pump and the pump is listed on the list -- that's  
20 the item of equipment. The lubricant that is used in the pump  
21 or the various lubricants are components of it for purposes of  
22 this testing; is that right?

23 A In effect.

24 (Witness Yandow) Yes. In electrical, it would be  
25 the motor, not the pump.

#12-8-SueT 1

2 Q Right. Okay. But, now if the -- to try to pin  
3 this down, if the lubricant on the pump part of it failed  
4 and put an additional stress on that motor, that could have  
5 an adverse effect on the qualification of the motor, right?

6 MS. MOORE: Objection, Your Honor. I don't under-  
7 stand the question.

8 I believe the witness just testified that in  
9 electrical equipment we were talking about a motor. I'm not  
10 sure that a relationship has been established between a pump  
11 and a motor.

12 And to avoid confusion, I would request that Mr.  
13 Eddleman be required to do that.

14 MR. EDDLEMAN: Well, I thought that that was what  
15 Mr. Pagan was talking about when he said that you just took  
16 the item of equipment and didn't break it down component by  
17 component.

18 JUDGE KELLEY: I have the sense that we are not  
19 involved in a crucial distinction here. Can you rephrase it,  
20 Mr. Eddleman?

21 MR. EDDLEMAN: I will try.

22 BY MR. EDDLEMAN: (Continuing)

23 Q Gentlemen, are devices in which the electrical  
24 equipment is a motor and powers something else, tested as  
25 an entire device or is the motor tested separately?

A (Witness Bucci) It could be done either way.

#12-9-SueT 1

Q It could be done either way?

2

A It is done either way.

3

Q Okay. Now, we are getting complicated. That's

4

what I get for asking questions.

5

The -- are some of the tests on the electrically driven pumps for the Harris plant done with the entire equipment? That is, the motor, the pump, and the whole assembly, put through the same environmental qualification test? Is that done for the Harris plant?

10

A The motor is put through the environmental qualifi-

11

cation test, and as part of the test it actually has to

12

operate under -- it would be operated under its load and

13

load may be either simulated or using the actual pump that

14

it would be driving.

15

Q Uh-huh.

16

A As long as you are driving the load that it is

17

going to be qualified to, it's a valid test.

18

Q I understand that. Now, what I was trying to get

19

at was if the load itself depends on the lubricant? That is,

20

for example, the pump rotating. If the lubricant failed, you

21

might have a locked --

22

A The motor is -- I'm sorry.

23

Q Let me try to finish the question. If the lubricant

24

fails on the pump that the motor is driving, then the motor

25

might have to have a much higher output to keep trying to drive

#12-10-SueT<sup>1</sup>

that pump, or it might even lock up, might it not?

2 A Which part of that is your question?

3 Q Pardon?

4 A Which part of that is your question?

5 Q The part at the end was the question.

6 A Yes, it might.

7 Q Okay. So, the qualification of the lubricant in  
8 the part of the component to which the electrical component,  
9 the motor is connected, could affect the operability of the  
10 motor part.

11 That's a question.

12 A No, because the motor is qualified for an operability  
13 defined as driving a certain rated horsepower or rated load.  
14 And if the load is larger than the motor is qualified, for  
15 whatever reason, then the motor is not qualified to drive  
16 that load.

17 Q But -- okay. Now, this is where I may be confused.  
18 When you qualify a component separately, do you qualify it  
19 assuming that the rest of the things that it is connected to  
20 in actual operation are functioning normally or that they  
21 might be subject to the same environmental conditions, you  
22 know, stress, vibration, radiation, steam, temperature, pressure,  
23 that are part of the test?

24 A The same conditions, but when you qualify the motor  
25 you don't qualify it to drive a pump that will not turn because

#12-11-SueT<sup>1</sup>

it's stuck.

2 Q Uh-huh.

3 A That would be the value of the pump.

4 Q Okay. Well, I think that might be about as far as  
5 I can go on this line.6 Are there other components at the Harris plant, to  
7 any of you gentlemen's knowledge, where the electrical part  
8 has to do something with a part that is lubricated where the  
9 other lubricated part, that is a part necessary to perform the  
10 safety function which the electrical part helps perform, is  
11 not actually involved in the qualification test but is simulated?12 A Well, the safety function is performed by a system  
13 which includes many components, many pieces of equipment, and  
14 for obvious reasons the system is not tested as one entity.

15 Q I understand that for a system.

16 A That's what we are dealing with here.

17 Q Have I let you complete your answer?

18 A Yes.

19 Q All right. Now, what I thought we were doing when  
20 I spoke with Mr. Pagan earlier about this was, you talk about  
21 a device and saying that it could have one or more components,  
22 and I think it was Mr. Yandow who said, for example, you might  
23 have a situation where one of those components is electrical  
24 and the other one that drives or connects to is not electrical,  
25 right?



#12-12-Sub E

A (Witness Yandow) That's correct. That's what I said.

Q Okay. Now, what I'm trying to ask about here is whether -- besides a motor driven pump, are there other types of devices where you are going to be qualifying a device for the Harris plant, where there is an electrical part of it and there is another part of the same device, I'm not talking about the whole system but just that device, which has a lubricant in it or seal in it that's necessary for performing the function of the device, safety function of the device?

MR. O'NEILL: Objection. I object to this line of questioning because it's not within the scope of the contention which goes to the environmental qualification of electrical equipment under 50.49. Of course, there are other qualification programs for mechanical equipment, including the lubricants of mechanical equipment.

But the scope of this contention is limited to environmental qualification of electrical equipment, and the scope of this subpart is limited to lubricants for electrical equipment. And to the extent there is certainly a requirement that lubricants of mechanical equipment work, that is not part of the scope of this contention.

It's a separate program, and these aren't the right witnesses to talk about it in any event.

MR. EDDLEMAN: May I respond? In the first place,

#12-13-SueT 1 it's about lubricants and seals. We should agree on that.

2 Secondly, when you talk about a piece of electrical  
3 equipment, okay, this presentation here is the first time I  
4 had understood that we qualified it, you qualify an electri-  
5 cal part separately from the piece of equipment. In other  
6 words, if you've got an electrically operated switch or  
7 an electrically driven valve or a motor driven pump, I had  
8 understood -- rightly or wrongly, okay -- that the entire piece  
9 of equipment was tested.

10 I'm not talking about the whole system, just that  
11 piece of equipment. And I had understood that we were dealing  
12 with the question of lubricants and seals in that equipment.

13 And the question of whether the qualification of  
14 the lubricants or failure of the lubricants or seals in the  
15 non-electrical part, as these gentlemen seem to be defining  
16 it, could affect the functioning of the electrical part of the  
17 equipment. That's what I'm trying to get at.

18 JUDGE KELLEY: It seems to be a little unclear  
19 just where electrical equipment starts and stops and mechanical  
20 equipment starts and stops.

21 Can anybody bring us down to earth with an example  
22 of what you are talking about? That might help.

23 MR. O'NEILL: This is a very clear example. Limitorque  
24 valve operators, which have been discussed previously --

25 JUDGE KELLEY: Yes.

#12-14-SueT 1

2 MR. O'NEILL: -- the operator -- there was a picture  
3 of it on some of the testimony -- is qualified separately. It  
4 is purchased separately. It is not qualified as part of a  
5 valve assembly.

6 Of course, the Limitorque valve operator is designed  
7 to operate a valve. Whether the valve is properly lubricated,  
8 if that's part of the design of the valve, or if it's mechanically  
9 designed properly, a separate issue. It has nothing to do with  
10 50.49. It has nothing to do with the environmental qualifica-  
11 tion of electrical equipment.

12 Mr. Eddleman is correct. Certainly, the operability  
13 of the electrical equipment depends on what it is operating and  
14 whether that operates properly. That simply isn't within the  
15 scope of this contention, within the scope of environmental  
16 qualification of electrical equipment. That would be greatly  
17 expanding the scope of this contention.

18 And beyond that, we don't have people on this panel  
19 who are qualified to talk about mechanical equipment nor their  
20 lubricants nor their seals.

21 JUDGE KELLEY: What about that example? Or, have  
22 you got one that you would like to use?

23 MR. EDDLEMAN: Well, I think I see where Mr. O'Neill  
24 is going. What I'm trying to explore is where that dividing  
25 line is.

JUDGE KELLEY: Yeah.

#12-15-SueT1

MR. EDDLEMAN: In Limitorque, it's there. What I was trying to get at is were there other pieces. One of the things I would think about is an electrically operated relay, for example, where there be a lubricant in the part that actually has to move back and forth. And technically that might not be an electrical part. The thing that it swings on might not be an electrical part.

I want to know how far we have gone. I mean, if you talk about lubricating electrical equipment in the sense that it's so narrow that it's only a lubricant applied to something that is electrified or a seal applied to something that is electrified, I think we get so narrow that there is nothing there.

And that is not how I had understood it. I'm just trying to see where this dividing line is.

JUDGE KELLEY: Well, isn't it fair to try a few questions and see if we can establish the dividing line a little more clearly than it seems to be now?

end #12  
Mary flws

Sim 13-1

1 MR. O'NEILL: I think the last line of questioning  
2 has gone well beyond that.

3 JUDGE KELLEY: Well, that may be, but how about  
4 tailoring your line a bit to see if we can't find where this  
5 line is a little more clearly than I know right now.

6 MR. O'NEILL: I can point out, however, that the  
7 Exhibit 8 does list electrical equipment that is qualified.

8 JUDGE KELLEY: Where is that? Shall we look at  
9 that? Yes, we have got it here. Let's look at that,  
10 Mr. Eddleman. Maybe that will help.

11 BY MR. EDDLEMAN:

12 Q Well now, gentlemen, I think we went through the  
13 questions before of whether in Applicants' Exhibit 8 reference  
14 was made to which had lubricants and seals, and the answer  
15 was that there was not an explicit reference there.

16 But, let's see, the NSS supplied safety related  
17 equipment is Table 3.11.0-1, correct?

18 A (Witness Yandow) That is right.

19 Q Is that all of it?

20 A That is all on these tables, yes. There is no table  
21 that is separate. There is nothing else listed.

22 Q There is no other table of equipment that was  
23 supplied through somebody other than Westinghouse or Ebasco  
24 of safety related electrical equipment?

25 A Not to date, no.

Sim 13-2

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JUDGE KELLEY: What are the two tables again?

MR. EDDLEMAN: 3.11.0-1 for the Westinghouse supply beginning on page 3.11.0-3, and Table 3.11.0-2 for the Ebasco purchased safety related equipment beginning on page 3.11.0-8.

JUDGE KELLEY: Do these tables use the term electrical equipment in the same sense then in which we seem to be groping now, i.e., electrical equipment that is qualified separately?

Is this where you want to go, these kinds of equipment?

MR. EDDLEMAN: I am not sure, but you are asking one of the good questions to start it, Judge.

JUDGE KELLEY: Well ---

MR. EDDLEMAN: I can ask it to them or ---

JUDGE KELLEY: Go ahead.

BY MR. EDDLEMAN:

Q Gentlemen, let's start with the Westinghouse Table 0-1, and I will just refer to it since we have gone through it so many times. In that table it looks like the first page is just transmitters and detectors.

Do any of those things, to your knowledge, involve lubricants or seals?

A (Witness Yandow) Yes, in the valve motor operators inside containment, about the fifth or sixth item down.

Sim 13-3

1 I am on the wrong page. I am sorry.

2 No, they do not.

3 Q The page we are talking about ---

4 A Well, the seals, yes. Seals are involved, yes.

5 Q Seals are involved, but not lubricants?

6 A Not lubricants.

7 Q And that has to do with the items on page 3.11.0-3,  
8 right?

9 A Correct.

10 Q Okay. And the seals on those items on page 0-3,  
11 if I can shorten the reference to it again, they function to  
12 maintain the electrical properties of the devices?

13 A Or prevent contaminants from entering as described  
14 in our testimony.

15 Q Right. Okay. Now then the next page, 0-4, in  
16 abbreviated terms, on this one I believe that was where you  
17 were citing valve motor operators?

18 A Yes, that is right.

19 Q And those are the Limitorque's that Mr. O'Neill  
20 just -- well, let me ask you, is his discussion correct as  
21 to how those things are qualified, to your knowledge?

22 A Yes, to my knowledge. Now that is the environmental.  
23 I don't want to mislead you to think the seismic is done  
24 without one or the other. I am not sure, but in some cases  
25 I think the seismic has been done with both together.

Sim 13-4

1 Q But the environmental qualification as electrical  
2 equipment for those Limitorque valve motor operators was  
3 done without them being attached to a valve that they had  
4 to operate?

5 A That is correct.

6 Q Let me just ask if I can get a consent to ask  
7 this question, because I don't think it came up on the  
8 Limitorques, the question of whether they had to function  
9 during those tests?

10 A Since the requirement for equipment during testing  
11 is a performance function, if its function is to operate a  
12 valve and then in some way that was duplicated or maybe it  
13 wasn't installed on the valve, I am not sure, but I don't think  
14 so. They must have had a torque switch or something on it  
15 to measure the torque it was developing.

16 Q And this is in the nature of, Mr. Bucci, of what  
17 you were talking about before where if you didn't have the  
18 actual load then you would have a simulated load or a  
19 measurement?

20 A (Witness Bucci) Yes.

21 Q Now other than the Limitorques there, are there  
22 other things on page 0-4 of Applicants' Exhibit 8 which  
23 have lubricants.

24 A (Witness Yadow) I am not too familiar with the  
25 design of the electrical hydrogen recombiners, but there



Sim 13-5

1 might be some electrical parts in that that need lubrication,  
2 some fan motors and that type of thing. I am not quite  
3 sure of the assembly and how it is built.

4 Q Do you know whether the recombiners when they were  
5 tested were tested with those fans and fan motors on them or  
6 not?

7 A I couldn't begin to estimate.

8 Q Did you gentlemen have anything to add?

9 A (Mr. Pagan) Well, in response to your question  
10 regarding other equipment in there that has lubricants, I am  
11 aware that the Namco limit switches, EA-180, use some  
12 lubricant.

13 Q That is the stem mounted limit switches about the  
14 fourth item down on page 0-4?

15 A That is correct. I am not aware of any others on  
16 that page.

17 Q Do these things in general have seals on page 0-4?

18 A (Witness Yandow) When required.

19 Q Okay. So let me see if I can ask that a little  
20 differently.

21 Which of these, to your knowledge, do not have seals?

22 A Well, off the top I would say most definitely  
23 probably the turbine pressure transmitters, since that is  
24 in the turbine room and there is no accident environment in  
25 there, Pam indicators which are on the main control board, and

Sim 13-6

1 there would be no seal required there.

2 Q That is the one down at the bottom?

3 A Correct. I am not sure if there are any others  
4 because I am not sure where the parts are, if they are in  
5 containment or they are outside. I am not familiar enough  
6 with the reports here to get that information.

7 Q I understand. Now, let's see, this table continues  
8 on page 0-5. Again, do any of these components that are  
9 listed on this page, 0-5, have lubricants involved in them?

10 A I do not see any myself.

11 A (Mr. Pagan) Not to the best of my knowledge.

12 Q Okay.

13 A (Witness McLean) I would just add that in our  
14 testimony we list typically the kinds of equipment that  
15 have lubricants or seals, and we list transmitters, valve  
16 operators, pumps and resistance temperature detectors.

17 Q Right. Okay. Excuse me, are you done?

18 A I was just going to say it might save going through  
19 each one.

20 Q Right. Well, let me just make my question be in  
21 this context then. As to the rest of this table, are there  
22 any items other than the ones you just mentioned that are  
23 discussed in your testimony which would have either seals  
24 or lubricants involved in them?

25 A (Witness Yandow) The only thing I can see right

Sim 13-7

1 here is probably like the fans. There may be a motor  
2 attached to the fan, and we meant when we said motor in our  
3 testimony, that is what we were talking about, the motor  
4 part of the fan unit. The same thing with the damper control,  
5 there may be a damper control and that has lubricants in  
6 it. That might be considered on a valve, even though  
7 sometimes it is not called that.

8 Q Okay. Now I am a little bit lost. Are we still  
9 on Table 3.11.0-1 where you are referring to fans?

10 A No. I thought we had gone on to 3.11-2.

11 Q Okay. So the things you just mentioned are in  
12 3.11.0-2, in that table?

13 A Yes. That is right. I am sorry.

14 Q May I get clarified before we move out of Table  
15 3.11.1-1 whether there are any things other than what Mr. Bucci  
16 referred to from the testimony in that part of Table 0-1  
17 that we haven't gone over yet which have either lubricants  
18 or seals involved in them?

19 A As Mr. Bucci indicated, there are some transmitters  
20 I believe in here, and there are stem mounted limit switches  
21 which we just discussed.

22 (The reporter asked the witness to repeat the  
23 answer.)

24 As Mr. Bucci indicated, there are some transmitters  
25 in here on the remaining part of the table. There are some

Sim 13-8

1 Namco limit switches, which we talked about already and  
2 pumps which we have already talked about.

3 Q Okay. Now on the last page, the pieces that are  
4 indiated there are motors for specific pumps. I take it  
5 that means they were qualified just as the motors and not  
6 with the pumps, correct?

7 A Environmentally that is correct.

8 Q Page 3.11.0-7.

9 A That is environmental qualification.

10 Q Right. EQ and not seismic?

11 A Seismic is a different table.

12 Q Okay. By the way, do any of you know whether  
13 Note A which was deleted in its former incarnation had anything  
14 to do with lubrication or seals?

15 A I don't remember what it was. I am sorry.

16 Q Okay. Let me just leave that.

17 Now as to Table 3.11.0-2 let me try to ask the  
18 question in general. Other than the specific kinds of  
19 equipment that either Mr. Bucci mentioned in reference to  
20 the testimony or which you gentlemen have mentioned out of  
21 the previous table, whether any additional pieces or types  
22 of equipment listed in this second table, 3.11.0-2 in  
23 Applicants' Exhibit 8 which have either seals or lubricants  
24 in them?

25 A (Witness McLean) Other than what we have mentioned

Sim 13-9

1 in our testimony yes. In some cases, and I certainly don't  
2 remember, for instance, if a specific motor -- well, motors  
3 always have lubricants, but as far as seals go it is a little  
4 harder to determine. You have to look at the qualification  
5 package in some cases.

6 So from what I can determine from this table, there  
7 is not really anything other than what we said is in the  
8 harsh environment requiring this qualification.

9 Q May I ask just a couple of things on page 3.11.0-9,  
10 about the fifth item down, 125 volt DC distribution panels.  
11 Would those panels involve any seals?

12 A Seals, no; lubricants, yes and breakers possibly,  
13 but they are in a mild environment.

14 There is one thing that Mr. Pagan pointed out to  
15 me, the electrical containment penetrations are listed and  
16 they incorporate seals.

17 Q Those are seals and that is on that same page,  
18 right?

19 A (Mr. Pagan) Yes.

20 A (Witness Yandow) I wish to point out that we did  
21 say, for example. We didn't say that that was an inclusive  
22 list in our testimony. There may be other things that we  
23 didn't list.

24 Q I understand that. What I am asking, to try to be  
25 real clear about it and make sure we have got this finished,

Sim 13-10

1 was in addition to the things that are in your prefiled  
2 testimony and the things that you have mentioned here on  
3 the stand as being included and having lubricants or seals,  
4 are there any other things or kinds of things in Table  
5 3.11.0-2 which have lubricants or seals? That is the question.

6 A (Mr. Pagan) In the written testimony it was not  
7 our intent to be all-inclusive, but rather to give samples  
8 of the types of equipment that contains lubricants and/or seals.

9 I am curious as to what your point is.

10 MR. O'NEILL: Mr. Chairman, I will object rather than  
11 allow my witness to express his curiosity.

12 I would stipulate that these witnesses may not be  
13 able to answer that question even if they went and studied  
14 it because there could be a lubricant or seal somewhere that  
15 they will forget.

16 The question is so What? I would object to this  
17 line of cross-examination because there is no utility to it.

18 The issue goes to how do applicants qualify  
19 lubricants and seals for the electrical equipment that is  
20 covered by 50.49 to ensure that the effects of radiation  
21 have been taken into account.

22 Exactly what pieces of equipment and in every case  
23 whether they have a seal or don't have a seal or whether they  
24 have lubricants or don't have lubricants has absolutely  
25 nothing to do with that generic proposition.

Sim 13-11

1 If the Board wants to allow this testimony to go  
2 on for a couple of hours, it is not objectionable to the  
3 extent we are wasting a lot of time. But I would suggest  
4 that the record would be more productive and perhaps it would  
5 be less frustrating if we could get to the issues that are  
6 before us rather than to go through tables and ask these  
7 witnesses whether they can remember whether or not there is  
8 a seal or not in a particular piece of equipment.

9 MR. EDDLEMAN: This is the last question along this  
10 line, and I am well aware that the testimony was not intended  
11 to be all-inclusive, and I didn't ask that. I think if I  
12 can just get an answer to the one question I asked we would  
13 be done with all this and we would kind of the delimitation  
14 of what these things are and what part is electrical and what  
15 part is mechanical.

16 MR. O'NEILL: I object to the question to ask these  
17 witnesses whether they can think of anything else, because  
18 whether they can or not isn't going to be a complete record  
19 because I have already stipulated that they may not remember  
20 everything, and I don't think going any further makes any  
21 sense.

22 JUDGE KELLEY: Well, I was under the impression  
23 we were trying to establish what kind of equipment was  
24 involved, electrical equipment that would use these lubricants  
25 and seals. but that we didn't have to have a comprehensive

Sim 13-12

1 list.

2 Therefore, I think the objection is well taken.  
3 I think now we know maybe more than we need to know about  
4 the kind of equipment involved.

5 Your last statement I am not sure about, Mr. Eddleman,  
6 the distinction between electrical and mechanical. How is  
7 what we have heard in the last ten minutes helped us on that  
8 point?

9 MR. EDDLEMAN: Here is how I think it helps, because  
10 these things are listed as electrical equipment that is  
11 qualified.

12 JUDGE KELLEY: Yes.

13 MR. EDDLEMAN: And therefore, the lubricants or  
14 seals that are part of them, I take it, are part of the  
15 electrical equipment. That is where I would go next just  
16 to find out if I am right about that.

17 JUDGE KELLEY: Okay. Go ahead.

18 BY MR. EDDLEMAN:

19 Q Gentlemen, the pieces of equipment that are listed  
20 in those two tables, 0-1 and 0-2 in abbreviated terms from  
21 Applicants' Exhibit 8 that we have been discussing, they are  
22 the electrical equipment that is qualified, right?

23 A (Witness Bucci) These tables are not very specific,  
24 as you can see as we went through them. The specific listing  
25 is the listing of equipment that we submitted to the NRC staff.



Sim 13-13

1 Q Do you mean the master list?

2 A Yes. That list does have all the electrical  
3 equipment.

4 Q All of it?

5 A Yes.

6 Q Okay. Well, I was trying to use these things  
7 as examples, which is what I think they are there for; is  
8 that correct?9 A No, I don't think they are there for examples.  
10 They describe in sort of gross terms the type of equipment,  
11 the various types of equipment, who supplies them, what the  
12 model number is and what standard they are qualified to.13 Q And these are items of electrical equipment or  
14 kinds of electrical equipment which undergo environmental  
15 qualification testing, right?

16 A Yes.

17 A (Witness Yandow) I would clarify that and say  
18 that they are under the equipment qualification program.  
19 There are cases where some of this is not tested because  
20 it is in a mild environment.21 Q Right. Okay. Now as to those items or kinds of  
22 items listed in Exhibit 8, are they qualified as entire  
23 units as described in those tables?24 A Not in all cases. Where it becomes impractical to  
25 test something like a large motor like the charging pumps,

Sim 13-14

1 the motor is tested separately from the pump, and the motor  
2 may be tested as a smaller version called a motorette, which  
3 is an allowable thing that we do sometimes.

4 This isn't a list to say how it was actually tested,  
5 but it is just a summation of the kinds of equipment and  
6 the kinds of tests that were done and what the reports are  
7 how applicable they are.

8 The master list is the place you have to go to really  
9 see that.

10 Q All right. And the master list is not in evidence  
11 I take it?

12 A No. It has been submitted to the staff, but it is  
13 not in evidence.

14 Q Okay. Well, I don't know if I am going to get  
15 much farther on this. I will try to come back to the ---

16 MR. O'NEILL: I will just make the point that  
17 Mr. Eddleman of course does have a copy of the master list.

18 MR. EDDLEMAN: Yes, I do have a copy of it here,  
19 but I didn't make up copies of it to ask about. So I am not  
20 going to go into it because I would have to hand out copies.

21 JUDGE KELLEY: Isn't there a better reason, namely,  
22 that we don't need it to get at the testing used on the  
23 lubricants and seals?

24 MR. EDDLEMAN: Well, the record will speak for  
25 itself about that. I am not going to try to argue it.

Sim 13-15

1 JUDGE KELLEY: No, I just want to understand. What  
2 is your concern that we are going to miss something about  
3 testing lubricants and seals if we don't go into the master  
4 list? What is going to drop through the cracks if we do  
5 that?

6 MR. EDDLEMAN: I am not even sure what might or  
7 might not drop through the cracks. That is what I was trying  
8 to find out. But what I gather is that the full information  
9 is on the master list as to what is electrical and what is  
10 mechanical and what is actually tested.

11 I would just like to try to ask a couple of general  
12 questions about it and tie it up. I don't want to go into  
13 the master list.

14 JUDGE KELLEY: What is actually tested seems to be  
15 pertinent. Are you concerned, for example -- and I feel,  
16 frankly out of my own depth here and maybe I shouldn't be  
17 asking these questions, I am not a technical Judge, but are  
18 you concerned that the test of some smaller part of some part  
19 of a piece of equipment less than all of it based on some  
20 replication might not be a valid test? Is that why the  
21 concern arises?

22 MR. EDDLEMAN: That is what I am trying to get at.  
23 If you are testing a part of something and the rest of it  
24 contains lubricants and seals also, and might that test result  
25 then not really reflect what would happen to the overall

Sim 13-16

1 piece of equipment. I am not talking about a system in the  
2 terms the witnesses used, but just an item of equipment.

3 JUDGE KELLEY: Are you worried about losing  
4 a synergistic effect, so to speak?

5 MR. EDDLEMAN: I am not sure you would define  
6 this as a synergism, Judge, but it is an effect of the  
7 lubricants and seals in the overall piece of equipment as  
8 opposed to a smaller portion of the equipment that might  
9 be tested.

10 (Board confers.)

11 JUDGE CARPENTER: Mr. Eddleman, if you have a  
12 pump and a motor and you submit each of them separately to  
13 environmental qualification tests and they both pass the  
14 test, I don't see how one is going to impact the other. If  
15 one of them didn't pass, obviously it could have an effect  
16 on the other. But the requirement is that all these things  
17 pass.

18 I don't see your point.

19 MR. EDDLEMAN: Well, I think what you said there  
20 is right, Judge, if you separately test them and the pump  
21 part is functioning, as it would, and it is actually driven  
22 during the test, whether it is driven by a motor or not.  
23 But what I am getting at is I think that is the distinction  
24 Mr. O'Neill made. He said, look, the qualification of the  
25 pump itself might be a mechanical test and not an electrical

Sim 13-17

1 test, and the electrical test on the motor part of it would  
2 not necessarily reflect whether the pump part failed the  
3 test.

4 Now that is the example for a pump and a motor. I  
5 there are some other things here that are not exactly like  
6 that.

7 JUDGE KELLEY: Let me try it once more. If you  
8 don't test the motor with the pump, the actual pump, don't  
9 you have to substitute some force, some certain amount of  
10 work that motor has to do in order to have a valid test?

11 MR. EDDLEMAN: Absolutely.

12 JUDGE KELLEY: It is as if the pump were there,  
13 right?

14 MR. EDDLEMAN: Right. And the thing is if there  
15 is an effect of the lubricant in this case in the pump part,  
16 which we have been through, that is if the lubricant or the  
17 seal in a pump has, let's say, damage or somehow degraded  
18 in the test and that has an effect on the force, that effect  
19 is not simulated back to the motor when it is going through  
20 its test, as I understand it.

21 JUDGE KELLEY: That effect is not in your contention,  
22 is it? I thought we were talking about electrical equipment.

23 MR. EDDLEMAN: That is where the whole problem  
24 comes out, Judge. It is that electrical equipment -- the  
25 question is how do you define the boundary of the electrical

Sim 13-18

1 equipment? Is it just the electrified part of a piece of  
2 equipment or does it include the whole piece of equipment?  
3 And I don't think the pump is the best example because I  
4 think we have been through that.

5 JUDGE KELLEY: Well, you can carry that -- everything  
6 is connected to everything else. We all know that, and you  
7 can say that one pump is hooked up to the whole damn power  
8 plant and so we will test that.

9 MR. EDDLEMAN: But I am not talking about that.

10 JUDGE KELLEY: You have to make some kind of common  
11 sense judgment where the motor starts and where the pump starts.

12 MR. EDDLEMAN: That is right, and I am not talking  
13 about that.

14 JUDGE KELLEY: Are we going to be that wrong when  
15 we make these cuts? I wouldn't think so.

16 MR. EDDLEMAN: I don't think so either. I am not  
17 talking about the total plant systems. I am just talking  
18 about where you make the cut inside an item of equipment.

19 JUDGE KELLEY: You can find out where they make  
20 the cut. I thought we found that to some extent, did we  
21 not, by looking at this list? And they said, yes, that is  
22 it. That is the electrical part.

23 MR. EDDLEMAN: I think we did get some of that.

24 (Board conferring.)

25 JUDGE KELLEY: Mr. Yandow.

Sim 13-19

1 WITNESS YANDOW: Maybe I can get this cleared I  
2 hope. When we buy a piece of electrical equipment, whether  
3 it is tied to mechanical or not, let's say we are buying  
4 a Limitorque operator. There is a performance spec required  
5 of the operator. Now that would probably be made by the  
6 valve manufacturer and he would require the motor manufacturer  
7 or the operator manufacturer to have so many horsepower  
8 developed or so much torque developed at a certain voltage,  
9 that type of thing.

10 Now that is the test requirement that the operator  
11 would be tested under in the motor. If it can develop that  
12 under operational conditions, such as LOCA and that kind of  
13 thing, it would meet the requirements.

14 Now the valve manufacturer's responsibility is to  
15 make sure that when he tests his valve that it does not go out  
16 of those bounds. So if we test a motor and a pump, the  
17 motor has a spec, the pump has a spec, or their spec is  
18 together, and they have to meet certain performance  
19 objectives within a certain margin, and that is what we use  
20 for test requirements.

21 If we are testing the motor separately from the  
22 pump, the motor has a certain requirement on it that reflects  
23 in the pump's performance characteristics. So we don't predict  
24 if the pump fails and doesn't meet its performance requirements,  
25 we can't qualify the motor for anything more than that. That  
is the bounds that we are within.

end Sim  
endTake

1           If the pump fails, it makes no difference what the  
2 motor does.

3           Q     So, what you are saying is, when you test these  
4 parts separately the requirements on each wuld reflect their  
5 actual interaction in practice, is that what you are getting  
6 at?

7           A     I see no other way of qualifying it. Like the  
8 insulation, you have to reflect the conditions you use it in.

9           Q     All right. I think that takes care of that. Let's  
10 go back to your prefiled testimony if we can.

11           The -- at the top of page 3, talking about how  
12 EBASCO assures the affects of radiation on lubricants and  
13 seals used in safety-related electrical equipment which it  
14 supplies for the Harris plant are adequately addressed.

15           Is there a proportion, say two-thirds or three-  
16 quarters of this equipment is EBASCO's, and the balance is  
17 Westinghouse supplied?

18           A     (Witness Bucci) Yes.

19           Q     Approximately what are those percentages, do you  
20 know?

21           A     No.

22           A     (Witness Yandow) All you could do would be look  
23 at the tables we just went over. I mean, there is a percentage  
24 you could develop from that, I guess.

25           Q     Well, I thought you said you would have to actually



1 look at the master list to tell all the equipment?

2 A Well, since we don't have the master list here, we  
3 can't very well develop a percentage from it. We don't --  
4 I don't know of any percentages that have been developed, of  
5 what percent is, and what percent is not.

6 Q All right. Is the non-EBASCO supplied safety-related  
7 electrical equipment all Westinghouse? Westinghouse supplied?

8 A We have some field purchase items, but they are  
9 connectors and things like that that are not really in the  
10 qualification program.

11 Q Do any of them have lubricants or seals, or are  
12 they --

13 A Not that I am ware of.

14 Q Have you checked?

15 A The only thing I can think of right now is in the  
16 discussions of the RTD, we were talking about a field for the  
17 end of the RTD. That is being purchased by the field, and that  
18 would be in our CP&L program.

19 Q Okay. The definition of a lubricant there in  
20 Answer 6, that is really a definition in terms of what it  
21 does, right?

22 A Yes.

23 Q Its function is to provide that near-frictionless  
24 film, right?

25 A Yes.

1 Q The degradation of function then would be that the  
2 film can't be provided, or it had more friction, correct?

3 A That is correct.

4 Q Okay. Now, I guess we will get into the specifications  
5 below, but normally on a lubricant, aren't there specifications  
6 as to friction and as to other properties of the lubricant  
7 which enable it to be made into a film in performing its  
8 function?

9 A That is correct.

10 Q Okay. The parts -- items on which you use lubricants  
11 per Answer 7, that is what we went over back in Exhibit 8,  
12 right? I just want to make sure we don't have to go over it  
13 again.

14 A Yes.

15 Q Now, then a seal is defined as a device, static  
16 or dynamic, of whatever composition, that prevents foreign  
17 substances from entering equipment or retains required  
18 substance within the equipment.

19 For example, might a seal be required to retain  
20 a lubricant within equipment?

21 A Yes. As pointed out in our testimony on the  
22 Limitorque there is a seal between the motor and the gear  
23 housing. In the form of, I guess we were talking about O-Ring.

24 Q Okay. And these are the only functions which seals  
25 perform on Harris electrical equipment, I take it?

1 A You mean in terms of Limitorque?

2 Q No. The Answer 8, the description of what a seal  
3 does there, that describes all the functions of seals on  
4 Shearon Harris electrical equipment?

5 A Yes.

6 Q Okay. In Answer 9, are we talking --

7 A (Witness Bucci) Excuse me. I just wanted to add  
8 this is not a list of functions. This is a description of  
9 a seal. In general terms your answer is, yes.

10 Q This is a description of what a seal is in terms  
11 of its function, right?

12 A (Witness Yandow) Yes.

13 Q And I think my question was does this describe all  
14 the functions which seals perform on this equipment, and the  
15 answer to that was, yes, right?

16 A (Witness Bucci) Yes. I just wanted to clarify  
17 that functions are accomplished under the general functions  
18 described.

19 Q Okay. With respect to Answer 9, are seals on  
20 electrical connector boxes and things of that sort included  
21 here?

22 A (Witness Yandow) Yes. That would be under  
23 -- prevent foreign substances in this case would be steam  
24 or something like that from entering the junction box.

25 Q All right. Steam or moisture, or perhaps even

1 oxygen under certain circumstances?

2 A I believe we had that discussion, yes.

3 Q The answer is, yes?

4 A Yes.

5 Q Now, this Answer 10 might explain how come I got a  
6 little bit confused here about what was in Exhibit 8. It  
7 seems to say here that -- it is the second full sentence on  
8 page 4, that the equipment supplied by EBASCO and Westinghouse,  
9 respectively, is listed in Table 3.11.0-2.

10 A (Witness Pagan) I don't think that is a true  
11 statement. You are saying the equipment supplied by EBASCO  
12 and Westinghouse is listed in 3.11.0-2. 3.11.0-2 lists the  
13 balance of plant equipment which EBASCO is supplying.

14 3.11.0.-1 lists the NSSS equipment.

15 Q All right. Now, let me -- in that context, I think  
16 you are right. Let me address the question I had, which is  
17 is that really a listing for either Westinghouse or EBASCO  
18 in those tables, or is it just illustration?

19 MS. MOORE: Objection, Your Honor. I don't understand  
20 the relevance of this line of questioning of whether what is  
21 in it, those tables in FSAR, how is that relevant to the  
22 question of how Applicants qualify electrical equipment in  
23 terms of lubricants and seals?

24 MR. EDDLEMAN: I think we went through this big  
25 discussion about what is in those tables, which have lubricants

1 and which have seals, and this says it is listed there, and I  
2 thought the previous answer was that it wasn't really a list,  
3 it was just examples, and I just wanted to clarify that?

4 JUDGE KELLEY: Do we have to have that discussion  
5 all over again, though? I thought we had beat that one to  
6 death just about.

7 MR. EDDLEMAN: All right. In that case I think  
8 the best thing to do is --

9 JUDGE KELLEY: The subject is what you do to  
10 lubricants and seals. Whether it is all equipment, or some  
11 equipment.

12 MR. EDDLEMAN: That is the next question.

13 JUDGE KELLEY: Go ahead.

14 BY MR. EDDLEMAN: (Continuing)

15 Q Question 11, the balance of plant safety-related  
16 electrical equipment, it says all balance of plant, safety-  
17 related electrical equipment for Harris which is located in  
18 a harsh environment is qualified by tests.

19 Now, what are the things that put environmental  
20 stress on the lubricants during these tests?

21 A (Witness Bucci) The items that are listed right  
22 below that; page 4, Answer 11.

23 Q Okay. And this would be in addition to the stress  
24 produced, say, by the heat of a motor running or something  
25 like that?

1 A It is included in these.

2 Q The radiation exposure that is involved there, I  
3 take it when you say in every case that you have actually checked  
4 over all these cases? To see that it exceeds the possible,  
5 actual dose?

6 A Yes.

7 Q Okay. Now, these dose rates are accelerated, and  
8 you could find the rates on the qualification reports?

9 A Yes.

10 Q Okay. Are you aware of any dose rate effects as to  
11 radiation, either alone or in combination with these other  
12 test condicitons for environmental qualification degrading  
13 the properties of lubricants?

14 A All of these parameters can degrade the properties  
15 of lubricants, and that is why we test it.

16 Q Let me try to ask my question a little bit differently.  
17 I am not sure I got it across. You have a test where -- let  
18 me first clarify.

19 The irradiation portion of the testing is a separate  
20 from the exposure to the other environmental stresses? Is  
21 that true for this equipment as it has been for some of the  
22 other things we have discussed?

23 A Yes.

24 Q Now, the question I am trying to get at is the  
25 radiation dose rates used in these tests are accelerated.

1           That is, it is a higher dose rate than the equipment  
2 would normally receive, correct?

3           A     It is higher than it would receive during normal  
4 conditions, but not in during the accident.

5           Q     In the accident, is the actual dose rate delivered  
6 at the same rate and times that the accident profile describes?

7           A     Approximately, yes.

8           Q     Okay. So, as to the simulation of normal operation,  
9 that is where you have a different dose rate, right?

10          A     During the pre-aging.

11          Q     Yes.

12          A     Yes.

13          Q     What I am trying to ask about is, are any of you  
14 gentlemen aware of any effect whereby radiation delivered at  
15 a lower dose rate than that accelerated rate would have, or  
16 has been reported to have, or -- let's see, theorized or  
17 calculated to have a greater effect on degradation of lubricant  
18 properties, either from radiation alone or in combination with  
19 the other kinds of environmental stress, like heat and --

20               MR. O'NEILL: Objection. There are too many sub-  
21 parts to that question by now.

22               JUDGE KELLEY: Could you break it up a little bit.

23               MR. EDDLEMAN: I will try.

24               BY MR. EDDLEMAN: (Continuing)

25               Q     Now, let me ask the question about radiation alone.

1 When you have the equipment in normal operation, it would be  
2 receiving its radiation dose, whatever that total dose is,  
3 at a lower dose rate than it would in this accelerated qualifi-  
4 cation testing, right?

5 A It would not receive the total dose that it is  
6 given during the qualification testing. The dose during  
7 qualification testing is substantially higher than it would  
8 ever receive.

9 Q And it is at a higher dose rate, right?

10 A It is at a higher dose rate than it would be  
11 subjected to under the normal portion; not the accident  
12 portion.

13 Q Right. We have already gone over that. Now, the  
14 question is: Are any of you gentlemen aware of any effects  
15 whereby delivering the radiation at a lower dose rate would  
16 result in greater degradation of the properties of a lubricant  
17 than if that radiation were delivered at a high dose rate,  
18 as in this accelerated testing?

19 A Well, I disagree with part of your question that  
20 implies that that has something to do with the -- it would  
21 imply that the lubricant would not be able to lubricate.

22 I have not seen any dose rate effects that discuss  
23 the potential effect on a function of lubricant.

24 Q That discuss it at all, is that your answer?

25 A On the function of the lubricant, that is right.



1 Q Okay. Now I ask that for radiation alone; if I  
2 expanded the the question to say radiation at lower dose rates  
3 that is more like normal operation, in combination with any  
4 of these other factors, such as heat or pressure or moisture  
5 or steam, would your answer be the same?

6 A In combination with the other factors that we see  
7 during normal operation?

8 Q Correct.

9 A My answer is the same.

10 JUDGE KELLEY: We need to take a break along about  
11 this time?

12 MR. EDDLEMAN: All right.

13 JUDGE KELLEY: Okay. Ten minutes?

14 MR. EDDLEMAN: Fine.

15 (Short recess taken)

16 JUDGE KELLEY: Okay. We can resume.

17 BY MR. EDDLEMAN: (Continuing)

18 Q Gentlemen, I believe we were dealing with Question  
19 and Answer 11, on pages 4 and 5 before the break. The  
20 qualification testing that is done on all the balance of plant  
21 equipment for Harris, supplied through EBASCO, does that  
22 specifically include checking the function of the lubricants  
23 and the seals?

24 A (Witness Bucci) Yes, the function of the lubricants  
25 and or seals in the equipment would be to support the overall

1 function of the equipment.

2 Q You mean that is how you check it. If it still runs,  
3 you presume the lubricants and seals are okay?

4 A Not if it still runs. If it still performs its  
5 function.

6 Q Then you presume that the lubricants and seals are  
7 doing all right?

8 A They have done all right.

9 Q But you don't actually break it down and check to  
10 see what condition a certain seal is in, or what the properties  
11 of the lubricant are?

12 A Not in every case, but that is also done.

13 Q Okay. And where that is done, is that also  
14 documented in the qualification report?

15 A (Witness Pagan) Yes, it is.

16 Q Okay. You said it was not done in every case. Is  
17 it done in the vast majority of cases, or most cases, or  
18 do you know?

19 A I couldn't tell you the number of times it was done,  
20 but I have seen it done on a few occasions.

21 Q On occasions?

22 A Correct.

23 Q Okay. Now, with respect to Answer 12, do the vendor  
24 test reports have to identify all of the organic components  
25 of the tested equipment?

1 A (Witness Bucci) Yes.

2 Q That is a requirement of the testing procedure  
3 or documentation requirement?

4 A Well, more than that, you need to know that in  
5 order to know if he met the qualification conditions, and  
6 more specifically, the aging conditions. If he properly  
7 aged the equipment.

8 Q All right. And then you make the comparison between  
9 the ones identified in the test report, and the ones identified  
10 -- I mean supplied or recommended by the vendor, to verify  
11 they are the same. In what percentage of cases, if you know,  
12 are they not the same?

13 A (Witness Pagan) I only know of one case where  
14 the equipment was tested, and the equipment purchased did  
15 not have the same lubricant in it.

16 Q Was that a piece of equipment for the Harris plant?

17 A Yes, it was.

18 Q What was it?

19 A A Limitorque operator for outside containment use  
20 only.

21 Q Okay. Were the steps described in Answer 13 taken  
22 for this Limitorque?

23 A Yes.

24 Q And what corrective action was taken?

25 A We have notified the vendor that we would like to

14-13-Wal

1 visit his facility and review his qualification documentation  
2 with respect to this lubricant, and he has indicated that we  
3 can come down, and we are in the process of scheduling a visit  
4 to his plant to review these records.

5 Q So this procedure has been initiated, but it hasn't  
6 been completed yet for this particular --

7 A That is correct. However, the vendor has indicated  
8 he has actual test data that could justify qualification of  
9 this particular lubricant.

10 Q Okay. The vendor told you that. You are going to  
11 check on that?

12 A The vendor told us that. We told him we would like  
13 to go down there and visit his facility and go over those  
14 records personally, and he has agreed to that.

15 Q Okay. In the testing of the lubricants and seals  
16 when it is done on this balance of plant equipment supplied  
17 through EBASCO, is radiation stability testing of the lubricants  
18 done?

19 A Could you explain what you mean by, 'radiation  
20 stability?'

21 End 14.  
22 SueT fols.

23

24

25

#15-1-SueT 1

2 Q I believe I'm using the same term that you gentle-  
3 men use at the top of Page 7, the first full sentence there,  
4 the first line on Page 7, radiation stability testing. I  
5 think you define it there.

6 What I am asking you is, is that kind of testing  
7 done when you do actual tests -- pardon me, when actual tests  
8 are done on the lubricants in the balance of plant equipment  
9 that Ebasco supplies the Harris plant?

10 A (Witness Bucci) As we stated, the lubricants are  
11 generally tested with the equipment. It's subjected to the  
12 same test.

13 Mr. Pagan just mentioned one exception to that.

14 Q Well --

15 A I'm not sure what your question is.

16 Q I'm not talking about the exception but rather for  
17 equipment that is qualified with the same lubricant and seal --  
18 same lubricants and seals in it, okay, as is recommended for  
19 use at the plant, then is any of this radiation stability test-  
20 ing, as you describe, or as is described by Mr. Yandow on  
21 the top of Page 7, done on the lubricants or seals in that  
22 equipment supplied through Ebasco?

23 A Well, the radiation stability testing is not  
24 described. It's stated, and I take that to mean the radiation,  
25 irradiation of the lubricant or seal as done in qualification  
testing. And we do that we describe in Answer 11 on Page 4.

#15-2-SueT 1

2 Q Uh-huh. It says that some tests -- in the Page 7  
description -- are done to measure the effects of radiation.

3 How do you measure the effects of radiation on  
4 the lubricants or seals in this balance of plant equipment?

5 A Well, in case of radiation done as part of qualifi-  
6 cation testing, the effects of the radiation would be whether  
7 or not the equipment functioned after being irradiated. Depend-  
8 ing on what the equipment is, it's a different type of measure-  
9 ment. It could be a transmitter, change in accuracy. You  
10 know, it's equipment specific type of measurement you would do  
11 to determine if the function was performed.

12 (Witness Yandow) The reason radiation stability  
13 comes up in my part of the testimony in talking about the  
14 Mobil study, the Ebasco equipment is tested with lubricant in  
15 it. So the term "stability" is the operability of the unit  
16 after it is finished with the test.

17 Q Uh-huh.

18 A Since the Mobil oil that we are going to be recom-  
19 mending is not tested with the equipment per se, there is  
20 other measurements that have to be made, other tests that  
21 have to be done, and that's what we are talking about radia-  
22 tion stability.

23 I don't think there is a particular measurement that  
24 the -- other than its functionability, operability that would  
25 be in the case of the Ebasco equipment.

#15-3-SueT 1

2 Q Okay. I will come back to that when we get down  
3 to that point about the Westinghouse equipment. But let me  
4 ask Mr. Bucci and Mr. Pagan about Answer 13.

5 One other thing. Is corrective action, as you  
6 have used it in the next to the last sentence on Page 5  
7 there, is that -- does that action encompass, for example,  
8 some analysis that purports to show that the other lubricant  
9 is qualified, or does it actually require a change?

10 A (Witness Pagan) With the exception of the one  
11 exception which I noted earlier, the balance of plant equip-  
12 ment that Ebasco supplies was actually tested with the lubri-  
13 cant that is actually supplied to Shearon Harris. This infor-  
14 mation is documented in the qualification documentation packages  
15 for equipment which contains lubricants.

16 With respect to Question 13 and with respect to  
17 a qualification report which may not have identified the lubri-  
18 cant, the corrective action taken is that we get in touch with  
19 the vendor first via telephone, then via letter, and we tell  
20 him to tell us what was the lubricant that was actually tested  
21 in his equipment so that we can make sure that it was the same  
22 one being supplied to the project and that it was, therefore,  
23 tested.

24 Q But then in the next sentence, which is the one  
25 I was asking you about, it says, "If the vendor cannot demon-  
strate that the lubricant or seal supplied or recommended is

#15-4-SueT 1 the same as that tested, corrective action is required to  
2 qualify the different components."

3 The question is, could that action be an analysis,  
4 or would it have to actually be a change in the components, or  
5 a test of the components?

6 A (Witness Bucci) Well, under the conditions you have  
7 just described the lubricant -- if qualification cannot be  
8 demonstrated for the lubricant we would replace the lubricant.

9 Q Okay.

10 A With a qualified lubricant.

11 Q Uh-huh. It would be qualified by test?

12 A And you would go through the same process.

13 (Witness Pagan) And a documentation package would  
14 have to be prepared for that lubricant.

15 Q Uh-huh. Now, the documentation package for the  
16 lubricant would describe the qualification test that it had  
17 passed with that same equipment, right?

18 A Could you repeat that again?

19 Q The documentation package for that lubricant would  
20 describe the qualification test that it had passed with that  
21 equipment?

22 A The documentation package would be for the replace-  
23 ment lubricant that Mr. Bucci had indicated.

24 Q Right.

25 A That is, if we go out and have to purchase a new



#15-5-SueT

1 lubricant because we cannot qualify the current lubricant,  
2 we would have to document the fact that the new lubricant is  
3 qualified. That is done by a documentation package which is  
4 available for NRC Staff audit.

5 Q Okay. And I guess what I'm talking about, with  
6 the -- would the qualification of the lubricant in that case  
7 be by test?

8 A (Witness Bucci) Yes.

9 (Witness Pagan) Yes.

10 Q Okay. I just wanted to make sure -- there was a  
11 yes and something else I heard under it. And I wanted to  
12 make sure that was another yes.

13 Okay. Now, when the Westinghouse equipment is  
14 qualified, Mr. Yandow, if we can refer over on Page 6 when  
15 you start talking about the Westinghouse equipment, when it  
16 is qualified is it qualified with lubricants in it?

17 A (Witness Yandow) Yes, where they could do that.

18 Q Pardon?

19 A Where they could do that.

20 Q Where they could qualify it with lubricants in it?

21 A Yes.

22 Q Now, if something normally has a lubricant in it,  
23 how does it become impossible to qualify it with lubricant in  
24 it?

25 A As I stated before, sometimes the test isn't on an

#15-6-SueT 1 actual full scale test so the lubricant might not be -- you  
2 know, they may test a smaller version. The lubrication  
3 functions of that smaller version may not be the same as  
4 the bigger version, the friction, the temperature. That  
5 could be different than the smaller unit.

6 Q Uh-huh.

7 A So, I'm not saying that it definitely in all cases  
8 would be the same lubricant.

9 Q I see. Now, have you tried to find out from  
10 Westinghouse what the specific lubricants that they used  
11 during testing were?

12 A I requested by letter a statement, you know, what  
13 they were using and what they were not. And what I received  
14 was a generic report that they issue on that subject, lubri-  
15 cation and that kind of thing.

16 Q And the generic report is the thing that recommends  
17 the general type of lubricant for each piece of equipment?

18 A Well, the general type is described in either the  
19 quality report or the maintenance manual. You know, the re-  
20 quirement of the lubricant, not the specific brand of the  
21 lubricant.

22 Q But the specifications for it; is that what you  
23 are getting at?

24 A The technical manuals, the maintenance requirements,  
25 operational requirements.

#15-7-SueT 1

Q Uh-huh. The things which the lubricant is required to do, is that --

2

3

A Yes.

4

Q Okay. Now, does Westinghouse recommend a general type of lubricant for each piece of equipment that it supplies or types of lubricant for each function in those pieces of equipment?

5  
6  
7

8

A They recommend a type.

9

Q Uh-huh. And these specifications, are they based on qualification testing, to your knowledge?

10

11

A They are based on the performance requirements of the unit.

12

13

Q Uh-huh. Which includes the environmental qualification, right?

14

15

A That's correct.

16

Q Do you know if Westinghouse does any review of the experience of -- with these lubricants in nuclear plants in formulating its recommendations?

17  
18

19

A The information they provided me was some back data from a test that was done in conjunction with -- I believe it was EPRI on reactor coolant pumps. So, they were testing those certain lubricants used in reactor coolant pumps, and that's where they are getting some of their information.

20  
21  
22  
23

24

Other is just general background from different lubricant manufacturers.

25

#15-8-SueT 1

2 Q Uh-huh. And is that sort of information used as  
3 sort of an input to this Mobil study that you referred to  
4 down further in Answer 16?

5 A No. Mobil -- it's a proprietary document so Mobil  
6 wouldn't have possession of this. It's a similar type thing,  
7 but it's not directly referenced.

8 Q And the similar type thing is the Westinghouse  
9 specifications for the lubricants?

10 A That's what Mobil would use for performance  
11 requirements, yes.

12 Q Right. When is that review supposed to be finished?  
13 Is there a schedule for it?

14 A All I can say right now is probably early next  
15 year. It requires several visits back to Mobil to get more  
16 data and that type of thing.

17 Q Okay. As to the types of lubricants being reviewed,  
18 do lubricants ever change their formulation? I mean, if you  
19 get so and so's X-50 oil, is it always the same formulation  
20 or would you get a notice when it changed?

21 A It is not always the same formulation.

22 Q Okay. Would you be notified when the formulations  
23 were changed?

24 A What we are in the process of doing is setting up  
25 something with -- well, in this case, Mobil -- Mobil some  
kind of criteria, acceptance criteria, that we would establish,

#15-9-SueT 1 sort of like a specification which they would certify to meet  
2 test requirements.

3 Q So then you could have a lubricant tested to make  
4 sure that it met those requirements?

5 A This would be a test done on any lubricant that  
6 the formulation had changed to show that the lubricant still  
7 met the requirements of the one that was tested, similar to  
8 what we do with equipment if it was changed in any way.

9 Q Okay. And would you always be notified by the  
10 supplier or manufacturer of the lubricant when the formulation  
11 was changed?

12 A In the case of Mobil, yes. In the case of the  
13 others I'm not sure.

14 Q Okay. And is this Mobil testing program applied to  
15 lubricants supplied by other people besides Mobil?

16 A Maybe it would be a good time to discuss what the  
17 Mobil study did do. It did review, take samples of, and look  
18 at, all the lubricants and greases used throughout the plant,  
19 not just NSSS equipment.

20 Q Uh-huh.

21 A Right now, we are only applying it to NSSS and they  
22 are recommending specific brands that Mobil provides, so they  
23 did not review the other lubricants, no.

24 Q All right. As to the end of Answer 16 on Page 7,  
25 you talk about performance will be reviewed to verify equipment

#15-10-Sue

manufacturer lubricant performance specifications have been met.

Does that mean to verify that they are still met after the test is concluded?

A Yes.

Q Okay. And that is one of the results or one of the things that you get out of the radiation stability testing you discuss above in that answer, right?

A That's correct.

Q Okay. And then once you get the results back from that, you will develop these packages that are discussed in Answer 17, correct?

A I'm not sure of the number but, yes, we would prepare a package.

Q Uh-huh. Oh, it says an environmental qualification package. Okay.

Just a moment. I want to ask Mr. Yandow this because he is the only one that's on the next panel. Are you aware of any failures of these lubricants either for NSSS equipment or for Ebasco supplied equipment in qualification tests, to your knowledge?

A This is on lubricants?

Q Lubricants or seals.

A I'm not aware of any on lubricants. Seals, I've seen several places where a seal that was proposed to be

#15-11-Suet supplied by a vendor has failed.

2 Q Uh-huh.

3 A And he so indicates in his test and we have to  
4 provide our own seal or he recommends a different one.

5 Q And those other seals have to be qualified, right?

6 A Most definitely, yes.

7 MR. EDDLEMAN: Thank you. That concludes my  
8 questions for this panel.

9 JUDGE KELLEY: Thank you. Ms. Moore?

10 MS. MOORE: The Staff has no questions, Your  
11 Honor.

12 BOARD EXAMINATION

13 BY JUDGE BRIGHT:

INDEXXXXX 14 Q Gentlemen, a couple of times in this colloquy the  
15 subject, scale effects, has come up. Now, correct me if I'm  
16 wrong. I got the idea that this had to do with the sheer  
17 difficulty in trying to do testing on large components such  
18 as main coolant circulation pumps, this sort of thing.

19 Is that right?

20 A (Witness Bucci) Yes, in regards to why certain  
21 equipment was tested separately from the equipment that it  
22 may be connected to, for instance a pump and a motor.

23 Q Well, I understood Mr. Yandow particularly to say  
24 that one had to do a small scale test in some cases. Is  
25 that true?

#15-12-Suet

A (Witness Yadow) That's correct.

2 Q On what?

3 A The example I was thinking of is, I believe the  
4 large pumps, or pumps and motors, supplied by Westinghouse --  
5 I believe the motor is checked, is done as a motorette test.  
6 It's a three -- I think it's 382 is the requirement. There is  
7 an allowance for doing a small scale test of a large -- what  
8 you are checking in an environmental test would be the installa-  
9 tion type and the way it's ground and that kind of thing. And  
10 that can be checked on the motor rad as well as a large motor.

11 So, they are allowed to do that.

12 (Witness Bucci) I just mention this. IEEE-334,  
13 1974.

14 Q Well, okay. Now, what about the large pumps? Are  
15 they lubricated, the main coolant pumps?

16 A (Witness Bucci) Yes.

17 Q What are they lubricated with?

18 A Offhand, I don't know.

19 (Witness Yadow) The reactor coolant pump, I might  
20 add, is not a NSSS -- it's not a safety-related equipment.  
21 It's a pressure boundary but the pump is not a safety-related  
22 piece of equipment.

23 Q Well, now I'm not talking about the motor. Doesn't  
24 the impeller have any bearings in it?

25 A (Witness Pagan) That equipment, a pump, would not



#15-13-SueT 1

2 come under the scope of the electrical environmental qualifica-  
3 tion program.

4 Q Uh-huh. Okay. So it would be only the motor?

5 A Yes, sir.

6 JUDGE BRIGHT: Okay. Thank you.

7 BOARD EXAMINATION

8 BY JUDGE KELLEY:

9 Q I have a question that arises out of my own ex-  
10 perience. I don't know whether it applies. But a few months  
11 ago I took an aging station wagon of mine in, told them among  
12 other things to change the oil and the filter. They drained  
13 all the oil out and put in a new filter, gave me back the car  
14 and they hadn't put any oil back in.

15 And it started to warm up and make strange noises,  
16 and I began to think what was wrong. I went two more blocks,  
17 got to a gas station just in time apparently, and they poured  
18 some oil back in. All was well eventually.

19 But I guess you can't go very far in a car that  
20 doesn't have any oil in it. What I was wondering with regard  
21 to the equipment that you are talking about here, suppose  
22 that the lubrication is insufficient or it turns bad for what-  
23 ever reason. Do you get any warning signals before the motor  
24 stops?

25 Let's suppose it doesn't have enough lubrication in  
it and it needs more oil. Will it run anyway for a while or

INDEXXXX

#15-14-SueT1

not? Or, maybe you just can't generalize across the board.

2           Do you have any -- as they sometimes say in reactor  
3 technology, are these things forgiving as far as not having  
4 enough lubricant in them?

5           A       (Witness Yandow) In my review and the research I  
6 have done on this subject, I've been talking to operations  
7 people, too, and a piece of equipment, especially a large  
8 piece, will make a lot of noise when the lubricant is failing,  
9 not after it has failed. And, since most of the pieces of  
10 equipment are either walked by or there is an auxiliary opera-  
11 tor that looks at the equipment every day, he would hear --  
12 I think the example that I've been given, and it is maybe out  
13 of technology, but it's called the wooden block. You take the  
14 block, you put it up against the block, you put your ear to  
15 it and you can hear vibration.

16                   And people that have been around this equipment can  
17 tell when lubricant is failing.

18           Q       If there was inadequate lubricant, would there be  
19 a heat indicator that would go up?

20           A       (Witness Bucci) Yes. We --

21           Q       On some of these anyway?

22           A       Yes. In addition to what Peter said, we actually  
23 have vibration detectors mounted on the large motors anyway  
24 and thermocouples on the bearings to measure if they are over-  
25 heating.

#15-15-Suet<sup>1</sup>

2 Q So, there is a little bit of a fall-back there  
3 even if the lubricant is inadequate or deficient in some way  
4 in terms of being able to catch it?

5 A (Witness Pagan) In addition to that, many of  
6 these types of equipment, the lubricant is checked periodically  
7 to see that the level is proper, that the lubricant hasn't  
8 degraded, visually and so forth.

9 JUDGE KELLEY: I might have strayed out of the con-  
10 tention a little bit. I realize that. Well, I asked the  
11 question and no one objected.

12 (Laughter.)

13 Mr. Eddleman, anything else?

14 MR. EDDLEMAN: No, nothing further.

15 JUDGE KELLEY: Okay. Redirect?

16 MR. O'NEILL: No redirect.

17 JUDGE KELLEY: Okay. I guess that's it for you,  
18 Mr. Yandow.

19 MR. YANDOW: Yes, sir.

20 JUDGE KELLEY: Thanks very much. We very much  
21 appreciate you coming. You are excused.

22 (The witnesses stood aside.)

23 JUDGE KELLEY: Do we have the next panel here?

24 MR. O'NEILL: The Applicants would call Mr. Prunty  
25 back to the stand and Mr. Hate.

JUDGE KELLEY: So it's a panel of four?

MR. O'NEILL: Yes, sir.

Sim 16-1

1 JUDGE KELLEY: We can go back on the record.

2 Mr. Baxter has a point to raise.

3 MR. BAXTER: Mr. Chairman, on October 18 I distributed  
4 Applicants' motion to amend the schedule for emergency  
5 planning issues. I am still in the process of consulting  
6 with some of the parties. I have finished with Mr. Reed  
7 and Mr. Runkel, but not yet with Dr. Wilson or Mr. Eddleman.  
8 I have also finished consulting with the staff.

9 But under the currently existing schedule for  
10 Track A Contentions, which were those admitted by the Board  
11 in May and June of '84, summary disposition motions are due  
12 to be filed no later than November 1, which is next Thursday.

13 As I indicate in the motion, one of the reasons  
14 we can't meet that schedule is because of the September  
15 Hurricane Diana and the State people's unavailability. And  
16 while I want to continue with this consultation process,  
17 a week from tomorrow is drawing near and we are under con-  
18 siderable anxiety about having this deadline approach and  
19 pass, and I move as interim relief that that deadline be  
20 suspended until the Board is able to rule on the motion as  
21 a whole.

22 MR. EDDLEMAN: Well, I would oppose that. My view  
23 of it is that basically in dealing with these contentions  
24 that I got put under the constraint of losing the waiver of  
25 time that you get from days in hearing and all these things

Sim 16-2

1 and had to meet the schedule, and the applicants seem to  
2 want for their convenience. I only think there are a couple  
3 of contentions that discovery hasn't been completed on  
4 because of the unavailability of those State people, and I  
5 don't see any reason to lift the thing generally for that  
6 even if it is considered a valid reason.

7 I think the deadline should still apply to the  
8 contentions, except those that are directly impacted by not  
9 getting back discovery from the State people. I don't know. I  
10 mean I had some continuing discussions with applicants earlier  
11 this month and perhaps before that about when that information  
12 might come back and, you know, how the State people were tied  
13 up and so on.

14 The last we had on it I think there was one more  
15 set of answers that had to come back that some of the State  
16 people involved with the hurricane couldn't produce, and we  
17 made an agreement to extend time for a second round of  
18 interrogatories on those for me from whenever the answers came  
19 in, and I haven't heard a thing yet about when those answers  
20 might be available. So I just don't know about that.

21 But I think that is a much more narrow thing  
22 than all of the Track 1 Contentions.

23 MR. BAXTER: Well, I wasn't speaking just to  
24 discovery though, Mr. Chairman. Mr. Eddleman is right that  
25 we have not been able to get State responses to some of the

Sim 16-3

1 discovery requests because of the hurricane. But, in addition,  
2 motions for summary disposition are supported by affidavits  
3 from the responsible officials and they have not been  
4 available to prepare those affidavits on this schedule.

5 That is not my convenience that a hurricane  
6 occurred.

7 JUDGE KELLEY: The proposition right now is simply  
8 to suspend until we consider the motion as a whole. When  
9 do you think we can -- are we going to be getting written  
10 answers from other parties? Is that what people envision, or  
11 are people going to come in and make an argument or what  
12 does it look like is developing?

13 MR. BAXTER: I have Mr. Runkel's and Mr. Reed's  
14 consent to the motion. I spoke with Dr. Wilson last night  
15 and we wanted me to call him back tonight when he had another  
16 chance to look at it.

17 JUDGE KELLEY: The motion you speak of ---

18 MR. BAXTER: The entire motion.

19 JUDGE KELLEY: The whole motion.

20 MR. BAXTER: Yes.

21 JUDGE KELLEY: And that basically goes from February  
22 to April?

23 MR. BAXTER: Right.

24 JUDGE KELLEY: And what is corresponding move  
25 on summary disposition then in this motion?

Sim 16-4

1 MR. BAXTER: It moves the November 1 deadline to  
2 December 21 for Track A, and for Track B it was already  
3 December 21. So it makes a common deadline.

4 JUDGE KELLEY: And my question was when will all  
5 this fall into place from the standpoint of our deciding this  
6 motion?

7 MR. BAXTER: Well, I plan to call Dr. Wilson today  
8 or tomorrow morning and then I will have three out of four,  
9 Mr. Eddleman being the fourth, and he is here, and at some  
10 point ---

11 JUDGE KELLEY: Can we at least hear this Friday  
12 so that everybody knows? I am not indicating one thing or  
13 the other on your interim request, but we are just trying to  
14 get a picture of what this really involves.

15 I mean if we rule on this on Friday, it is two days  
16 of relief is what it comes down to. And your point I suppose  
17 is you otherwise have got people writing motions like crazy  
18 in the meantime; is that right?

19 MR. BAXTER: Trying to, that is right, and  
20 pressuring and cajoling State officials who don't have  
21 time to do it.

22 MR. EDDLEMAN: There is a point that I would like  
23 to make, and that is that I am not aware that the State  
24 officials are the only emergency planning experts who could  
25 write an affidavit that applicants would have access to. I

Sim 16-5

1 don't see why that is controlling.

2 I mean as much as Mr. Baxter might like to have  
3 the applicable State official be the affiant, I don't see why  
4 they have to have him.

5 MR. BAXTER: I can't conceive of a harm or prejudice  
6 to Mr. Eddleman from the granting of this request,  
7 Mr. Chairman. I think it is just mean obstreperousness to  
8 interpose an objection at this point to asking for a short  
9 relief. We certainly accommodated him during illnesses and  
10 all sorts of other conflicts throughout this proceeding.

11 MR. EDDLEMAN: I am not objecting to a couple of  
12 days. What I am objecting to is this business of extending  
13 it to December the 21st, and my objection there is ---

14 JUDGE KELLEY: Okay. But I think that is not really  
15 before the house yet.

16 MR. EDDLEMAN: Oh, okay.

17 JUDGE KELLEY: All we have got now is pending  
18 consideration of the larger motion which, provided we can hear  
19 all this by Friday, and I hope we can, you know, it is not  
20 a terribly complicated thing and we can grasp this and rule  
21 on it, I assume.

22 MR. EDDLEMAN: If we are talking about a couple of  
23 days extension, I am not going to object to that. I would  
24 rather make my objection to the rest of it, you know, orally  
25 rather than have to type something up and serve it.



Sim 16-6

1 I would also say that I am aware of some sort of a  
2 move to change the time of the emergency planning exercise  
3 until next summer or something which would skip it clear over  
4 these changed hearings or the ones that are now scheduled.  
5 I could go back to that, but I think that is going to enter  
6 into it from my point of view.

7 In other words, if you are going to delay the  
8 hearings, I think it would be much more constructive to have  
9 your hearing happen after the plan has actually gone through  
10 its exercise.

11 JUDGE KELLEY: I am glad you raised the point.  
12 Assume that we talk about this Friday and let's certainly  
13 try to, can we get some fairly full update from one of the  
14 parties on the NRC's efforts to turn the Court of Appeals  
15 around to go to the Supreme Court or whatever on that  
16 issue, whether you can litigate the test. That has gone  
17 through various stages, I understand, and I am not sure where  
18 it is right now.

19 Another thought that I will just mention. I gather  
20 the two-day request -- the request, I say two days from now,  
21 and by the time we hear the motion, which we think is probably  
22 two days, we will grant, and this is why I think it has  
23 some bearing on it. We have now moved this schedule for  
24 this hearing once or twice, twice coming up I guess, and  
25 this Board can't decide summary disposition motions when it

Sim 16-7

1 is down here hearing a case, and that has something to with  
2 it on the short-term anyway, but in view of where we are let's  
3 just say that is enough said for now, and hopefully try to talk  
4 this out and hear the motion fully on Friday and either decide  
5 it then or very shortly thereafter.

6 MR. EDDLEMAN: Just to clarify, when I was saying  
7 it is more constructive to have the exercise before the  
8 hearing, I wasn't talking in terms of litigating this stuff  
9 out of it specifically. As I understand it, that is for new  
10 contentions that come up.

11 I was thinking that if you had actually done something  
12 you could ask people a lot more cogent and meaningful questions  
13 about it than if you just have to ask them hypotheticals.

14 JUDGE KELLEY: Okay. Well, we can talk that out  
15 when we get to the merits of the motion.

16 MR. BAXTER: I am sorry to burden the record, but  
17 I obviously welcome any ideas Mr. Eddleman has whenever he  
18 is ready to talk about this motion, including that one.

19 JUDGE KELLEY: I realize you are pretty loaded  
20 up, Mr. Eddleman, but could you two get together and find  
21 a little time to talk about the motion between now and  
22 Friday?

23 MR. EDDLEMAN: I will try to do it sometime tomorrow.  
24 I sure can't do it tonight.

25 JUDGE KELLEY: Whatever you can do.

Sim 16-8

1 So, Mr. Hate, is it?

2 MR. HATE: Yes.

3 Whereupon,

4 ROBERT W. PRUNTY

5 RICHARD M. BUCCI

6 EDWIN J. PAGAN

7 - and -

XXXXXXXXXXXX

8 KUMAR V. HATE

9 were called as a panel of witnesses on behalf of the applicants  
10 and, Messrs. Prunty, Bucci and Pagan having been previously  
11 duly sworn and Mr. Hate being first duly sworn by Judge Kelley,  
12 were examined and testified as follows:

13 DIRECT EXAMINATION

14 BY MR. O'NEILL:

15 Q Mr. Hate, would you please state your full name  
16 and employer for the record?

17 A (Witness Hate) My full name is Kumar V. Hate. I  
18 am employed by Carolina Power and Light Company.

19 Q Gentlemen, do you have before you two prefiled  
20 written statements filed with the Board and the parties in  
21 this proceeding, the first one on August 31, 1984 and the  
22 second on October 11, 1984?

23 A (Witness Bucci) Yes.

24 A (Witness Hate) Yes.

25 A (Witness Prunty) Yes.

Sim 16-9

1 A (Mr. Pagan) Yes.

2 Q Mr. Prunty, would you please identify those two  
3 documents for the record?

4 A (Witness Prunty) The one dated August 31st, 1984  
5 is Applicants' Testimony of Robert W. Prunty, Richard M. Bucci,  
6 Edwin J. Pagan and Kuman V. Hate in Response to Eddleman  
7 Contention 9G (Type Test Reporting).

8 The one filed on October 11th, 1984 is titled  
9 Applicants' Supplemental Testimony of Robert W. Prunty,  
10 Richard M. Bucci, Edwin J. Pagan and Kuman V. Hate In Response  
11 to Eddleman Contention 9G (Type Test Reporting).

12 Q Mr. Prunty, does the August 31 written statement  
13 consist of 13 pages of questions and answers and an Attachment  
14 A which are the professional qualifications of Mr. Hate, and  
15 does the October 11th prefiled statement consist of 6 pages  
16 of questions and answers?

17 A Yes, they do.

18 Q Gentlemen, were these two documents prepared by  
19 you or under your supervision and are each of your answers  
20 identified by your initials?

21 A (Witness Bucci) Yes.

22 A (Witness Hate) Yes, it was.

23 A (Mr. Pagan) Yes.

24 A (Witness Prunty)

25 Q Do any of you have any changes or corrections to

Sim 16-10

1 to make to these two documents?

2 A (Witness Hate) I have one correction. On page 13,  
3 the third line from the bottom, a comma should be inserted  
4 after the word "authorized laboratory.)

5 Q This is on page 13 of the August 31 statement?

6 A That is correct.

7 MR. EDDLEMAN: A comma between laboratory and vender  
8 in that line?

9 MR. O'NEILL: That is correct.

10 WITNESS HATE: That is correct.

11 MR. EDDLEMAN: Thank you.

12 BY MR. O'NEILL:

13 Q Are there any other changes or corrections that  
14 any of you wish to make?

15 A (Witness Bucci) No.

16 A (Witness Hate) No.

17 A (Witness Prunty) No, I have no changes.

18 A (Mr. Pagan) No.

19 Q Then are these two statements, the statement  
20 of August 31 as supplemented by the statement of October 11th  
21 true and accurate to the best of your knowledge, information  
22 and belief?

23 A (Witness Hate) Yes, it is.

24 A (Witness Bucci) Yes.

25 A (Witness Prunty) Yes.

Sim 16-11

A (Mr. Pagan) Yes.

1  
2 MR. O'NEILL: Mr. Chairman, I then move that  
3 Applicants' testimony of Robert W. Prunty, Richard M. Bucci,  
4 Edwin J. Pagan and Kumar V. Hate in response to Eddleman  
5 Contention 9G (Type Test Reporting) followed by Applicants  
6 Supplementary Testimony of Robert W. Prunty, Richard M. Bucci,  
7 Edwin J. Pagan and Kumar V. Hate In Response to Eddleman  
8 Contention 9G (Type Test Reporting) be incorporated into  
9 the record as if read and received into evidence.

10 MR. EDDLEMAN: Fine.

11 JUDGE KELLEY: Motion granted.

12 (The documents referred to follow:)

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Ace-Federal Reporters, Inc.

August 31, 1984

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of )  
CAROLINA POWER & LIGHT COMPANY )  
and NORTH CAROLINA EASTERN )  
MUNICIPAL POWER AGENCY ) Docket No. 50-400 OL  
(Shearon Harris Nuclear Power )  
Plant) )

APPLICANTS' TESTIMONY OF ROBERT W. PRUNTY,  
RICHARD M. BUCCI, EDWIN J. PAGAN AND KUMAR V.  
HATE IN RESPONSE TO EDDLEMAN CONTENTION 9G  
(TYPE TEST REPORTING)

Q.1 Please state your names.

A.1 Robert W. Prunty, Richard M. Bucci, Edwin J. Pagan and Kumar V. Hate.

Q.2 Mr. Prunty, Mr. Bucci and Mr. Pagan, are your occupations, employers, educational backgrounds and professional work experiences described elsewhere in the record of this proceeding?

A.2 (RWP, RMB, EJP) Yes, the relevant information is provided in "Applicants' Testimony of Robert W. Prunty and Peter M. Yandow in Response to Eddleman 9 (Environmental Qualification of Electrical Equipment)" and "Applicants' Testimony of Richard M. Bucci and Edwin J. Pagan in Response to Eddleman Contention 9D (Instrument Cables)."

Q.3 Mr. Hate, please state your present occupation and employer.

A.3 (KVH) I am employed by Carolina Power & Light Company's Corporate Quality Assurance Department at the Shearon Harris Nuclear Power Plant ("SHNPP") as Principal QA Engineer, QA/QC Harris Plant section.

Q.4 State your educational background and professional work experience.

A.4 (KVH) I received a Bachelor of Science degree in Metallurgical Engineering in 1970 from the Indian Institute of Technology in Bombay, a Master of Science degree in Materials Engineering in 1972 from Mississippi State University, and a



Master of Science degree in Management in 1984 from North Carolina State University. I am a registered Professional Engineer, and have been employed by CP&L in various QA assignments since July, 1974. A complete statement of my professional qualifications is appended as Attachment A to this testimony.

Q.5 Mr. Hate, please elaborate on your professional experience that is directly relevant to the testimony which you are presenting regarding type test reporting for safety-related electrical equipment used at SHNPP.

A.5 (KVH) Prior to being assigned to the on-site Quality Assurance organization at Harris, I was responsible for directing a team of QA Engineers in an overview of the electrical design, procurement and construction installation process from a QA viewpoint for the Harris Project. This responsibility was discharged through: (i) review of engineering specifications and procurement documents; (ii) conducting/directing audits of vendors such as Ebasco and Westinghouse; (iii) assisting vendor surveillance in their program planning of vendor qualification and inspection activities; and (iv) reviewing construction installation and inspection procedures.

Q.6 What is the purpose of this testimony?

A.6 (RWP) The purpose of this testimony is to respond to Eddleman Contention 9G, which states:

There is inadequate assurance that failure to report all results of environmental qualification tests, including failures, has been brought to light in connection with electrical equipment installed in

Harris. This includes past test failures of equipment which subsequently passes an EQ test and test failures of equipment which is said to be qualified by similarity. (Ref. Item 2, Page 5, L. D. Bustard et al., Annual Report: Equipment Qualification Inspection Program, Sandia National Laboratories, FY83.)

Q.7 How is your testimony organized?

A.7 (RWP) We first address specifically the deficiencies in qualification testing of certain Rockbestos cables, described in the referenced report in Eddleman Contention 9G, and the applicability of these testing deficiencies to the qualification of Rockbestos cables installed at the SHNPP. Next, we discuss more generally vendor reporting of environmental qualification test failures and the basis for our conclusion that there is reasonable assurance that any significant test failures have been reported for electrical equipment installed at SHNPP.

Q.8 Please identify the reference in Eddleman Contention 9G.

A.8 (RMB, EJP) A memorandum from William J. Dircks, NRC Executive Director for Operations, to the Commissioners dated February 2, 1984, transmitted an "Annual Report: Equipment Qualification Inspection Program" prepared by L. D. Bustard, et al., Sandia National Laboratories (FY1983). Item 2, page 5 of this Annual Report is referenced in Contention 9G, which states as follows:

Another company started to qualify a product line by testing five different products in that line. By completion of the test program, four of the products had

substantially degraded. A qualification report was written describing only the successful qualification of the one product that did not degrade. A second qualification report was then generated arguing that other members of the product line were qualified by similarity. The degradation observed during testing for four members of the product line was never discussed in the similarity report. Interestingly, the one product that successfully performed throughout this test had substantially degraded during previous qualification attempts. These previous efforts were never mentioned in the qualification report. The qualification test parameters had been successively changed until qualification success was achieved.

An attachment to the Dircks memorandum identifies "item 2" as based on Inspection Reports 99900277/83-02 and 99900277/83-04, which document the results of inspections of the Rockbestos Company conducted on June 20-23 and August 16-17, 1983. The inspection report questions the use of Rockbestos environmental qualification test report QR 2806 to qualify their entire 100 series line of coaxial, triaxial and twinax cables. The inspection report notes that QR 2806 only demonstrates qualification (by test) for RSS-6-104 coaxial cables. Furthermore, during the same test used to show qualification of RSS-6-104 cables, other cables (namely RSS-6-100A, RSS-6-109, RSS-6-110 and RSS-6-112) failed electrically. This fact is not mentioned in Rockbestos similarity discussions for other cables.

Q.9 Has the NRC informed the industry of the identified deficiencies in Rockbestos environmental qualification testing?

A.9 (RWP) Yes. The NRC Staff issued IE Information Notice No. 84-44, dated June 8, 1984, which notified licensees of

potential generic problems regarding Rockbestos environmental qualification testing of Class IE electrical cables.

Q.10 Does the SHNPP use any Rockbestos cables?

A.10 (RWP, RMB, EJP) Yes. The following vendor-supplied Rockbestos cables are installed in the SHNPP:

RSS-6-104/LD	Coaxial	Radiation Monitoring System (RMS)
RSS-6-105/LD	Coaxial	Electrical Containment Penetrations
RSS-6-108/LD	Triaxial	Electrical Containment Penetrations

However, Rockbestos is not a direct cable vendor at SHNPP and, except for the RMS vendor-supplied interconnecting cable, there is no Rockbestos cable installed in the SHNPP raceway system.

Q.11 Has Rockbestos performed qualification testing on the cables supplied to the SHNPP?

A.11 (RMB, EJP) The RSS-6-104/LD used at Shearon Harris is identical to the RSS-6-104/LD tested and reported in the QR 2806 report. (Shearon Harris does not use any of the Rockbestos cables identified in the inspection reports as having failed qualification tests.)

The qualification testing of RSS-6-104/LD cables is applicable to the other coaxial and the triaxial cable used at the SHNPP as well. The RSS-6-104/LD and RSS-6-105/LD are both coaxial cables and have the same electrical, physical and environmental properties and are of identical construction. Their conductors, insulation, shield and jackets are the same materials. The only difference is that the RSS-6-105/LD has an inert coating applied between the shield and the insulation to

improve electrical noise reduction properties. This coating is applied after the insulation has been extruded on the conductor and does not affect the properties of the insulation material.

The RSS-6-108/LD is a triaxial cable which also uses the same materials, and which has two shields instead of one, as is the case with the two coaxial cables identified above. Since it is also of concentric construction, the arrangement of the components is sufficiently similar to that of the coaxial cable to permit its qualification. With respect to the dimensions of the insulations and jackets of the RSS-6-108/LD, they are greater than those of the RSS-6-104/LD. For qualification purposes and for a given cable type, a thinner insulation and jacket thickness can be used to qualify a thicker insulation and jacket thickness of the same materials. As such, the RSS-6-104/LD can also be used to qualify the RSS-6-108/LD.

In short, the minor differences among these cable types do not affect qualification.

Q.12 How will Applicants demonstrate the environmental qualification of the Rockbestos cable installed in the SHNPP?

A.12 (RWP, RMB, EJP) Rockbestos qualification report QR 2806, which, as discussed above, is representative of the three types of Rockbestos coaxial/triaxial cables used at the SHNPP, has been reviewed to determine that the qualification test parameters envelope applicable SHNPP parameters for the worst location through which cable is routed. This review included the following:

1. A determination that the test sample has been thermally aged to the desired end of qualified life condition.

2. A determination that the test sample has been irradiated to a total radiation dose greater than the maximum dose the cable will be exposed to at the plant during normal, accident and post-accident conditions.

3. A determination that the test sample has been exposed to a design basis accident simulation, after completing steps 1 and 2 above, which envelopes the Shearon Harris requirements. The design basis accident simulation includes high temperature and pressures, humidity and chemical spray applied simultaneously.

4. Additional aspects associated with qualification testing such as test set up, continuity of cable, voltage withstand test results and measurement of insulation resistances are also addressed during the review.

The results of the review of QR 2806 indicate that all of the SHNPP requirements have been enveloped with the exception of the peak temperature. As a result, it is necessary to perform an additional calculation to determine the acceptability of the lower peak test temperature. (A preliminary analysis indicates that the test peak temperature will be acceptable.)

However, in light of the deficiencies noted regarding certain of the Rockbestos qualification tests for other cables, Applicants will inspect the documentation relied upon by

Rockbestos in QR 2806 to determine independently whether the testing data adequately supports the environmental qualification report. If necessary, Applicants will obtain documentation from other available tests applicable to the installed cables. If existing documentation fails to demonstrate environmental qualification, Applicants will pursue other avenues to ensure qualification, including requalification or replacement of the deficient cables as required.

Q.13 The contention appears to assume that each and every environmental qualification test failure should be reported to the utility purchasing the equipment. Do you agree with such an uncategorical proposition?

A.13 (RWP, RMB, EJP) No. As we will explain, not every test failure needs to be reported. Where the vendor initiates generic qualification testing of a particular product line, the vendor may conduct a number of tests on a number of configurations and samples. The failure of a particular configuration is not necessarily an indictment of the testing as a whole or of the remaining configurations. (Such a failure, however, may become the basis for a vendor-imposed limitation on use of the equipment.) Similarly, the failure of a particular sample does not imply negative test results until the failure is evaluated for cause. For example, a particular sample may fail due to an improper test set-up at the test lab, which is not a reflection on the sample itself; or the failure may be due to a random defect in a specific sample. We would not expect the vendor to

report these types of failures in a generic qualification program.

Q.14 Do you have any basis for believing that CP&L has been informed of such test failures through the reports provided by its vendors as a part of the environmental qualification program?

A.14 (RWP, RMB, EJP) Yes. The following points, taken together, give us reasonable assurance that significant test failures have been identified to us or that they have not occurred.

First, vendor test reports received as a part of the Shearon Harris environmental qualification program have actually identified test failures which occurred during qualification testing. These failures are then evaluated during test report review. The fact that vendors are reporting relevant failures illustrates their recognition that the customer and its agents deserve the opportunity to assess such failures on their own.

Second, for specific vendor test programs initiated at the request of one or more customers, a test plan and test procedure are approved by the customer(s) prior to actual testing. Specific numbers and types of test samples are delineated. Upon completion of testing, data gathered with respect to each sample, as well as the conclusions drawn, are presented in the report. Each and every test failure would be noted along with an assessment of its cause and implications. This allows the customer to make an independent assessment as to



plant specific suitability of the tested equipment. It would also be apparent if the vendor had not reported test results on any of the samples.

Third, in the case of large pieces of equipment, the vendor typically has not tested numerous expensive equipment samples. It is unusual for the entire piece of equipment to fail during the test, and test "failures" are usually limited to particular sub-assemblies. Such failures are reported and addressed during review of the qualification report. At SHNPP the qualified life can be addressed by a replacement program designed to meet the projected failure. This is an acceptable outcome of the qualification program.

Finally, the NRC's own regulatory program provides information to the industry on equipment qualification failures. 10 C.F.R. Part 21 requires vendors to inform the NRC of component defects which could create a substantial safety hazard and/or of failure of a component to comply with NRC requirements. In addition, the NRC and its contractors (for example, Sandia), inspect and audit qualification activities. Through its IE information notice program, the NRC informs the industry of equipment failures which are of significance. CP&L routinely evaluates these notices to determine their applicability to SHNPP and to assess the need for specific action.

Q.15 Are there additional means available to CP&L to detect a vendor's failure to report significant test failures?

A.15 (KVH) Yes. I believe the various steps taken to assure the overall quality of a vendor's performance provide at least indirect additional evidence that its environmental qualification program is credible. In other words, if a vendor is meeting our requirements, it is much less likely that it would have questionable performance in just the qualification testing program. These quality verification steps are as follows.

Prior to award of a contract, potential suppliers are evaluated by engineering personnel as to their capabilities of providing a quality product. This evaluation is done through methods such as technical meetings and visits to the supplier's facility. Current and past industry performance as to the ability to supply an acceptable product is also taken into account. Upon completion of this process, QA is requested to evaluate the recommended vendor. This is done by a review of the vendor's QA program manual/procedures and verification, through such methods as audits, of the vendor's ability to successfully implement its QA program. During this process QA also confirms that the vendor has sufficient controls over the performance of its suppliers.

Upon award of the contract, Engineering personnel review vendor documents such as procedures, drawings and test reports for acceptability and, in some cases, visit the vendor's facility to ensure work is proceeding in a satisfactory manner. Additionally, QA personnel perform shop inspections at the vendor's facility to verify that the requirements of the

procurement documents are met. During these shop inspections, QA personnel verify personnel qualifications, examine the physical characteristics of the equipment, witness electrical functional tests and review documents to determine that the various phases of inprocess manufacturing and testing activities are acceptable. During these shop visits, QA personnel verify that reports are available for components that require environmental qualification, that the report represents the equipment being purchased, and that the report has been approved by either an authorized laboratory vendor or CP&L personnel. The above steps provide reasonable assurance that the vendor is proceeding in a systematic manner to provide a quality product.

Kumar V. Hata'  
Principal QA Engineer

I. Date of Birth

January 30, 1947

II. Education and Training

- A. BS Degree in Metallurgical Engineering, Indian Institute of Technology, Bombay, India, 1970
- B. MS Degree in Materials Engineering, Mississippi State University, State College, Mississippi, 1972
- C. MS Degree in Management, NC State University, Raleigh, North Carolina, 1984
- D. Completed course in "Quality Assurance", Ohio State University, Columbus, Ohio, 1974

III. Experience

- A. AMBAC Industries, Columbus, Mississippi
  - 1. October 1971 - September 1972
    - a. Engineering Laboratory Technician
  - 2. September 1972 - July 1974
    - a. Materials Engineer
- B. Carolina Power & Light Company
  - 1. July 1974 employed as a QA Engineer in the QA Section of the Power Plant Engineering Department. Located in the General Office, Raleigh, North Carolina.
    - a. September 1975 reclassified as a QA Engineer II in the QA Section of the Power Plant Engineering Department. Located in the General Office, Raleigh, North Carolina.
    - b. June 1976 promoted as a QA Engineer III in the QA Section of the Power Plant Engineering Department. Located in the General Office, Raleigh, North Carolina.
    - c. November 1976 transferred and reclassified as a QA Engineer in the Engineering & Construction QA Section of the Technical Services Department. Located in the General Office, Raleigh, North Carolina.
    - d. July 1977 promoted as a Senior QA Engineer in the Engineering & Construction QA Section of the Technical Services Department. Located in the General Office, Raleigh, North Carolina.

- e. June 1979 promoted as a Project QA Engineer in the Engineering & Construction QA Section of the Technical Services Department. Located in the General Office, Raleigh, North Carolina.
- f. March 1981 transferred as a Project QA Engineer in the Engineering & Construction QA/QC Section of the Corporate Quality Assurance Department. Located in the General Office, Raleigh, North Carolina.
- g. February 1982 promoted and transferred as a Principal QA/QC Engineer in the Engineering & Construction QA/QC Section of the Corporate Quality Assurance Department. Located at the Harris site, New Hill, North Carolina.
- h. February 1983 - SECTION TITLE CHANGE - Principal QA/QC Engineer in the QA Engineering Unit of the QA/QC Harris Plant Section of the Corporate Quality Assurance Department. Located at the Harris site, New Hill, North Carolina.
- i. March 1983 reclassified as a Principal QA Engineer in the QA Engineering Unit of the QA/QC Harris Plant Section of the Corporate Quality Assurance Department. Located at the Harris site, New Hill, North Carolina.

#### IV. Professional Societies

- A. Licensed Professional Engineer, Commonwealth of Virginia, April 1975

October 11, 1984

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

In the Matter of	)	
	)	
CAROLINA POWER & LIGHT COMPANY	)	Docket No. 50-400 OL
and NORTH CAROLINA EASTERN	)	
MUNICIPAL POWER AGENCY	)	
	)	
(Shearon Harris Nuclear Power	)	
Plant)	)	

APPLICANTS' SUPPLEMENTAL TESTIMONY OF  
ROBERT W. PRUNTY, RICHARD M. BUCCI,  
EDWIN J. PAGAN AND KUMAR V. HATE  
IN RESPONSE TO EDDLEMAN CONTENTION 9G  
(TYPE TEST REPORTING)

Q.1 What is the purpose of your Supplemental Testimony?

A.1 (RWP, RMB, EJP, KVH) This testimony supplements our pre-filed statement of August 31, 1984 to reflect a change in the method by which Applicants will demonstrate the environmental qualification of Class 1E coaxial and triaxial Rockbestos cable to be installed in the Shearon Harris Nuclear Power Plant ("SHNPP"). We also identify two additional types of Class 1E Rockbestos cable used at the SHNPP, and describe how Applicants will demonstrate environmental qualification of these cables.

Q.2 Why are Applicants changing the method by which they will demonstrate environmental qualification of coaxial and triaxial Rockbestos cable?

A.2 (RMB, EJP) In our August 31, 1984 pre-filed testimony, we discussed Rockbestos environmental qualification test report QR 2806, which documents successful testing of RSS-6-104/LD cable. We concluded that the RSS-6-105/LD and RSS-6-108/LD cables, the other types of Rockbestos coaxial and triaxial cable used at the SHNPP, also could be environmentally qualified by similarity to the RSS-6-104/LD cable based on QR 2806.

However, we stated that, in light of the deficiencies which have been identified in Rockbestos' environmental qualification testing program, Applicants would inspect the documentation relied on by Rockbestos to support QR 2806 and would

determine independently whether the testing data adequately supports the environmental qualification report. Applicants have now visited the Rockbestos facility, but were not presented with sufficient documentation of data to support the use of QR 2806 to qualify the coaxial or triaxial Rockbestos cables for the SHNPP.

Q.3 How will Applicants demonstrate the environmental qualification of the coaxial and triaxial cable to be installed in the SHNPP?

A.3 (RMB, EJP) One of the possible courses of corrective action specified in IE Information Notice No. 84-44 to be acceptable to assure qualification of Rockbestos cable is to obtain documentation from qualification tests performed on Rockbestos cable by vendors or test laboratories other than Rockbestos. Applicants have obtained two test reports, IPS-1053 and IPS-1054, from Conax Corporation ("Conax") which describe environmental qualification testing of electrical penetration module assemblies, including Rockbestos RSS-6-105/LD coaxial cables. Applicants have reviewed these reports and have determined that the qualification test parameters envelope applicable SHNPP parameters for the worst case location through which Rockbestos coaxial and triaxial cables are routed. As we stated in our August 31, 1984 pre-filed testimony, the minor differences among the RSS-6-105/LD, RSS-6-104/LD and RSS-6-108/LD cable types do not affect qualification. Thus, the qualification testing of RSS-6-105/LD cables is applicable



to the other Rockbestos coaxial and triaxial cable used at the SHNPP.

Q.4 Has Conax's QA program been reviewed by CP&L?

A.4 (RMB, EJP, KVH) Yes. Conax, as a supplier of Class 1E conduit seals, is a direct vendor at the SHNPP. Conax's QA program has been reviewed by CP&L and has been found acceptable. Ebasco has also reviewed Conax's QA program and found it acceptable.

Q.5 In A.10 of your August 31, 1984 pre-filed testimony, you identify three types of Rockbestos cable to be installed in the SHNPP, namely, the RSS-6-104/LD, RSS-6-105/LD and RSS-6-108/LD cables discussed above. Do you wish to clarify this answer?

A.5 (RWP, RMB, EJP) There are two additional types of safety-related Rockbestos cable used at the SHNPP: Firewall III insulated thermocouple cable, and Firewall III insulated control cable. The thermocouple cable is used as pigtails, which are approximately three feet long, in electrical containment penetrations. The control cable is used as jumper wire in the limit switch compartments of Limitorque valve operators. These jumper wires are each only a few inches in length.

These two types of cable were not identified in our August 31, 1984 pre-filed testimony because Item 2, p. 5 of the Sandia Annual Report referenced in Eddleman Contention 9G questions QR 2806, which only addresses coaxial and triaxial Rockbestos cable. As a result of Applicants' visit to the Rockbestos

facility, Applicants have concluded that, as in the case of the Rockbestos coaxial and triaxial cable, it is necessary to qualify the Rockbestos thermocouple and control cable used at the SHNPP independently of Rockbestos.

Q.6 How will Applicants demonstrate the environmental qualification of the Rockbestos thermocouple cable and control cable?

A.6 (RMB, EJP) Applicants have obtained two test reports which describe environmental qualification research tests by Sandia National Laboratories on Rockbestos Firewall III insulated control cable. The Rockbestos control cable used at the SHNPP was one of the cable types tested. Those test reports are: NUREG/CR-2932, 1 of 2, "Equipment Qualification Research Test of Electric Cable with Factory Splices and Insulation Rework Test No. 2" (September 1982); and NUREG/CR-3588, "The Effect of LOCA Simulation Procedures on Cross-Linked Polyolefin Cable's Performance" (April 1984). Applicants have reviewed these reports and have determined that the qualification test parameters, in each test, envelope applicable SHNPP parameters for the worst case location for both the control cable and thermocouple cable. Further, the control cable is representative of the thermocouple cable for qualification purposes, since the insulation materials and all other construction features significant to environmental qualification are the same. The thickness of the insulation material on the thermocouple cable is 25 mils compared to 30 mils on the control cable.

However, the thermocouple cable wires are covered by a metallic shield and Hypalon overall jacket which more than compensate for this minor difference in thickness.

Q.7 In conclusion, is the SHNPP environmental qualification program able to demonstrate qualification of all types of safety-related Rockbestos cable used at the SHNPP?

A.7 (RWP, RMB, EJP, KVH) Yes. Applicants have qualification test data independent of Rockbestos which demonstrate the environmental qualification of the Rockbestos cables to be used in the SHNPP.

Sim 16-12

1 MR. O'NEILL: Mr. Bucci and Mr. Hate, would you  
2 please summarize these two documents.

3 WITNESS BUCCI: Yes. The purpose of this testimony  
4 is to address Eddleman Contention 9G, which states "There  
5 is inadequate assurance that failure to report all results  
6 of environmental qualification tests, including failures,  
7 has been brought to light in connection with electrical equip-  
8 ment installed in Harris.

9 This includes past test failures of equipment  
10 which subsequently passes an EQ test and test failures of  
11 equipment which are said to be qualified by similarity.  
12 Reference Item 2, page 5, L. D. Bustard, J. J. Bensen and  
13 E. A. Saurusaw Annual Report, Equipment Qualification  
14 Inspection Program, Sandia National Laboratories, FY-83.

15 We disagree with this contention because several  
16 aspects in the environmental qualification program give us  
17 reasonable assurance that test failures which could bear on  
18 the environmental qualification of electrical equipment have  
19 been identified to us or have not occurred.

20 First, vendor test reports received as part of the  
21 Shearon Harris environmental qualification program have  
22 actually identified test failures which occurred during  
23 qualification testing.

24 These failures are then evaluated during test  
25 report review. The fact that vendors are reporting relevant

Sim 16-13

1 failures illustrates their recognition that the customer and  
2 its agents deserve the opportunity to assess such failures  
3 on their own.

4 Secondly, for specific vendor test programs initiated  
5 at the request of one or more customers, a test plan and  
6 test procedure are approved by the customer or customers prior  
7 to actual testing.

8 Specific numbers and types of test samples are  
9 delineated. Upon completion of testing, data gathered with  
10 respect to each sample, as well as the conclusions drawn,  
11 are presented in the report.

12 Test failures would be noted along with an assessment  
13 of its cause and implication. This allows the customer to make  
14 an independent assessment as to plant specific suitability  
15 of tested equipment.

16 It would also be apparent if the vendor had not  
17 reported test results on any of the samples.

18 Finally, the NRC's regulatory program provides  
19 information to the industry on equipment qualification failures.  
20 10 CFR Part 21 requires vendors to inform the NRC of component  
21 defects which could create a substantial safety hazard and/or  
22 of failure of a component to comply with NRC requirements.

23 In addition, the NRC and its contractors, for example,  
24 Sandia Labs inspect and audit qualification activities. Through  
25 its IE information notice program, the NRC informs the industry

Sim 16-14

1 of equipment failures which are of significance.

2 CP&L routinely evaluates these notices to determine  
3 their applicability to Shearon Harris Nuclear Power Plant  
4 and to assess the need for specific action.

5 In our testimony we discuss the deficiencies in  
6 qualification testing of Rockbestos cables. These were  
7 described in the Sandia Report referenced in Contention 9G.

8 In Supplemental Testimony we discuss the method  
9 we will use to independently demonstrate qualification of  
10 Rockbestos cables used at Shearon Harris Nuclear Power Plant.

11 We also discuss vendor reporting of qualification  
12 test failures in general and the bases for our conclusion  
13 that test failures significant to qualification have been  
14 reported.

15 Mr. Hate of CP&L will introduce the additional  
16 features of CP&L's quality assurance program that addresses  
17 this concern.

18 WITNESS HATE: I am in the Quality Assurance/  
19 Quality Control Section of the Harris plant.

20 In my testimony I explain the various steps that  
21 are taken to assure the overall quality of a vendor's  
22 performance. Some of these steps are accomplished by our  
23 engineering personnel and the remaining by QA personnel.

24 These steps include vendor evaluation prior to  
25 award of a contract, review of vendor documents and shop

Sim 16-15

1 visits and inspection of in-process and final walk prior  
2 to shipment of the product to the site.

3 The actions addressed by Mr. Bucci and myself  
4 taken collectively provide reasonable assurance that we do  
5 receive quality products and that the equipment supplied  
6 is qualified for its application and the environment in which  
7 it is located.

8 MR. O'NEILL: Mr. Chairman, this panel is available  
9 for cross-examination.

10 JUDGE KELLEY: Thank you.

11 Mr. Eddleman.

12 CROSS-EXAMINATION

13 BY MR. EDDLEMAN:

14 Q Gentlemen, let's refer first to your October 11th  
15 Supplemental Testimony, if we might. On Answer 1, which is  
16 attributed to all four of you on that page, when you say you  
17 will demonstrate the environmental qualification of Rockbestos  
18 cables, you don't mean to say that you have predetermined  
19 the results of your investigation do you? Isn't this a  
20 statement of what you intend to do?

21 A (Witness Bucci) The qualification is demonstrated  
22 completely when the documentation package is completely  
23 assembled and the equipment and method is sent to the NRC  
24 as part of that master list and they have an opportunity to  
25 audit the package. So obviously those steps have not been

aindex

Sim 16-16

1 completed and that is why we say will demonstrate.

2 Q Okay. You are referring to future action that  
3 you intent to take, right?

4 A Yes.

5 Q Now with respect to your further investigation  
6 of Rockbestos given in your Answer 2, if we can take a look  
7 over on the top of page 3, when did you visit the Rockbestos  
8 facility?

9 A (Mr. Pagan) I think the exact date was September  
10 24 of this year.

11 Q And Mr. Prunty and Mr. Hate, were you part of that  
12 visit?

13 A (Witness Prunty) No.

14 A (Witness Hate) No.

15 Q Okay. So when the applicants have visited the  
16 Rockbestos facility, does it really mean Ebasco?

17 A (Witness Bucci) Yes.

18 A (Witness Prunty) Ebasco is applicants' agent  
19 in equipment qualification for balance of plant equipment.

20 Q So they performed this investigation for CP&L?

21 A (Witness Prunty) That is correct, and we will  
22 review the final result when the package is put together.

23 Q Now by "we" in that last answer do you mean CP&L?

24 A That is right.

25 Q Okay. Now it says that you were not presented



16-17

1 with sufficient documentation to support the use of QR-2806  
2 to qualify the coaxial or triaxial Rockbestos cables for the  
3 Harris plant. What was missing?

4 A (Mr. Pagan) One of the things that we requested  
5 from Rockbestos was information which would back up their  
6 Arrhenius line which is used to determine the qualified  
7 life of the Arrhenius cable. And Rockbestos produced the  
8 data for us and explained how they have been obtaining such  
9 data since 1982 until I think the data gathering was completed  
10 the week before we got there.

11 We noted two things. One, the data gathering actually  
12 started in 1982, and, if I am not mistaken, the inspection  
13 report that was put out by the NRC indicated that some  
14 qualification work was being done by the Engineering Department  
15 at Rockbestos which didn't fall under the umbrella of the  
16 quality assurance effort at Rockbestos.

17 The second thing that we noted was that in conjunc-  
18 tion with the first is that on some of the documents that  
19 we looked at they weren't properly QA'd to our satisfaction.  
20 Some of the documents from which we would have obtained data  
21 were not signed or initialed or had no indication that QA  
22 had looked at them. So we elected not to use that information.

23 Another item which we inquired about was the fact  
24 that in the inspection reports that the staff put out on  
25 Rockbestos they had indicated that during the LOCA simulation

Sim 16-18

1 Rockbestos had used two types of temperature recorders and  
2 both recorded different temperatures. One apparently was  
3 out of calibration.

4 The NRC accepted -- well, if I can use the names.

5 One was a Robert Shaw temperature recorder and the other  
6 one was a Leeds Northrop device. The NRC indicated that the  
7 Leeds Northrop device was probably the correct one because  
8 it corresponded to saturated steam temperature conditions  
9 which was in the test chamber at the time.

10 Again, the data was on a piece of paper which hadn't  
11 been properly QA'd. Then we had additional discussions which  
12 went on for the whole day and just decided that it is best  
13 not to depend on their backup information to justify the  
14 qualification of their cable which was one of the options  
15 that IE Notice 84.44 gave us. It actually indicated that we  
16 could or we should go to the vendor and see what information  
17 he has available that can back up this test report of his.

18 We decided that it is best for us not to go that  
19 way. So we elected the second option which we discuss in  
20 our supplemental testimony.

21 end Sim  
22 end take

22

23

24

25

17-1-Wal

1 Q All right. And that option is to get qualification  
2 reports from laboratories other than Rockbestos, right?

3 A That is correct.

4 Q Now, the Conax Corporation that is reffered there,  
5 is it connected in any way with Rockbestos?

6 A No, it isn't.

7 Q Is it connected with EBASCO in any way?

8 A No, it isn't.

9 Q With CP&L in any way?

10 A No, it isn't. Let me clarify that.

11 Q Sure.

12 A With my answer, I do not mean that we do not go to  
13 Conax to purchase equipment.

14 Q What you mean it is not owned or controlled --

15 A It is not owned or controlled by CP&L or EBASCO,  
16 but it is a vendor, and we can go to him to purchase Class 1  
17 equipment.

18 Q Is the Conax Corporation a subsidiary of any other  
19 company that you know of?

20 A Not that I am aware of.

21 Q All right. Now, these Conax reports refer only to  
22 Rockbestos RSS-6-105 LD coaxial cables, is that correct?

23 A I don't understand what you mean by they were only  
24 for that cable.

25 Q Well, the way the testimony is laid out, I think I

1 see what your problem is.

2 Let me ask this again. Is the only Rockbestos cable  
3 which was qualified in the test reports that you got from Conax  
4 referred to in your Answer 3 of the Supplemental Testimony, the  
5 RSS-6-105/LD coaxial stated there, was that the only one?

6 A There was another one; RSS-6-109/LD, which was also  
7 part of the qualification program.

8 Q All right. Now, I think a coaxial cable is where  
9 you have a cable and then a shield around the conductor,  
10 outside insulation, is that a general definition of a coaxial  
11 cable.

12 A One shield.

13 Q Now, the triaxial, is that two shields?

14 A That is correct.

15 Q Okay. And the -- let's see, I think there is a third  
16 type mentioned. Maybe I can catch that some place else.

17 When you say Applicants have reviewed those Conax  
18 reports, does that mean EBASCO, or CP&L, or both?

19 A EBASCO has reviewed those qualification reports.

20 Q And were either of you gentlemen from EBASCO  
21 personally involved in that?

22 A Yes, we both were.

23 Q Okay. The qualification test parameters for those  
24 tests, is there a list of them available?

25 A In the qualification test reports, they are identified.

17-3-Wal

1 Q All right. But you don't report them in this  
2 testimony?

3 A No, we don't.

4 Q You just report your conclusion?

5 A That is correct.

6 Q All right. Now what is the worst case location for  
7 Rockbestos cables at the Harris plant? Is it different for  
8 each kind of cable?

9 A Well, the cables that were qualifying are inside  
10 containment. Most of them are in the containment penetration,  
11 associated with the containment penetration as pigtailed, and  
12 one of them is used for the radiation monitoring system which  
13 goes to equipment inside the containment.

14 We qualify it for the worst environment inside  
15 containment, as we do any other cable inside containment, as  
16 we have indicated in earlier testimony.

17 Q All right. So it is the worst environment that  
18 there is anywhere inside the containment?

19 A Yes.

20 Q And that is true for both normal operation and  
21 accident conditions, as these qualification parameters are  
22 developed?

23 A Well, that question is difficult to answer because  
24 during normal operation -- well, yeah, I would say to the  
25 best of my knowledge the worst environment during normal

1 inside containment.

2 A (Witness Bucci) I would confirm that.

3 Q Okay. Do the witnesses from CP&L have anything to  
4 add to this discussion?

5 A (Witness Prunty) No, that is my understanding also.

6 A (Witness Hate) No.

7 Q Please feel free, by the way, any of you whenever  
8 an answer is given to add something to it if you want.

9 I am not trying to limit this. Now, the applicability  
10 of qualification of the 104 LD and 108 LD cables at Harris by  
11 similarity to the 105 LD that Conax tested, isn't what  
12 Rockbestos did to try to qualify cables that had failed the  
13 test by similarity to one cable that happened to have past?

14 A (Witness Pagan) The specific cables that failed  
15 the qualification test during Rockbestos testing are not used  
16 at Shearon Harris. And that is recorded in our testimony.

17 Q Okay. But Rockbestos did actually produce some  
18 reports claiming that these cables which had failed were  
19 qualified by their similarity to the cable that had passed,  
20 which was a 105, right?

21 A No. The cable that passed the qualification test  
22 in the Rockbestos test report QR 2806, was the RSS-6-104.

23 Q Okay. That is the one that passed there.

24 A That is correct.

25 Q Okay. The review of applicability to the Rockbestos

1 coaxial and triaxial cable used at the Harris plant, is that  
2 a review that you gentlemen performed?

3 A Could you repeat that again, please?

4 Q The review of similarity of the Rockbestos cables  
5 at the Harris plant to the 104 type -- pardon me, the 105  
6 type, that shows it is applicable to the Harris plant, is that  
7 a review that any of you gentlemen performed?

8 A Yes.

9 Q Is it complete?

10 A Yes.

11 Q All right. And is that analysis done by the same  
12 method as is described on page 8 of your August 31st testimony?

13 A (Witness Bucci) The testimony on page 8 describes  
14 a different type of analysis. It doesn't describe the  
15 analysis discussing the similarity of the types of cables.

16 It discusses the environmental conditions.

17 A (Witness Pagan) If I might add to Mr. Bucci's comment,  
18 in the testimony that you refer to on page 6, beginning on the  
19 last paragraph on page 6, and going into page 7, we provide  
20 a discussion of the similarities between these cables.

21 Q And was that the same kind of review that you refer  
22 to hear in your Answer 3 of your supplemental testimony?

23 A We referred to it directly, that is correct.

24 Q Okay. As to Answer 4, when did CP&L review Conax's  
25 QA program?

17-6-Wal

1 A (Witness Hate) It is a quality assurance organization.

2 Q That is your organization, Mr. Hate?

3 A Yes, that is the corporate quality assurance  
4 department.

5 Q And when did that happen, do you know?

6 A Yes. I believe it was in August of '84.

7 Q You have something there you can check it with?

8 A Yes.

9 Q Now, the review by EBASCO, did either of you  
10 gentlemen on the panel participate in that?

11 A (Witness Bucci) No, that was performed by our  
12 quality assurance organization.

13 Q When was that done?

14 A I am not sure of the exact date, but I believe it was  
15 within -- I am not sure of the exact date. There is some  
16 limit as to how long a vendor remains qualified without a  
17 new inspection. I am just not sure of the interval. It would  
18 be within that interval.

19 Q Is that interval commonly years, or a year, or --

20 A (Witness Hate) Let me just clarify.

21 Q Yes, sir.

22 A CP&L qualified Conax in August of '84. We do not  
23 have the specific date as to when EBASCO qualified Conax.

24 Q Okay. Now, as to the question of how long you stay  
25 qualified per an inspection, do any of you gentlemen know



1 how long that is?

2 A Yes. You have to evaluate a vendor on an annual  
3 basis, and you basically do a triangular audit. That is  
4 once every three years of a vendor to keep him on your  
5 qualified supplies list.

6 Q Okay. So you must audit every three years, and  
7 evaluate annually?

8 A That is correct.

9 Q And the action that was taken in August of '84  
10 was an audit?

11 A No, it was not.

12 Q Well, when was the last time that CP&L audited  
13 Conax?

14 A There are several methods that are acceptable to  
15 the industry as far as qualifying a vendor is concerned.  
16 You can do a facilities survey such as an audit. You can  
17 qualify him, based on him being an acceptable ASME certificate  
18 holder. You can accept his qualifications based on audits  
19 that are done through the CASE organization, and you can  
20 also accept his qualifications based on NRC acceptance.

21 In the case of Conax, we qualified them through the  
22 CASE system. He is also an ASME certificate holder.

23 Q Is that CASE system -- CASE?

24 A Yes. CASE stands for Coordinating Agency for  
25 Supplier Evaluation.

1 Q Is that an industry organization?

2 A Yes, that is correct.

3 Q Okay. So, actually you could accept on any one of  
4 these basis without an actual audit. That is what the require-  
5 ments are.

6 A That is correct, but you have to recognize when  
7 you go through the CASE evaluation, there was another sister  
8 utility that actually did the audit of Conax?

9 Q You mean another power company actually did an audit  
10 as part of the CASE work?

11 A That is right.

12 Q And do you know when that was done?

13 A No, I don't have that specifically.

14 Q Okay. Does the CASE acceptance stay valid for a  
15 certain period of time?

16 A Yes, they have the same time frame that are governed  
17 by the rest of the industry.

18 Q So three years?

19 A Yes, the standard requirements.

20 Q So that would have to have been done within the last  
21 three years?

22 A Yes.

23 Q Okay. As to Question and Answer 5 there on page 4,  
24 gentlemen can you turn to that page, and also get before you  
25 Question and Answer 10 of August 31st? Which I believe appears

1 on page 6 of the August 31st prefiled.

2 Do you have both of those available to you?

3 A (Collectively) Yes.

4 Q Now, the question on August 6th is does the Shearon  
5 Harris nuclear power plant you any Rockbestos cables, correct?

6 A (Witness Prunty) That is right.

7 Q Okay. Now, that question --

8 A (Witness Bucci) August 31st.

9 Q Now, that question doesn't make any reference to the  
10 Sandia Report does it? The Question 10 of August 9th.

11 A Question 10 reads: Does the Shearon Harris nuclear  
12 power plant use any Rockbestos cables.

13 Q All right. So that doesn't refer to the Sandia  
14 Report at all, does it?

15 A I am not sure what you mean. It asks if we use  
16 any Rockbestos cables.

17 Q That is right. And it doesn't ask do you use any  
18 that are identified in the Sandia Report, does it? It just  
19 says do you use any.

20 A (Witness Pagan) I think the question can stand on  
21 its own.

22 Q All right. Well, my question is whether the Answer 5  
23 of the Supplemental Testimony of October 11th can stand on its  
24 own, if that other question stands on its own. It doesn't seem  
25 to me that this is a clarification. It seems to me like the

1 answer was wrong?

2 MR. O'NEILL: Objection. Mr. Chairman, the  
3 supplemental testimony clearly identifies that the Applicants  
4 have identified two additional types of Rockbestos cables used  
5 in the Harris plant other than those identified in the August 31  
6 Question and Answer.

7 It indicates that the person that answered the question  
8 only had in mind those types of cables that were referenced  
9 in the Sandia Report, in answering the question for the first  
10 time. For completeness in the supplemental testimony, two  
11 additional types of Rockbestos cable are identified. This  
12 type of questioning, which we have seen before from Mr. Eddleman,  
13 as to what did you know when, and why, is simply not going to  
14 be at all relevant to the issue before the Board, and I  
15 would object to any further questioning along those lines.

16 MR. EDDLEMAN: Here is the problem that I have,  
17 okay? A person might have in mind all kinds of reservations  
18 when they answer a question. I don't know what reservations  
19 they might have in mind.

20 I think they areally ought to bring them forward  
21 if they have them. But from the question itself, it is not  
22 apparent, and it appears that many times a question is answered  
23 like this it appears to be a straight forward question: Do  
24 you use any Rockbestos cables?

25 An answer that said we want to correct that, we found

1 two more, or something like I think would be pretty straight  
2 forward.

3 But that is not what it says. It says you are  
4 clarifying it. I don't think that is so. My problem is, you  
5 see, that it is very difficult to go through the questions  
6 and say: Well, what if any reservations do you have in mind  
7 about this one, and that one, and the other one, and just go  
8 through the whole thing.

9 And yet, if an inconsistency appears later, there  
10 usually seems to be some kind of explanation about state of  
11 mind, which isn't actually reflected in the original  
12 testimony.

13 JUDGE KELLEY: Even assuming your premise for the  
14 moment, what does that get us on the contention?

15 MR. EDDLEMAN: I think that then raises the question  
16 of what other reservations do you have about the rest of this,  
17 and then you ought to go on and ask that.

18 JUDGE KELLEY: The rest of this meaning what, the  
19 whole testimony?

20 MR. EDDLEMAN: Yes, sir.

21 JUDGE KELLEY: Sustain the objection. I think Mr.  
22 O'Neill's statement on the whole is a fair characterization,  
23 and I think your pursuit of this is not warranted.

24 BY MR. EDDLEMAN: (Continuing)

25 Q Gentlemen, if we may then turn to the end of

1 Answer 5, where you are talking about deficiencies in those  
2 additional types of Rockbestos cable at the Harris plant.

3 Are those the same sort of deficiencies you identi-  
4 fied earlier with respect to the 100 series types?

5 A (Witness Bucci) Would you give me a minute to find  
6 that?

7 Q Certainly. It is the end of page 4, beginning of  
8 page 5 of your October 11th.

9 A Did you point out somewhere where we talk about  
10 deficiencies?

11 Q It says, if I can just begin with the last sentence  
12 that starts on page 4 down on the bottom line: As a result  
13 of Applicants visit to the Rockbestos facility, Applicants  
14 have concluded that as in the case of Rockbestos coaxial and  
15 triaxial cable, it is necessary to qualify the Rockbestos  
16 thermocouple and control cable used at the Shearon Harris  
17 nuclear power plant independently of Rockbestos.

18 What I am asking you is were there deficiencies  
19 noted when Rockbestos testing or QA made you conclude that?

20 A We were referring to the same conclusions that we  
21 referred to in the earlier statement, and that is that they  
22 did not provide sufficient data to support the use of QR 2806.

23 Q Okay. Do these additional types of cable have  
24 numbers, type numbers, or are they just known as Rockbestos  
25 thermocouple cable and Rockbestos control cable?

17-13-Wal

1           A     The identification would be in the beginning of  
2 Answer 5 on page 4, referred to as Firewall 3.

3           Q     Okay. But they don't have a 100 series, or a 200  
4 series number. They are just known by this designation?

5           A     That is the Rockbestos designation that I am aware  
6 of.

7           A     (Witness Pagan) The 100 series and the 200 series  
8 refers exclusively to their coaxial series line.

9 End 17.  
10 SueT fols.

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#18-1-Sue

1 Q All right. The qualification research test by  
2 Sandia that you refer to there, is there any fundamental  
3 difference between a research test and a regular qualifica-  
4 tion test?

5 A (Witness Bucci) Would you clarify what you mean  
6 by a fundamental difference?

7 Q I mean, for example, would a research test involve  
8 a different kind of qualification stress than you might have  
9 in a regular EQ test?

10 A This particular test, in the report itself it  
11 states that it was done in accordance with IEEE-383-1974, which  
12 is the same standard that other test laboratories use.

13 Q For normal EQ tests, right?

14 A For normal EQ tests.

15 Q For regular EQ tests. I don't want to try to get  
16 into normal conditions and accident conditions.

17 A Yes.

18 Q Okay. And then you identify the NUREGs in which  
19 the test reports appear.

20 Do the test parameters appear in those NUREGs?

21 A (Witness Pagan) Yes, they do.

22 Q Okay. And then you haven't provided a list of the  
23 applicable Harris parameters, have you?

24 A (Witness Bucci) We have provided parameters in  
25 the FSAR. But if you mean which exact parameters apply to



#18-2-SueT 1 these particular cables in this specific situation, no, we  
2 have not provided those.

3 Q Uh-huh. Are they the worst case parameters that  
4 are in the FSAR?

5 A (No reply.)

6 Q Let me clarify what I mean by that. Let me try that  
7 again.

8 I believe in the discussion earlier it was said  
9 that any cable would simply be qualified for the worst location  
10 that you could have inside the containment.

11 Is that a fair statement?

12 A As Mr. Pagan said, he was talking about the  
13 coaxial cables.

14 Q Uh-huh.

15 A It's generally true, but there are cases where it  
16 is not true. The minimum that applies is that it's qualified  
17 for its particular worst case location.

18 Q Well, I understand that. Now, are the worst case  
19 inside containment for cable parameters listed in the FSAR?

20 A They are listed but they are not referred to for  
21 the cable. They are simply listed as the parameters.

22 Q So they are not referenced to cable but, in fact,  
23 they would apply?

24 A Yes.

25 Q Okay. Now, for these other types, these Firewall III

#18-3-SueT 1 cables, what parameters apply?

2 A The Firewall III cables, as we explain in our  
3 testimony, are used in the two limited applications. One  
4 being the containment penetration enclosure boxes as pigtails --

5 Q Uh-huh.

6 A -- several feet long, three feet long. The other  
7 application being inside a Limitorque valve operator as a  
8 control cable. And that's a few inches long.

9 And the conditions inside these -- well, generally  
10 we use the same conditions that would apply at the outside.  
11 We don't take credit for the fact that the conditions will  
12 be less severe inside these inclosures, except we would con-  
13 sider that for chemical spray because they would be somewhat  
14 protected from the chemical spray.

15 JUDGE KELLEY: Ten minutes?

16 MR. EDDLEMAN: Can I come back to this after a  
17 break?

18 JUDGE KELLEY: Yes.

19 MR. EDDLEMAN: Okay.

20 (The hearing is recessed at 4:40 p.m., to reconvene  
21 at 4:50 p.m., this same day.)

22 JUDGE KELLEY: Back on the record. Mr. Eddleman,  
23 you may resume.

24 BY MR. EDDLEMAN: (Continuing)

25 Q Gentlemen, we were getting down toward the bottom

#18-4-SueT 1 of Page 5 of your supplemental testimony before the break,  
2 and I believe you just mentioned that --

3 A (Witness Bucci) Mr. Eddleman, excuse me.

4 Q Yes.

5 A I would like to clarify something that I stated  
6 just before the break that I understand may have not been too  
7 clear. So, for the record, these cables are qualified to the  
8 worst case environmental conditions that are listed in our  
9 Exhibit 8 with the exception of the chemical spray condition.

10 Q Okay. Now, by these cables do you mean the Firewall  
11 III cables that were discussed --

12 A Yes.

13 Q You do? Okay. That takes care of that.

14 Now, with respect to the chemical spray credit for  
15 condition, is that done by putting them inside the inclosure  
16 and then having the chemical spray on it?

17 A The -- that is why they are not subject to the  
18 worst chemical spray condition, because they are inside the  
19 inclosure and the spray would be impinging on the inclosure  
20 if anything, not on the cables.

21 Q Okay. But what I'm trying to get at is, when you  
22 conduct a test that takes credit for the inclosure, do you do  
23 it by putting on the inclosure with the cable, in this case,  
24 inside it and then subjecting the outside of the inclosure  
25 to the worst case chemical spray?

#18-5-SueT

1 A That is one way of doing it.

2 Q Is that the way it's done in the Sandia test?

3 A No. The Sandia test -- well, one of the tests  
4 they actually -- there was no inclosure. That included  
5 chemical spray directly on the cables.

6 Q Uh-huh.

7 A But the other test did not include chemical spray.

8 Q Just didn't have it at all?

9 A Right. It just didn't include chemical spray.

10 Q All right. Now, it says down at the bottom of that  
11 page, "The thickness of the insulation material on the thermo-  
12 couple cable is..." could you -- what material is that?

13 A It's cross-linked polyolefin.

14 Q All right. Now, the -- that's on the thermocouple  
15 cable. And the control cable, is it the same insulation  
16 material?

17 A Yes. It is also cross-linked polyolefin.

18 Q Okay. And the 25 mils is thinner, right?

19 A Thinner?

20 Q Than the 30 mils?

21 A Yes.

22 Q Now, we can turn over to the next page.

23 A (The witnesses are complying.)

24 Q It says that the thermocouple cable wires are  
25 covered by a metallic shield and Hypalon overall jacket. Are

#18-6-SueT<sup>1</sup>

2 any of you gentlemen aware of any tests or test results in  
3 environmental qualification for cables indicating a more  
4 rapid deterioration when you combine two different insulating  
5 materials, one outside the other?

6 A I'm not sure of what you are asking. Could you be  
7 a little more specific? Where are you referring to?

8 Q In other words, let's look at -- I will describe  
9 three situations, and I want to compare them two by two, okay.  
10 But I want to describe all three first. Okay.

11 The first one is that you have a cable with a  
12 single insulator outside it, of one material. Okay. And  
13 the second one is that you have a cable and you have, let's  
14 say, one layer of insulation and then a metal shield and then  
15 another layer of the same insulating material. Okay. And  
16 the third situation is that you have a cable and you have an  
17 inner insulation of one material and a metal shield and then  
18 another insulating material outside that, a different insulat-  
19 ing material outside that.

20 Are those reasonably clear?

21 A Yes.

22 Q Okay. Now, what I want to ask is, first, if we  
23 compare the deterioration in harsh environment conditions per  
24 environmental qualification tests or research tests of the  
25 type that Sandia and others might conduct, and we compare the  
performance -- or the deterioration insulation on the second

#18-7-SueT 1

2 and third types, that is the type that has the same insulation  
3 inside and outside the metallic shield and the type that has  
4 the different insulation on the outside of the metallic shield  
than it has inside.

5

6 Are any of you gentlemen aware of any effects that  
7 would indicate faster deterioration in the cable that has two  
different insulations?

8

9 A Well, the -- I'm not aware of any effects due to  
10 the difference in insulation. However, it can be an effect,  
11 not necessarily due to the fact that it's different insula-  
12 tions but just due to the fact that there are two elements  
there involved.

13

14 However, in this particular test that Sandia did,  
15 in addition to testing the conductor with the insulation around  
16 it they also tested multi-conductor cables which have the in-  
17 sulation and an overall jacket. They were tested with the  
18 jacket, and the results were essentially the same whether they  
had the jacket or not.

19

20 Q All right. So, in other words, this thermocouple  
21 cable type was actually tested by Sandia without the jacket  
as well as with the jacket? Is that what you mean?

22

23 A Yes. However, there was no shield during the Sandia  
test but the shield would only help matters.

24

Q The metallic shield?

25

A Yes. The Sandia test had the conductor, the conductor

#18-8-SueT

1 insulation and then the jacket over that. No shield in between  
2 the two.

3 Q Okay. Now, was the thermocouple cable the one  
4 that was suggested to chemical spray or the one that was not?

5 A The thermocouple cable, as we say in our testimony  
6 on Page 5, the supplemental testimony, Answer 6, about middle  
7 of the page and down -- I'm sorry, it's at the beginning of  
8 that answer. The control cable was one of the cables tested.  
9 And the control cable is representative of the thermocouple  
10 cable for qualification purposes.

11 The thermocouple cable itself was not tested. They  
12 tested a control cable which is representative of thermo-  
13 couple cable.

14 Q Okay. What I was asking about then may be a dif-  
15 ference between these two.

16 Both the Sandia and the NUREGs tested the control  
17 cable. Is that what you are saying?

18 A Yes.

19 Q All right. And then you qualify the thermocouple  
20 cable, in your opinion, by similarity, right?

21 A Yes.

22 Q Okay. As to your Answer 7, you haven't submitted  
23 the EQ data on the Rockbestos cables for the Harris plant to  
24 the NRC yet, have you?

25 A (Witness Prunty) No, we haven't.

#18-9-SueT

(Witness Bucci) No.

2 Q Okay. Let me ask you. When you are talking about  
3 the Rockbestos cable to be used at the Harris plant, are you  
4 sure you have got them all now, that you know all the types?

5 A (Witness Prunty) To the best of my knowledge.

6 Q Okay.

7 A (Witness Bucci) Yes.

8 (Witness Pagan) Yes.

9 Q Okay. Let's turn back to your August 9th prefiled  
10 if we may.

11 A (The witnesses are complying.)

12 Q Actually, it --

13 A (Witness Bucci) I would just like to clarify that  
14 we were also sure of which Rockbestos cables we had in August  
15 31st, as we said in testimony. We said in the testimony the  
16 reason why we didn't mention it wasn't because we didn't know  
17 about them.

18 Q Okay.

19 A I wanted to clarify that.

20 Q Okay. Now, I guess I have to ask you another  
21 question which is, is there any kind of Rockbestos cable that  
22 you know about for the Harris plant which you are excluding now  
23 because you don't think it's within the scope of this?

24 A No, there isn't any.

25 Q Okay. Gentlemen, let me ask you if you have available



#18-10-Sue

your -- the Applicants' responses to Interrogatories on  
Contention 9, dated April 17, 1984?

A (Witness Prunty) Yes.

Q Okay. Could you turn to Page 13 of those responses,  
please?

A (The witnesses are complying.)

Q It would have on mine, Interrogatories 9-2.E and F,  
down toward the bottom of Page 13 asking for identification of  
all documents containing results of any tests. Identify re-  
sponse to D above. That is to establish environmental qualifi-  
cation of equipment for Harris in which any item or any items  
similar to an item used at Harris failed.

Do you see that?

A Yes.

Q Okay. And it says: Look at the answers 9-2.D and  
F. Answer D above that describes how many test reports have  
been received and that all were reviewed by Applicants and that  
a sample will be made available for inspection and copying.

Correct?

A That's right.

(Witness Bucci) Yes.

Q Okay. So, Interrogatory 9.2.F, which is referenced  
in Answer E also asks: Have there been any failures in tests  
you know of of items to be used at Harris, items similar to  
those to be used at Harris. And then it talks about the different

#18-11-SueT<sup>1</sup>

environmental conditions and asks for identification of documents and reasons for failure.

And the answer is given on Pages 14 and 15 there, is it not?

A (Witness Prunty) Yes.

Q Okay. Now, the answer begins: All test failures must be documented by the vendor.

Correct?

A Yes, it does.

Q And the answer continues that the vendor also must provide an evaluation of the failures. The following criteria are used by Applicants in reviewing the adequacy of vendor documentation. And then it lists eight, I think, criteria.

Correct?

A That's correct.

(Witness Bucci) Yes.

Q Okay. Now, with respect to the failures which have been reported to you that you reference in your testimony, do you know if any of those failures have been reported as of the date of these responses?

A (Witness Prunty) Are you talking about all equipment or Rockbestos cable?

Q I'm talking about electrical equipment for Shearon Harris. I think that's the scope of the Interrogatory. It wouldn't just be Rockbestos.

#18-12-SueT 1

A (Witness Bucci) Yes.

2

(Witness Prunty) Would you repeat the question,  
please?

3

4

Q The question was, of the failures in tests which  
are -- you say in your August 31st testimony that some failures  
had been reported to you from EQ tests.

5

6

7

The question is, had any of those been reported to  
you before the date of these responses?

8

9

A (Witness Bucci) Yes.

10

(Witness Prunty) Yes.

11

12

Q Okay. When it says in that answer the following  
criteria are used by Applicants in reviewing the adequacy of  
vendor documentation, does that encompass Ebasco as well as  
CP&L to your knowledge?

13

14

15

A (Witness Prunty) Yes, it does. Ebasco is our  
agent for balance of plant equipment qualification.

16

17

Q Okay. The reports that are received, has Ebasco  
received any different reports of test failures beyond those  
received by CP&L for equipment that is used at Harris or  
equipment similar to it, is what I'm asking you about?

18

19

20

21

A (Witness Bucci) I'm not sure of your question.  
Could you break it up or be more specific as to what the  
question is?

22

23

24

Q Let me try again. CP&L has received documentation  
of some test failures on equipment in electrical qualification

25

#18-13-Sub E tests, electrical equipment environmental qualification tests,  
2 I mean. Right?

3 A (Witness Prunty) Yes, for balance of plant via  
4 Ebasco.

5 Q Okay. Now, does CP&L routinely get all the failure  
6 reports that Ebasco would get? That's part of this question.

7 A (Witness Bucci) Well, Ebasco supplies the entire  
8 qualification documentation package to CP&L.

9 Q And that includes, as the answer to this Interroga-  
10 tory states on Page 15, that all documentation related to  
11 test failures is included in the equipment qualification  
12 packages, correct?

13 A Yes.

14 Q Okay. Now, I think that covers that end of it.  
15 Does CP&L receive any failure reports on equipment, whether  
16 supplied by Ebasco or not, beyond those that you get in  
17 through Ebasco for this electrical equipment that must be  
18 qualified?

19 A (Witness Prunty) We have access to the same  
20 Sandia reports that Ebasco gets. We don't rely on them to  
21 get those reports. So, we are aware of industry activity and  
22 problems that we may also encounter at our other facilities.

23 We do not -- we have not yet contracted for a great  
24 deal of electrical equipment that needs to be environmentally  
25 qualified outside of the scope of Ebasco and Westinghouse.

#18-14-SueT1

2

So, most of what we have gotten has been through them.

3

4

5

Q Okay. How much of the electrical equipment that must be qualified for the Harris plant is presently contracted for?

6

7

8

9

10

11

A Somewhere greater than ninety-five percent, in my opinion. It's very high. There may be a miscellaneous item or two as we are buying miscellaneous pieces of instrumentation to meet the regulatory commitments and things of that nature. But the vast majority of the equipment has already been purchased and delivered.

12

13

14

Q Okay. Do CP&L and Ebasco both use the same eight failure criteria that are in this answer? I mean, evaluation criteria for the adequacy documentation of failures?

15

16

A I would say yes.

end #18  
Mary flws

17

18

19

20

21

22

23

24

25

(Witness Bucci) Ebasco uses it.

Sim 19-1

1 BY MR. EDDLEMAN:

2 Q Mr. Bucci, if you could look at page 3 of these  
3 same responses. Do you have that available to you?

4 A (Witness Bucci) Yes.

5 Q You are listed as providing responses on 9-2 along  
6 with Mr. Yandow, are you not?

7 A Yes.

8 Q And, Mr. Prunty, although you are listed as  
9 providing some responses, none of those are to Contention 9,  
10 correct?

11 A (Witness Prunty) That is right. I reviewed them.  
12 I was not the affidavit giver.

13 Q All right. Let's turn back to the August 31st  
14 testimony, if we might. Mr. Hate, I would just like to  
15 jump back to your qualification in Attachment A for a moment,  
16 if we might.

17 Under Item 2 on the first page of Attachment A,  
18 Item 2-D there is a course in quality assurance that you  
19 completed at Ohio State University in 1974.

20 A (Witness Hate) That is correct.

21 Q Was that a regular academic semester type of  
22 course or a summer school course?

23 A No. It was on the ASME Code, Section 3. It was  
24 just a one-week course.

25 Q And what QA standards were in effect then?

Sim 19-2

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A The same that are in effect now.

Q Appendix B was in effect then, right?

A That is correct.

Q And to your experience listing on the second page when we come down to your various assignments in the general office ---

A Are you talking about the attachment?

Q Yes, sir, still the second page of Attachment A. When did you begin to work on the Harris plant in QA?

A I had done some preliminary work during the period of '74 through '76, but basically I started working on the Harris project sometime in '76.

Q And have you been continuously involved in the Harris plant QA since then?

A Yes, except for maybe special assignments off and on.

Q And those would be of ---

A Very limited duration.

Q Okay. No more than a month or two?

A That is correct.

Q All right. Now is Corporate QA, Mr. Hate, is that the group that would normally be checking back with the vendors to see how their testing and manufacturing is set up?

A The Corporate Quality Assurance Department, which I am a part of, has the overall responsibility for

Sim 19-3

1 vendor qualification.

2 Q Okay.

3 A Let me clarify one thing. Ebasco is also our  
4 agent to qualify vendors.

5 Q Okay. So if Ebasco qualified then, would you  
6 normally check that?

7 A No. If it is an Ebasco direct, an Ebasco purchase  
8 order with the vendor, we would not get involved. If it  
9 is a CP&L purchase order, then we would be involved in the  
10 qualification process. Part of that qualification process  
11 may be to take credit for what Ebasco has already qualified,  
12 the vendor.

13 Q Okay Would Corporate QA be the CP&L Department  
14 that would actually check on the EQ tests and the test  
15 facilities and test procedures for equipment?

16 A No. As I have explained on page 12 and 13 of my  
17 testimony ---

18 Q Yes, sir.

19 A --- the adequacy of vendors is confirmed by both  
20 engineering personnel, which includes CP&L engineering  
21 personnel and Ebasco engineering personnel, as well as  
22 QA personnel which would include the Corporate Quality  
23 Assurance Department.

24 It depends on what particular function you need  
25 checking on. For example, if it is an engineering procedure,



Sim 19-41

then that would be reviewed by the engineering personnel.

Q Their report of that review, would that be a quality assurance record?

A Yes.

Q And that record would come under the control of QA at some point?

A The EQ records are a part of the QA record system and not necessarily under the control of the QA Department. But it is part of the QA record system.

Q Okay. Well, let me try to distinguish here. It would be a controlled document?

A Yes, it would.

Q And it would be maintained in those records even if it were not directly part of the EQ report?

A What would not be part of the EQ report?

Q Well, I thought you said that if an engineer went out to evaluate an engineering procedure at one of these vendors, their report of it would be a QA record but would not necessarily be in the equipment qualification report.

A If an engineering performed a review on a vendor procedure, for example, that review gets documented and it goes into the project files.

Q But is that review a controlled document? That is what I was getting at.

A To the best of my knowledge, yes.

Sim 19-5

1 Q Okay. So all of the records of the kind of  
2 verifications that you are talking about here in your  
3 Answer 15 would be retained as controlled documents?

4 A That is correct.

5 Q Let me just go through this a little bit. When  
6 you say a vendor is meeting your requirements, does that  
7 mean meeting all of them?

8 A Where are you reading now? I am not sure.

9 Q I am sorry. Let me refer you to the beginning of  
10 Answer 15 at the top of page 12 of the joint testimony.

11 A Okay.

12 Q The third sentence, given that the first sentence  
13 is just the word "Yes," starts off: "In other words, if  
14 a vendor is meeting our requirements," does that mean meeting  
15 all of your requirements?

16 A The requirements that are specified by the Corporate  
17 Quality Assurance Program, yes. That is an acceptable vendor.

18 Q All right. And when Corporate Quality Assurance  
19 sets up those requirements, do they use a standard procedure  
20 to establish them?

21 A Yes. Our Corporate Quality Assurance Program  
22 describes how we control vendors.

23 Q And would you also consult with the various, oh,  
24 engineering or construction -- I mean engineering or design  
25 groups or personnel that would have to do with that vendor

Sim 19-6

1 in formulating the specific QA requirements for that vendor?

2 A Yes, because they are part of the overall quality  
3 assurance program.

4 A Okay. Now the evaluation prior to award of  
5 contract that you refer to in the second full paragraph of  
6 that Answer 15, are visits to the supplier's facility  
7 required?

8 A Okay. There are two steps that I refer to there.  
9 One is visits to suppliers' facilities prior to award of the  
10 contract by our engineering technical personnel. No, it is  
11 not an absolute must, but it happens more than not.

12 The second thing that I talk about is actually  
13 going into a supplier's facility and performing an audit  
14 to determine his capability.

15 As I had mentioned earlier in our discussions on  
16 Conax, there are several ways that you could qualify a vendor.  
17 One would be through audits, but the other way would be to  
18 take credit through CASE or through NRC inspections of that  
19 vendor through him having a certified ASME Code program and  
20 being a stamp holder. That would be another method.

21 Q Okay. About what percentage then of vendors are  
22 actually audited by CP&L QA?

23 A I don't have any specific numbers. I would like  
24 to say that a couple of years ago it was really the majority,  
25 but basically now the industry is developing more and more

Sim 19-7

1 history of suppliers. But I have no feel right now.

2 Q All right. Now this industry experience that you  
3 talked about, is that the same kind of industry performance  
4 that you talk about in the middle of that paragraph, current  
5 and past industry performance of the supplier?

6 A No. When I talk about industry experience, again  
7 I am talking about the vendor having already been qualified  
8 through the CASE system when another utility would go in.

9 Q All right. Well, let me turn back to this industry  
10 performance of the supplier. Does that mean performance  
11 as a supplier to nuclear power plants?

12 A Yes, essentially that is what we mean.

13 Q Okay. And what are your basic data sources on that?

14 A You have got the NRC audit reports. You have got  
15 the IE bulletins, notices, AEC Clearinghouse may have some  
16 information in that regard.

17 Q What were those initials?

18 A I believe it is the AEC. I am not ---

19 Q The ACE?

20 A I believe it is AEC Clearinghouse News that comes  
21 out.

22 Q Okay.

23 A Then of course you have your Part 21 reports that  
24 would go out to the industry. That would be another source.  
25 And then very often we also call up sister utilities and

Sim 19-8

1 look at how they have fared with that vendor.

2 Q Okay.

3 A (Witness Bucci) I would like to add, coming back  
4 to something Ebasco does, we have a vendor performance  
5 system where we monitor a vendor current and keep track of  
6 past performance through this system, the performance  
7 on all our projects. We have a pretty good history of  
8 vendors' performance.

9 A (Witness Prunty) To a more limited degree so  
10 does CP&L with experience at its other two nuclear facilities.

11 Q I see. In respect to the bottom paragraph there  
12 about what happens after the award of the contract, do you  
13 know what percentage of cases you would actually visit  
14 the vendor's facility?

15 A (Witness Hate) Well, I have got a couple of  
16 examples here that I could go over, but I don't have any  
17 specific percentage.

18 Q All right.

19 A Are you talking about the visit of engineering  
20 personnel into the shop?

21 Q That is right, in that last paragraph on page 12.  
22 You go into the details unless you have found  
23 a problem.

24 (Pause.)

25 A (Witness Prunty) While he is looking for that, I

Sim 18-9

1 will say that engineering either at Ebasco or CP&L or both  
2 will visit the vendors' shops to review technical problems  
3 and delivery problems and meet at the vendor's facility  
4 or have them come to the plant site to have face-to-face  
5 resolutions. So we do have direct interface other than  
6 just through the mail to these people.

7 A (Witness Bucci) We detail some of this in our  
8 Answer 15 at the bottom here.

9 A (Witness Hate) For example, on the radiation  
10 monitoring system, there were two visits by engineering  
11 people into the shop.

12 Q And did you find problems?

13 A I don't have the results of the visits.

14 Q Okay. When you say on the top of page 13 in shop  
15 inspections QA personnel verify personnel qualifications,  
16 does that mean that you actually check that these personnel  
17 had the years of experience or went to the colleges that they  
18 said they did or whatever, were in the Navy if they said  
19 they were in the Navy?

20 A When we talk about personnel qualifications, we  
21 are talking about the people who are doing the inspections  
22 in that shop. For example, the NDE type personnel that the  
23 shop would have and the other inspector personnel.

24 Q So it is their qualifications to perform tests,  
25 right, that they are a certified test engineer or something

Sim 18-10

1 like that?

2 A For inspections.

3 Q Okay. And do you inspect test procedures, EQ  
4 test procedures in this program that we are talking about here?

5 A If an environmental qualification report is required  
6 by the contract, then we make sure that it has been approved  
7 by an authorized person in accordance with their program. We  
8 do not physically review that test report. That is an  
9 engineering function.

10 Q What about the test facility, would you physically  
11 look at it?

12 A We may physically look at it as part of our  
13 inspection process or our audit process.

14 Q Okay. Come down to the end of that answer. Is  
15 that the very end? I mean there is nothing left off of  
16 there inadvertently on page 13?

17 A I am not sure what you mean.

18 Q I just mean that is the actual end of the testimony  
19 there where it just stops in the middle of the page,  
20 right?

21 A Oh, yes.

22 Q Okay. Let's see here. In your statement, and this  
23 is Answer 11, page 7, gentlemen, and I believe this is  
24 attributed to Mr. Bucci and Mr. Pagan, it says down toward  
25 the end of that right before the short paragraph at the end,

Sim 18-11

1 "For qualification purposes and for a given cable type a  
2 thinner insulation and jacket thickness can be used to quality  
3 a thicker insulation and jacket thickness of the same material,"  
4 right?

5 A (Witness Bucci) Yes.

6 Q But you can't necessarily use a test of a thicker  
7 insulation to quality a thinner one, can you?

8 A Well, it depends. Not in general, but as we  
9 point out in our supplementary testimony, that in the case  
10 of the insulation material on the thermocouple cable, the  
11 fact that this cable, the minor difference of five mils,  
12 25 mils versus 30 mils tested, and the fact that the thermo-  
13 couple cable wires are actually covered by a metallic shield  
14 and a jacket over that compensate for the minor difference  
15 in insulation thickness.

16 A (Mr. Pagan) I would like to add one more thing  
17 to that. One of the factors that determines the thickness  
18 of the insulation is voltage stress, the magnitude of the  
19 applied voltage. And with respect to the control cable, we  
20 are seeing 125 volts DC or 120 volts AC, and in the case of  
21 the very slightly thinner thermocouple wire, we are seeing  
22 millivolts.

23 A (Witness Bucci) I would add -- I agree with  
24 Mr. Pagan. In fact, in this specific report the cable was  
25 energized at 480 volts during the test.



Sim 18-12

1 Q The thermocouple cable was energized?

2 A (Witness Bucci) Well, the control cable that  
3 we are using to qualify the thermocouple cable by similarity  
4 was stressed with 480 volts as opposed to millivolts that  
5 are actually used on the thermocouple cable.

6 Q Okay. Now the review that is talked about in  
7 Answer 12 on pages 7 and 8 is the comparison that had been  
8 used between the QR-2806 report and the Harris requirements?

9 A (Witness Prunty) Yes.

10 Q Okay. And the exception of peak temperature that  
11 is discussed right below Item 4 there in the next to the  
12 last paragraph on page 8, was that having to do with those  
13 temperature recorders that we discussed back at the beginning  
14 of your testimony?

15 A (Witness Bucci) No.

16 Q What is the matter of the peak temperature there?

17 A The peak temperature as shown on the Shearon  
18 Harris design basis accident temperature curve.

19 Q Is that in Applicants' Exhibit 8?

20 A Yes. It shows a transient peak in the ambient  
21 temperature. As we explain in our testimony, in the next  
22 sentence, it is necessary to perform additional calculations  
23 to determine the acceptability of a lower peak temperature,  
24 and the preliminary analysis indicates that the peak temperature  
25 will be acceptable. The lower peak temperature referred to

Sim 18-13

1 is the peak temperature that the cable -- the peak temperature  
2 of the cable during the test. And the analysis that we are  
3 referring to or the calculation is to show that given an air  
4 temperature transient that we have in the FSAR, the temperature  
5 of the thermocouple will actually lag ---

6 Q The temperature it is exposed to?

7 A Yes. And so it will not actually reach the peak  
8 of the air because it is such a short transient.

9 Q And what is that peak air temperature? Is it 320F?

10 A 376 degrees Fahrenheit.

11 Q Okay. Does this problem apply to those Sandia  
12 tests that you are now using instead of the Rockbestos  
13 tests -- pardon me, the Conax test that you are using in  
14 place of the Rockbestos tests?

15 A (Mr. Pagan) No. In both places Conax went over  
16 the actual Shearon Harris peak temperature.

17 Q Now Answer 13 here begins on page 9. You say  
18 "Not every test failure needs to be reported." I believe  
19 we already went over the interrogatory responses, and let me  
20 just refer you again to I think it is 9-2F as it appears on  
21 page 14. Now that answer says "All test failures must  
22 be documented by the vendor."

23 Where a test failure is not reported under any  
24 of these exceptions that you talk about in this Answer 13,  
25 must the vendor still retain documentation of the failure?

Sim 18-14

1 A (Witness Prunty) Yes. Per 10 CFR 50, Appendix B,  
2 he is required to document the test results and evaluate  
3 them himself to make sure that the test requirements have  
4 been satisfied.

5 Q So if you -- and I mean by that CP&L or Ebasco or  
6 anybody else, including one of these industry organizations,  
7 or the NRC audited the vendor, they should be able to pick  
8 up a report of any of those failures; is that correct?

9 A That is right.

10 Q Do you or any of the organizations that you get  
11 reports from actually go out and try to seek out test  
12 failures other than those recorded in the records that these  
13 testers or vendors retain?

14 A (Witness Bucci) I am not sure I understand your  
15 phraseology that we go out and seek out test values.

16 Q Do you actually go out and try to dig out informa-  
17 tion to see if there is any failures that they didn't keep  
18 in their files?

19 A I am still not sure exactly what you are asking  
20 me.

21 end Sim  
22 end Take 19

1           We visit vendors test facilities, we visit vendor  
2 shops, we meet with vendors.

3           A     (Witness Prunty) We have the option of witnessing  
4 tests and through some utility groups have been represented  
5 at actual vendor tests, so we are active. We are not out  
6 policing.

7           Q     That is sort of what I am getting at. You can go  
8 and see what they have got in their files, and the rules  
9 require them to keep failure reports in their files. What  
10 I am asking is, beyond that, do you look at see -- is there  
11 any way you can inquire to see if you can find out if there  
12 are other test failures that aren't recorded in the files  
13 that these people maintain for inspection?

14          A     (Witness Hate) But their own internal quality  
15 assurance program provides that assurance.

16          Q     Okay. Well, in Rockbestos case, did the Rockbestos  
17 QA program pick up the problem?

18          A     In the Rockbestos case, the way I understand it,  
19 they did not even apply the QA program for this particular  
20 activity.

21          Q     Well, wouldn't a QA program normally have to be  
22 applied to such activities?

23          A     Yes, it should.

24               MR. EDDLEMAN: I have no further questions for  
25 this panel at this time.

1 JUDGE KELLEY: Okay. Mrs. Moore?

2 MRS. MOORE: The Staff has no questions, Your Honor.

3 JUDGE KELLEY: The Board has no questions. Redirect?

4 MR. O'NEILL: No redirect.

5 JUDGE KELLEY: Gentlemen, appreciate your coming.

6 Some of you have had a rather long time in the box so to speak,  
7 but you certainly have been attentive and we appreciate your  
8 answers. You are excused.

9 PANEL STANDS ASIDE.

10 JUDGE KELLEY: Off the record for a moment.

11 (Off the record discussion ensues)

12 JUDGE KELLEY: Let's go back on. So we have  
13 completed the Applicants' panel on Contention 9, and we will  
14 turn now to the Staff's witness. Do you want to call your  
15 witness, Ms. Moore?

16 MS. MOORE: Your Honor, the Staff calls Mr. Armando  
17 Masciantonio to the stand.

XXX INDEX 18 Whereupon,

19 ARMANDO MASCIANTONIO,

20 a witness called on behalf of the NRC Staff, after being first  
21 duly sworn, testifies as follows:

XX INDEX 22 DIRECT EXAMINATION

23 BY MS. MOORE:

24 Q Mr. Masciantonio, will you state your name, position,  
25 and business address for the record?

1           A     My name is Armando Masciantonio, I am an equipment  
2 qualification engineer in the equipment qualification branch  
3 and my business address is U. S. Nuclear Regulatory Commission,  
4 Washington, D. C., 20555.

5           Q     Do you have before you a document entitled NRC  
6 Staff Testimony of Armando Masciantonio on Eddleman Contention 9?

7           A     Yes, I do.

8           Q     Did you prepare this testimony?

9           A     Yes, I did.

10          Q     Do you have any additions or corrections to this  
11 document?

12          A     Yes. I would like to make two changes. The first  
13 on page 8, in response to Question 8, the fifth line from the  
14 bottom of that page, the date of August 8, 1983, I would like  
15 to change that to November 10, 1983.

16                 Second change, on page 11. Before the response 9C,  
17 the fourth line before that response, I would like to strike  
18 out the words: Included in the environmental qualification  
19 program; and substitute: On active valves in a harsh  
20 environment.

21          Q     With these changes, is your testimony true and  
22 correct to the best of your knowledge, information and belief?

23          A     Yes, it is.

24                 MS. MOORE: Your Honor, copies of this testimony  
25 have been delivered to the Court Reporter and served

20-4-Wal

1 on the Board and parties, and I now move that the NRC Staff  
2 testimony of Armando Masciantonio on Eddleman Contention 9  
3 be admitted into evidence and bound into the record as if  
4 read.

5 MR. EDDLEMAN: No objection.

6 JUDGE KELLEY: Motion granted.

7 (Above referred to document follows)

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Q2. What is the purpose of this testimony?

A2. The purpose of this testimony is to address Eddleman Contention 9, which states:

The program for environmental qualification of electrical equipment at Shearon Harris is inadequate for the following reasons:

- A. The proposed resolution and vendor's modification for ITT-Barton transmitters has not been shown to be adequate. (Ref. IE Information Notices 81-29, 82-52 and 83-72).
- B. There is not sufficient assurance that the concerns with Limitorque valve operators identified in IE Information Notice 83-72 (except for Items C2, C5 and C7) have been adequately resolved.
- C. It has not been demonstrated that the RTDs have been qualified in that the Arrhenius thermal aging methodology employed is not adequate to reflect the actual effects of exposures to temperatures of normal operation and accidents over the times the RTDs could be exposed to those temperatures. (Ref. NUREG/CR-1466, SAND-79-1561, Predicting Life Expectancy of Complex Equipment Using Accelerated Aging Techniques.)
- D. The qualification of instrument cables did not include adequate consideration and analysis of leakage currents resulting from the radiation environment. These leakage currents could cause degradation of signal quality and/or spurious signals in Harris instrument cables.
- E. There is not sufficient assurance that the physical orientation of equipment in testing is the same as the physical orientation of equipment installed.
- F. The effects of radiation on lubricants and seals has not been adequately addressed in the environmental qualification program.
- G. There is inadequate assurance that failure to report all results of environmental qualification tests, including failures, has been brought to light in connection with electrical equipment installed in Harris. This includes past test failures of equipment which subsequently passes an EQ test and test failures of equipment which is said to be qualified by similarity. (Ref. Item 2, Page 5, L. D. Bustard et al., Annual Report: Equipment Qualification Inspection Program, Sandia National Laboratories, FY 83.)

Q3. Please describe what is meant by the terms "environmental qualification" and "environmental qualification program".

A3. Environmental qualification is the generation and maintenance of evidence to assure that equipment important to safety will operate on demand to meet the necessary performance requirements under all postulated environmental conditions resulting from design basis events.

An Environmental Qualification Program is the systematic and formal process employed by a licensee or applicant to demonstrate that equipment important to safety is environmentally qualified.

Q4. Would you describe the standards and the process which the Staff employs in reviewing the adequacy of an applicant's environmental qualification program?

A4. The Staff review of the environmental qualification program for license applicants is based on the requirements listed in Section 3.11 of NUREG-0800 (Standard Review Plan); NUREG-0588, "Interim Staff Position on Environmental Qualification of Safety-Related Electrical Equipment"; and the final rule, 10 CFR 50.49.

In the review of submittals from Operating License applicants, the Staff must ascertain the following:

- Proper definition of postulated environmental conditions

- Completeness of the environmental qualification program
- Demonstrated qualification of equipment items based on supporting documentation.

The information is supplied by the applicant in the FSAR and/or in a separate, comprehensive Equipment Qualification Report.

The postulated environmental conditions are based on the most severe accident for which the equipment is required to operate. For equipment located inside containment, the design basis accident is the Main Steam Line Break and Loss of Coolant Accident. These conditions are reviewed and verified by the Staff.

Outside containment, the environmental conditions in areas which could experience a High Energy Line Break must be calculated and submitted for Staff review.

The guidelines in NUREG-0588 and NUREG-0737 must be satisfied in the calculation of radiation doses.

In addition to temperature, pressure and radiation, other environmental conditions include humidity, chemical spray and submergence.

The environmental qualification program must be complete. In the review, the Staff verifies that the following equipment items are included in the qualification program:

- a) equipment needed to perform the safety functions of emergency reactor shutdown, containment isolation, reactor core cooling, containment and reactor heat removal, and prevention of significant release of radioactive materials to the environment.
- b) nonsafety-related electrical equipment whose failure under postulated environmental conditions could prevent the satisfactory accomplishment of the required safety functions.
- c) certain post accident monitoring equipment specified in Regulatory Guide 1.97, Revision 2, "Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident".

The Applicant must demonstrate environmental qualification of the equipment items included in the qualification program. In demonstrating qualification, the equipment must be shown to be operable under all postulated environmental conditions.

Margin must be applied in the qualification program to account for unquantified uncertainties such as the effect of production variations, inaccuracies in test instruments, and errors associated with defining satisfactory performance. This information is submitted to the staff in the form of summary sheets included in the equipment qualification report.

Upon a determination that the submittal is complete and in conformance with applicable regulations, an audit of the applicant's qualification files is conducted by the Staff. The purpose of this audit is to verify that adequate documentation exists to support a claim that the equipment is qualified. Approximately 10% of the equipment items are selectively chosen for audit. The actual test procedures and reports are examined to verify that qualification has been established in accordance with accepted standards. As part of the site audit the actual plant installed equipment is examined to verify that the equipment, as installed, does not invalidate the basis for qualification (i.e., mounting orientation, interfaces, etc. are representative of the test conditions).

The final aspect of the Staff review is the identification of any corrective actions required as a result of the audit. A Safety Evaluation Report is prepared by the Staff which lists the findings of the review and audit. This SER then forms the basis for acceptance of the qualification program.

Q5. Are the concerns identified in this contention normally within the scope of the Staff review for Environmental Qualification?

A5. Yes. All of the concerns identified are normally part of standard NRC review of FSAR Section 3.11 and the Applicant's Environmental Qualification Program. The review will assure that the concerns identified in this contention have been resolved.

The concerns expressed in Eddleman Contention 9 are well known to the NRC Staff. They are based on the results of NRC sponsored research, inspections, or reporting requirements. The contention does not identify any issue which the Staff is not aware of. As stated above all of these issues are considered in the Staff's review of each Applicant's environmental qualification program. The concerns identified must be resolved to the satisfaction of the NRC Staff before a license is issued.

Q6. Have the Applicants indicated how these concerns will be resolved in the Harris environmental qualification program?

A6. Information in response to Eddleman Contention 9 was provided in a letter dated July 25, 1984. Additional information was requested by the Staff and was provided in letters dated August 24, 1984.

Q7. What review has the Staff done on the information provided?

A7. The Staff has reviewed the information provided in the above letters to determine the adequacy of the Harris environmental qualification program in addressing the issues raised by this contention. In

addition, the Staff made a site visit to the Harris plant on August 9 and 10, 1984 to verify the accuracy of the information.

Q8. What are the results of the review and site visit?

A8. The results of the Staff review and site visit are detailed below for each portion of Eddleman Contention 9:

9A - The proposed resolution and vendor's modification for ITT-Barton transmitters has not been shown to be adequate. (Ref. IE Information Notices 81-29, 82-52 and 83-72).

Information Notices 81-29 and 82-52 describe erroneous and noisy output of Barton transmitters (Westinghouse Lot 4, Group A) during High Energy Line Break tests. The reported problems were apparently due to inadequate contact in the connector assembly. The proposed corrective action consists of rework of the connector assembly (i.e., resoldering). The Staff has concluded that this corrective action is adequate. The results of the Staff review are documented in a Safety Evaluation Report of Westinghouse Equipment Qualification Documentation WCAP 8587, WCAP 8587 Supplement 1, WCAP 8687 Supplement 2, and WCAP 9714, dated August 8, 1983.

Information Notice 83-72 describes two defects which have been identified for the Barton model 763 and 764 transmitters. The first defect was in the form of thermal non-repeatability resulting in output performance outside Barton specifications.

The cause of this defect was attributed to a leakage current path through the shafts of the zero and span potentiometers and the mounting brackets.

The proposed corrective action consists of minor mechanical modifications (installation of a fiberglass insulator between the potentiometer shafts and the mounting brackets). Barton notified the NRC that the reported defect can be eliminated as demonstrated by test on the modified units; however, further testing will continue to evaluate long term stability to ensure that no other undesirable effects have been introduced as a result of the modification.

The second defect was for the suppressed zero model 763 and exhibited itself in the form of a negative shift in the transmitter output during the initial exposure to operating pressure. The cause of the defect was identified as due to the combined creep in: 1) the link wire between the pressure bourdon tube and strain sensing beam, and 2) the materials used to attach the link wire.

Barton is investigating possible corrective actions to eliminate this problem. A Westinghouse analysis indicates that adequate margin exists for the Shearon Harris Plant and the observed negative drift is not a safety concern. This analysis will be reviewed by the Staff for acceptability.



CP&L has stated that all safety related Barton transmitters model 763 and 764 have been returned to the factory and will remain there until all corrective modifications are implemented.

The Staff review of the Harris environmental qualification program will verify that the reported defects have been corrected and qualification has been established as claimed. All documents, test results and analyses will be examined. Before an operating license is issued, the Applicants must provide all necessary information to demonstrate that the reported defects have been corrected.

- 9B - There is not sufficient assurance that the concerns with Limitorque valve operators identified in IE Information Notice 83-72 (except for Items C2, C5 and C7) have been adequately resolved.

Limitorque valve operators are devices typically composed of an electric motor and associated electrical components such as terminal blocks, limit switches, brakes, etc., and a gear train assembly and are used to open and close valves.

IE Information Notice 83-72 identified the following concerns, among others, regarding components used in Limitorque valve operators installed at the Midland Plants:

1. The use of terminal blocks which were underrated, unidentifiable, or without proper environmental qualification

2. Other qualification concerns

- motor insulation ambient temperature ratings
- orientation of the equipment
- installation of drain plugs
- installed components not in agreement with purchase orders and qualification files
- qualification status of O-rings

The pertinent portions of this information notice are attached to this testimony as Attachment 2.

CP&L has proposed an inspection/verification program to assure that the concerns identified for the Limatorque valve operators in IE Information Notice 83-72 do not apply to the Harris plant. The Staff informed CP&L that the proposed sample basis inspection described in the July 25, 1984 letter was not adequate. As a result CP&L has agreed to perform a 100% inspection of all Limatorque operators included in the environmental qualification program. Based on a 100% inspection/verification, the Staff finds the proposed resolution of the concerns identified for the Limatorque operators to be acceptable.

- 9C - It has not been demonstrated that the RTDs have been qualified in that the Arrhenius thermal aging methodology employed is not adequate to reflect the actual effects of exposures to temperatures of normal operation and accidents over the times the RTDs could be exposed to those temperatures. (Ref. NUREG/CR-1466, SAND-79-1561, Predicting Life Expectancy of Complex Equipment Using Accelerated Aging Techniques.)

The statement of considerations accompanying 10 CFR 50.49, states that the requirements listed under Category II of NUREG 0588 apply to nuclear power plants for which the construction permit safety evaluation report was issued prior to July 1, 1974. Shearon Harris must meet these requirements.

The qualification program aging requirements for the Shearon Harris Nuclear Power Plant are detailed in Category II, of NUREG 0588. This requires that, with some exceptions, the qualification program address aging only to the extent that equipment composed of materials susceptible to aging effects should be identified and a schedule for periodically replacing the equipment and/or materials should be established. Pre-aging prior to type testing is not required for Category II plants except for equipment containing electronic components in which seal failure could make them susceptible to the effects of steam and pressure, and qualification programs committed to the requirements of IEEE Std. 382-1972 (for valve operators) and IEEE Std. 334-1971 (for motors).

Regulatory Guide 1.33, Rev. 2, "Quality Assurance Program Requirements (Operation)," and the industry standard which it endorses, ANSI N18.7-1976/ANS-37 "Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants," contain recommendations for surveillance and maintenance procedures acceptable to the Staff. The Applicants

have committed to follow the guidance in Regulatory Guide 1.33, Rev. 2, in developing the surveillance and maintenance procedures for the Shearon Harris Nuclear Power Plant. Before an operating license is issued the Staff will verify that an appropriate surveillance and maintenance program is implemented.

For the RTDs in question, CP&L has chosen to meet the aging requirements of NUREG 0588, Category I. Since pre-aging has been included in the RTD qualification program, the basis for the aging calculations was reviewed during the site visit of August 9 and 10, 1984.

Based on the results of the review and responses to questions asked by the Staff, the following information was established:

- Accelerated aging was based on the Arrhenius methodology. A number of inadequacies are inherent in this methodology as pointed out in the existing literature (Ref: EPRI Report NP-1558, "A Review of Equipment Aging Theory and Technology;" NUREG/CR-1466, SAND 79-1561, "Predicting Life Expectancy of Complex Equipment Using Accelerated Aging Techniques"). The Staff is aware of these inadequacies; however, as also pointed out in existing literature, the Arrhenius methodology is recognized as being the best approach presently available to address

accelerated thermal aging and has been used in the qualification program of every nuclear power plant licensed by the NRC.

NUREG/CR-1466, SAND 79-1561 concludes, "Accelerated aging techniques offer the best opportunity for predicting lifetimes or simulating age of complex equipment." In addition, the introduction to EPRI Report NP-1558 states,

"Although equipment aging on a rigorous scientific basis is beyond the current state of technology, it is nonetheless possible to satisfy the purpose of aging in equipment qualification. This is true only so long as the intent of aging is to assess qualitatively the vulnerability of equipment with respect to aging effects and not to achieve aging in the strict sense."

Within the context of NRC requirements for environmental qualification, accelerated aging exclusively is not used to address the requirements for establishing a qualified life. As already stated the Applicants must implement a surveillance/maintenance program to account for unanticipated degradation which is not reflected in the results of the accelerated aging procedures.

Combined with a good surveillance/maintenance program, the Arrhenius methodology is considered an acceptable method of addressing accelerated aging by the Staff for use in establishing a qualified life.

- A life of 20-23 years is calculated for the RTD based on a maximum ambient temperature of 50°C and a 50°C temperature rise due to process fluid, for a total of 100°C (212°F).
- Radiation is not the limiting factor in determining lifetime for the Shearon Harris plant.
- The 50°C temperature rise for the RTD is based on a Westinghouse heat transfer analysis which assumes a 620°F coolant temperature and 140°F ambient temperature.
- The activation energy was conservatively chosen and a basis was provided.

A test conducted for the NRC in 1983 by Sandia National Laboratories to determine the steady state temperatures of an RTD housing located inside containment during PWR operations resulted in RTD housing temperatures estimated in the range of 150°F to 200°F for PWR primary coolant temperature of 600°F and containment ambient temperature of 108°F. The test results are detailed in Sandia National Laboratories "Quick Look Report," Tests to Determine Typical Service Temperatures Inside RTD Connector Heads, by F. V. Thome, March 25, 1983. These numbers are consistent with those used in the Shearon Harris calculations.

Based on the information summarized above, the Staff finds that the method used by CP&L to address aging of the RTDs is acceptable.

- 9D - The qualification of instrument cables did not include adequate consideration and analysis of leakage currents resulting from the radiation environment. These leakage currents could cause degradation of signal quality and/or spurious signals in Harris instrument cables.

During the site visit of August 9 and 10, 1984 the Staff reviewed three qualification files for instrument cables. In all cases it was determined that the effects of radiation on the insulation resistance (IR) of the cable had been included in the qualification program. Measurement of IR gives a direct indication of leakage current. The reports stated that the IR of the cables was measured after radiation exposure as well as other times during the qualification test program. The results showed little loss of insulation resistance due to the radiation exposure.

As part of the qualification requirements, CP&L must factor any inaccuracies due to environmental effects into instrument accuracy requirements. Demonstrated envelopment of accuracy requirements will be part of the environmental qualification review.

The Staff recognizes that some materials deteriorate to a greater degree under long-term doses of radiation than when exposed to the same total dose over a shorter period of time as is usually done in qualification tests. In order to account for any unanticipated degradation due to dose rate effects, the Staff requires applicants for an operating license to develop and implement surveillance and maintenance procedures which will detect age related degradation and take corrective action before a safety problem develops. The Applicants have committed to the guidance in Regulation Guide 1.33, Rev. 2, as previously stated, for guidance in developing acceptable surveillance and maintenance procedures. Based on the above information, the Staff finds the resolution of this concern to be acceptable.

- 9E - There is not sufficient assurance that the physical orientation of equipment in testing is the same as the physical orientation of equipment installed.

Proper environmental qualification requires that the actual installed configuration of equipment does not violate the tested configuration. As part of the environmental qualification review audit, the installed equipment is examined during a plant walkdown. The purpose of this walkdown is to verify actual nameplate information, physical orientation of equipment, installation requirements such as



requirements for drain holes and sealing plugs, and interface requirements.

The information provided by CP&L concerning their installation review process demonstrates that the physical orientation of equipment is adequately addressed in the qualification program. This was verified during the site visit on August 9 and 10 and in the review of a Limitorque qualification file. However, further review of this file and two other files showed that interface requirements had not been properly addressed. From the documents provided it could not be determined if the test configuration afforded the equipment protection which was not provided at plant installation. It appeared that during the qualification test the equipment internals were sealed and not exposed to the harsh environment and this same degree of sealing was not reflected in the installation.

CP&L was made aware of this concern and stated that the situation would be reviewed and corrected as necessary.

The Staff will select additional pieces of equipment for review during the environmental qualification audit to assure that interface requirements have been adequately addressed.

9F - The effects of radiation on lubricants and seals has not been adequately addressed in the environmental qualification program.

The final rule on environmental qualification, 10 CFR 50.49(c)(4), requires that the electric equipment qualification program must include and be based, in part, on the radiation environment including total dose during normal operation over the installed life of the equipment, radiation from the most severe design basis accident, and must include dose rate effects.

During the site visit of August 9 and 10, CP&L demonstrated in a number of qualification files that radiation had been included in the qualification program, not only for lubricants and seals, but other organic materials. In the majority of cases radiation is accounted for by actually exposing the equipment, including lubricants and seals, to the total expected dose during the installed life. In situations where lubricants or seals other than the one tested are to be used, the qualification documents must provide proper analysis or additional data to demonstrate that the lubricant and seals to be used are qualified for the intended application. The results of the qualification tests and analyses coupled with a good surveillance/maintenance program will provide assurance that unanticipated degradation is not taking place.

The Shearon Harris environmental qualification program will be further reviewed and additional files will be audited to assure

that the effects of radiation on lubricants and seals have been properly addressed.

- 9G - There is inadequate assurance that failure to report all results of environmental qualification tests, including failures, has been brought to light in connection with electrical equipment installed in Harris. This includes past test failures of equipment which subsequently passes an EQ test and test failures of equipment which is said to be qualified by similarity. (Ref. Item 2, Page 5, L. D. Bustard et al., Annual Report: Equipment Qualification Inspection Program, Sandia National Laboratories, FY 83.)

Under the requirements of 10 CFR Part 21, environmental qualification test facilities are obligated to report directly to the NRC all test failures and test results which could affect safety. In addition, quality assurance requirements applicable to vendors and test facilities, detailed in 10 CFR Part 50, Appendix B, require that all results of environmental qualification tests be documented and reported. Industry standards are also explicit in the requirement to report all qualification test results.

In August 1982, the NRC instituted the Vendor Inspection Program to assess the environmental qualification test facilities' establishment and implementation of a quality assurance program based on the requirements of 10 CFR Part 50, Appendix B. As a result of the inspections conducted under this program, numerous nonconformances and violations have

been identified which have subsequently been corrected as verified in follow-up inspections.

The specific case cited (Ref. Item 2, Page 5 of Sandia National Laboratories FY 1983 Annual Report on Equipment Qualification Inspection Program) is based on the results of one such inspection at the Rockbestos Company. As a result of the inspection it was and is still concluded that environmental qualification of Rockbestos cables has not been established based on the documentation provided. The Staff set forth its findings concerning the Rockbestos company in Information Notice 84-44, which is attached to this testimony as Attachment 3. As part of that information notice the Staff suggested several possible courses of action which could be taken by users of Rockbestos cables to qualify these cables. Applicants must demonstrate that this equipment is suitably qualified before a license is issued. The Rockbestos Company is currently in the process of implementing corrective actions to their qualification programs to eliminate the deficiencies cited. The results of the Rockbestos requalification activities will be evaluated when they become available.

The Staff is keenly aware of all the concerns raised by Sandia National Laboratories in the FY 1983 Annual Report on the Equipment Qualification Inspection Program. The subject matter and Staff action regarding these concerns have been

addressed in the Commission's "Statement of Policy on Environmental Qualification" 49 Fed. Reg. 8422 (March 7, 1984), and Staff memorandum to the Commission, SECY-83-457C, dated January 18, 1984.

The Staff review of the Shearon Harris Environmental Qualification program will include full consideration of the concerns identified and responded to in the above documents.

- Q9. Can you summarize the present Staff position on the Shearon Harris environmental qualification program as related to the concerns identified in Eddleman Contention 9?
- A9. Based on a review of the information provided by CP&L in letters dated July 25 and August 24, 1984 and the results of the site visit on August 9 and 10, 1984, the Staff finds that the Harris environmental qualification program addresses the concerns identified in Eddleman Contention 9 in that the Applicants have demonstrated an awareness of these concerns and have established procedures to correct the inadequacies that may exist at the present time.

The Shearon Harris environmental qualification program will be reviewed to determine conformance with all applicable NRC regulations. Emphasis will be placed on the review of those items identified in this testimony which presently have not fully been resolved (e.g. Contention Items 9A and 9G).

Proper attention to equipment interface requirements will be a matter for verification during the audit. The review of the Shearon Harris environmental qualification program is presently in the beginning stages.

The Applicants must demonstrate full conformance with the requirements of 10 CFR 50.49. The ongoing Staff review of environmental qualification of electrical equipment will verify that the Applicant's position is properly implemented and the results of the Staff review will be detailed in a Safety Evaluation Report. Surveillance and maintenance activities by the Applicants and future inspections by the NRC should be adequate to detect problems which may arise in the areas of Mr. Eddleman's concerns once the equipment has been qualified.

## Professional Qualifications

of

Armando S. Masciantonio

I am an Equipment Qualification Engineer in the Environmental Qualification Section of the Equipment Qualification Branch, Division of Engineering, Office of Nuclear Reactor Regulation, United States Nuclear Regulatory Commission. I am responsible for the technical reviews, analyses and evaluations of the adequacy of the environmental qualification of electric equipment important to safety and safety-related mechanical equipment whose failure under postulated environmental conditions could adversely affect the performance of safety systems in nuclear power plants.

Before joining the NRC I was employed as an engineer by Vitro Laboratories Division of Automation Industries, Inc. I was responsible for the environmental and seismic qualification of the safety-related electronic control equipment supplied by Vitro Laboratories Division. Specifically, my duties were to develop and write the environmental and seismic qualification test plans, procedures and reports and oversee the test and procurement activities in support of qualification.

Prior to that, I was employed at the U. S. Naval Surface Weapons Center as a mechanical engineer. My duties involved support of the development, test and evaluation of advanced naval weapons.

I have a B.S. degree in Mechanical Engineering (1972) from Drexel University, Philadelphia, Pennsylvania and a Masters degree in Mechanical Engineering (1976) from the Catholic University of America, Washington, D.C. I also hold a Masters degree in Administrative Science (1980) from the Johns Hopkins University, Baltimore, Maryland.

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT  
WASHINGTON, D.C. 20555

OCTOBER 28, 1983

IE INFORMATION NOTICE 83-72: ENVIRONMENTAL QUALIFICATION TESTING EXPERIENCE

Addressees:

All holders of a nuclear power reactor operating license (OL) or construction permit (CP).

Purpose:

This information notice is provided to inform the licensees of environmental qualification test failures. These test failures are based on (1) Construction Deficiency Reports and 10 CFR Part 21 Reports submitted to the NRC, and (2) results from the NRC-sponsored environmental qualification methodology research program. This information notice also serves to inform the licensees of findings that resulted from inspections conducted by the licensee or its agent of equipment that has been environmentally qualified and is being delivered or installed at the sites.

Because of the potential safety significance and related generic implications of these test failures and inspection findings, addressees are expected to review the information for applicability to their facilities. No specific response to this information notice is required.

Description of Circumstances:

The NRC has received a number of Construction Deficiency Reports and 10 CFR Part 21 Reports from licensees and vendors of safety-related equipment. These reports describe a number of test failures and the circumstances under which the equipment failed to function during environmental qualification testing. These reports also indicate that there are a number of instances in which delivered equipment and components contained material that did not conform to standards for safety, thus rendering the qualified equipment and components unqualified. In addition to the monitoring and assessing of environmental qualification information received from the industry, the NRC has also sponsored a number of qualification tests of certain safety-related equipment under its environmental qualification methodology research program, which has resulted in a number of adverse test results. This information notice is published with the following objectives:

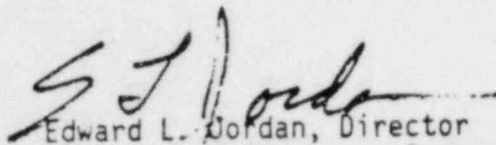
1. To disseminate the information on matters related to the environmental qualification of equipment and on test results, as received from the licensees and equipment vendors.



2. To disseminate the results of NRC-sponsored environmental qualification tests which have been completed.

The enclosed continuing series of Equipment Environmental Qualification Notices (Attachment 1) describes the circumstances of each failure, failure mode, and qualification concerns as described in various reports and sources indicated. Please note that for items in Qualification Notices No. 14 through 19 the vendors have issued service instructions to the affected users regarding corrective action to be taken.

Questions regarding the details of tests described in Attachment 1 should be directed either to the equipment manufacturer or the cognizant design/test agency. If you have other questions regarding this information notice, please contact the Regional Administrator of the appropriate NRC Regional Office, or this office.



Edward L. Jordan, Director  
Division of Emergency Preparedness and  
Engineering Response  
Office of Inspection and Enforcement

Attachments:

1. Series of Equipment Environmental Qualification Notices
2. List of Recently Issued IE Information Notices

Technical Contact: N. B. Le, IE  
(301) 492-9673

Equipment Environmental Qualification Notice No. 24

Equipment: Limitorque valve operators

Reference: Construction Deficiency Report - Part 50.55(e)  
Facilities: 50-329, -330

Description of Circumstances:

The Bechtel Associates Professional Corporation, A/E for Consumers Power Company's Midland Plant Units 1 and 2, has recently reported to the NRC the following deficiencies related to the Limitorque valve operators at the Midland plants:

1. The use of underrated terminal blocks in Limitorque operators
2. The use of terminal blocks without proper environmental qualification in Limitorque operators
3. Additional concerns regarding qualification of various Limitorque operator components

These concerns are detailed below.

A. Underrated Terminal Blocks

While replacing a damaged terminal block on a Limitorque operator, Bechtel determined that some of the terminal blocks used for the termination of the leads from the 460-volt motor were rated less than 460-volt. These Limitorque operators, when used on safety-related valves, must function on an emergency core cooling actuation signal (ECCAS). In addition to being a personnel safety hazard, the potential exists for short circuit/flashover, which could render the valves inoperative.

B. Environmental Qualification

During random inspection for underrated terminal blocks, it was discovered that, in some cases, terminal blocks were used from manufacturers not covered by existing qualification reports.

Limitorque provided the following information on environmental qualification of terminal blocks in its July 31, 1981, letter to Bechtel.

The Buchanan 0524 has been qualified by analysis. To supplement the qualification by analysis, Limitorque is currently running a type test on the Buchanan 0524 terminal block. The Buchanan 0824 terminal blocks are not qualified and must be replaced.

Equipment Environmental Qualification Notice No. 24 (Cont.)

Description of Circumstances (Cont.):

Some of the Limatorque operators having Buchanan 0824 type terminal blocks have been used on safety-related valves located inside containment. These operators must function on an ECCAS. The potential exists for a terminal block to fail during its intended service life because of aging and radiation effects, which would render the valve inoperable and prevent proper operation of the safety-related system.

C. Additional Qualification Concerns

During the month of June 1982, a random inspection was made of safety-related Limatorque valve operators supplied through various valve manufacturers and installed inside the reactor building. This inspection resulted in various potential concerns regarding qualification of these Limatorque operators. These concerns are:

1. The motor nameplate ambient temperature rating on various motors installed on some Limatorque operators is 40°C. Limatorque has verbally stated that the Class B insulation motors rated for a 40°C ambient temperature have not undergone qualification testing in accordance with IEEE Std 382-1972 for the specified normal, accident, and postaccident environment. Class H insulation motors are rated for 50°C ambient temperature, but the qualification testing in accordance with IEEE Std 382-1972 for these motors is presently unknown.
2. No identification was evident on certain materials internal to the Limatorque operators (e.g., wiring, insulation, etc.). It is not presently known whether these types are qualified for the service conditions.
3. Various orientations of installed operators were observed. It is not presently known whether the operators are qualified for all installed orientations.
4. Drain plugs on operators were observed to be both in place and removed. Orientation of the operators did not always result in the drain holes being at the lowest point of the installed operator. It is not presently known whether the existence of the drain plug or the orientation of the drain hole is essential to proper operation of the operator or is in conformance with the qualification tests for the operator.
5. Various Limatorque operator limit switch gear frames were observed to be made of a white metal. It is not presently known whether these gear frames are qualified for the service conditions.

Equipment Environmental Qualification Notice No. 24 (Cont.)

Description of Circumstances: (Cont.)

6. Information obtained from purchase order files and qualification files does not agree with the installed components.
7. It is presently not known whether space heaters are qualified or required to be qualified.
8. Various O-rings are located throughout the actuator. It is not presently known whether these components are qualified for the service conditions.
9. Unidentifiable terminal blocks (nonpower lead connectors inside the operators) were observed in other Limitorque operators. It is not presently known whether these components are qualified for the service conditions.

IN 33-72  
October 28, 1983

LIST OF RECENTLY ISSUED  
IE INFORMATION NOTICES

Information Notice No.	Subject	Date of Issue	Issued to
83-71	Defects in Load-Bearing Welds on Lifting Devices for Vessel Head and Internals	10/27/82	All nuclear power facilities holding an OL or CP
83-70	Vibration-Induced Valve Failures	10/27/83	All nuclear power facilities holding an OL or CP
83-69	Improperly Installed Fire Dampers at Nuclear Power Plants	10/21/83	All nuclear power facilities holding an OL or CP
83-68	Respirator User Warning - Defective Self-Contained Breathing Apparatus Air Cylinders	10/11/83	All nuclear power facilities holding an OL or CP; research and test reactors, fuel cycle licensees; Priority 1 material licensees
83-67	Emergency-Use Respirator Material Defect Causes Production of Noxious	10/11/83	All nuclear power facilities holding an OL or CP; research and test reactors, fuel cycle licensees; Priority 1 material licensees
83-66	Facility at Argentine Critical Facility	10/7/83	All nuclear power facilities holding an OL or CP; non-power reactor, critical facility and fuel cycle licensees
83-65	Surveillance of Flow in RTD Bypass Loops Used in Westinghouse Plants	10/07/83	All Westinghouse facilities holding an OL or CP
83-64	Lead Shielding Attached to Safety-Related Systems Without 10 CFR 50.59 Evaluations	09/29/83	All power reactor facilities holding an OL or CP

OL = Operating License  
CP = Construction Permit

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT  
WASHINGTON, D.C. 20555

June 8, 1984

IE INFORMATION NOTICE NO 84-44: ENVIRONMENTAL QUALIFICATION TESTING OF  
ROCKBESTOS CABLESAddressees:

All holders of a nuclear power reactor operating license (OL) or construction permit (CP).

Purpose:

This information notice is provided to inform licensees and construction permit holders of potential generic problems regarding Rockbestos environmental qualification (EQ) testing of Class 1E electrical cables. Addressees are expected to review the information for applicability to their facilities. No specific action or response is required.

Description of Circumstances:

The NRC has performed a number of inspections of the QA programs established at several environmental testing facilities. This effort was started in late August 1982 to assess the facilities' establishment and implementation of a QA program based on the requirements of 10 CFR Part 50, Appendix B. Several such inspections were recently conducted at the Rockbestos Company in New Haven, Connecticut. The NRC inspection team reviewed qualification related documents such as EQ reports, associated supporting items including test plans, test procedures, test instruments, test log books, related raw data and QA documents. The inspections revealed several QA nonconformances and related testing/documentation problems. Details of these nonconformances and inspection findings are documented in the following NRC Inspection Reports: 99900277/83-01, 99900277/83-02, and 99900277/83-04. Listed below are some of the QA nonconformances and related testing/documentation problems which may affect the qualification of Rockbestos cables that are installed at licensees' facilities:

1. The Rockbestos Company did not impose quality assurance/test control requirements on an outside test organization which performed testing (LOCA/HELB) during the period of 1969-1979.
2. The Rockbestos Company did not establish and implement a QA program in accordance with 10 CFR Part 50, Appendix B requirements to control Rockbestos EQ testing; i.e., the EQ program was controlled by a Rockbestos engineering organization which was not under a QA program until 1983.

3. As a result of inadequate QA controls, testing and the required documentation were not properly controlled. Several discrepancies between final qualification reports and supporting test data were found.
4. Rockbestos' QA and engineering organizations did not impose QA and technical requirements/acceptance criteria on organizations that performed qualification testing for Rockbestos between 1969 and 1979. Furthermore, no supporting test data for these tests were available for audit at Rockbestos or sub-tier test organizations.
5. Test equipment and instrumentation were observed to have inadequate resolution to record LOCA test parameters and functioning of test specimen during testing.
6. Test equipment was not properly calibrated or under the control of the calibration system. An internal Rockbestos audit dated May 10, 1983, documented these generic deficiencies in their calibration system.
7. Test plans, acceptance criteria, and test procedures for certain qualification tests were not made available during the NRC audits.
8. A number of test deficiencies, deviations, and other anomalies were not documented and evaluated in the test reports.

Discussion:

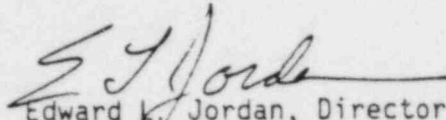
The results of the NRC inspections show that several deficiencies were present in the Rockbestos Company qualification programs in effect at time of the audit. Individually, some deficiencies could be adequately reconciled, but taken collectively, the nature and number of deficiencies identified would not adequately demonstrate that acceptable qualification had been established. It appears that the validity of some of the Rockbestos qualification reports is in doubt, however, the NRC staff has concluded at this time that no immediate safety problem exists in the use of Rockbestos cables. The NRC staff considers that it is the responsibility of the user utilities to review the information provided above and take applicable corrective action to ensure the qualification of Rockbestos cables installed in their plants. The following possible courses of corrective action should be considered:

- a) Perform a valid qualification test of the installed Rockbestos cables.
- b) Obtain documentation from other available qualification tests already performed and determine its applicability to the installed cables.

- c) Perform analyses of existing qualification reports applicable to the installed cables to ensure that the documentation relied upon to demonstrate environmental qualification supports such a conclusion.

The NRC staff considers this review to be part of the on-going activities that the licensees are currently undertaking to resolve other environmental qualification deficiencies to meet the deadline and requirements set forth in the EQ final rule, 10 CFR 50.49.

Questions regarding details of, and resolutions to the NRC inspection findings described above should be directed either to the equipment manufacturer, or the cognizant design/test agency. If you have questions regarding this information notice, contact the Regional Administrator of the appropriate NRC Regional Office, or this office.



Edward L. Jordan, Director  
Division of Emergency Preparedness  
and Engineering Response  
Office of Inspection and Enforcement

Technical Contacts: R. G. LaGrange, NRR  
(301) 492-8208

N. B. Le, IE  
(301) 492-9673

Attachment:  
List of Recently Issued IE Information Notices



IN 84-44  
June 8, 1984

LIST OF RECENTLY ISSUED  
IE INFORMATION NOTICES

Information Notice No.	Subject	Date of Issue	Issued to
84-43	Storage and Handling of Ophthalmic Beta Radiation Applicators	06/07/84	All medical licensees
84-42	Equipment Availability for Conditions During Outages Not Covered by Technical Specifications	06/05/84	All power reactor facilities holding an OL or CP
84-41	IGSCC in BWR Plants	06/01/84	All BWR reactor facilities holding an OL or CP.
84-40	Emergency Worker Doses	05/30/84	All power reactor facilities holding an OL or CP; research and test reactor and fuel cycle licensees
83-66	Fatality at Argentine Critical Facility	05/25/84	All power reactor facilities holding an OL or CP; non- power reactor, critical facility, & fuel cycle licensees
84-39	Inadvertent Isolation of Spray Systems	05/25/84	All power reactor facilities holding an OL or CP
84-38	Problems With Design, Maintenance, and Operation of Offsite Power Systems	05/17/84	All power reactor facilities holding an OL or CP
84-37	Use of Lifted Leads and Jumpers During Maintenance or Surveillance Testing	05/10/84	All power reactor facilities holding an OL or CP
84-36	Loosening of Locking Nut on Limitorque Operator	05/01/84	All power reactor facilities holding an OL or CP

OL = Operating License  
CP = Construction Permit

1 BY MS. MOORE: (Continuing)

2 Q Mr. Masciantonio, would you please summarize your  
3 testimony?

4 A Yes. Based on a review of the information provided  
5 by CP&L in letters dated July 25 and August 24, 1984, and the  
6 results of the site visit on August 9 and 10, 1984, the Staff  
7 finds that the Harris Environmental Qualification Program  
8 addresses the concerns identified in Eddleman Contention 9.

9 In that the Applicants have demonstrated an awareness  
10 of these concerns and have established procedures to correct  
11 the inadequacies that may exist at the present time.

12 The Shearon Harris Environmental Qualification  
13 Program will be reviewed to determine conformance with all  
14 applicable NRC regulations. Emphasis will be placed on the  
15 review of those items identified in this testimony, which  
16 presently have not been fully resolved.

17 The review of the Shearon Harris Environmental  
18 Qualification Program is presently in the beginning stages.  
19 The Applicants must demonstrate full conformance with the  
20 requirements of 10 CFR 50.49. The ongoing Staff review of  
21 environmental qualification of electrical equipment will  
22 verify that the Applicants position is properly implemented,  
23 and the results of the Staff review will be detailed in a  
24 safety evaluation report.

25 Surveillance and maintenance activities by the

1 Applicants and future inspections by the NRC should be adequate  
2 to detect problems which may arise in the areas of Mr.  
3 Eddleman's concerns once the equipment has been qualified.

4 MS. MOORE: Your Honor, the witness is now available  
5 for cross examination.

6 JUDGE KELLEY: Thank you, Ms. Moore. We think at this  
7 point, Mr. Masciantonio, as you I am sure heard, we will expect  
8 to have you back fresh in the morning, and then Mr. Eddleman  
9 can begin his cross examination at that point, so we will  
10 excuse you for the evening. We just have a couple of other  
11 things to take a minute or two on and then we can all stop.

12 WITNESS: Thank you.

13 WITNESS TEMPORARILY STANDS ASIDE.

14 JUDGE KELLEY: One, we put to you earlier as a  
15 tentative proposition this idea that we might like to postpone  
16 the work now scheduled for the week of the 5th, and move it  
17 up to the week of the 12th, and having heard your comments  
18 and response, and hearing no objection and some support  
19 anyway, we have decided to take that step, so we might as well  
20 just firm that up so people could make their plans and notify  
21 witnesses and the like.

22 So, the schedule will be changed that way, and we  
23 will be stopping then on the -- we will be adjourning on the  
24 2nd, next Friday, and then reconvening on the 13th, a week  
25 from the following Tuesday, at a location to be determined.

1 I think we can get the bankruptcy court for 14, 15,  
2 and 16. And that was previously indicated. We will ask for  
3 the 13th, and if not, we will get something else.

4 The only open spot right now, which we are trying  
5 to plug is a week from this Friday, the 2nd. I asked my  
6 secretary to check on the New Bern conference room as sort  
7 of a backstop. I don't know that we will be able to do any  
8 better, given our experience in finding facilities, but that  
9 is where we are headed for right now.

10 If some good fairy appears to any of the parties  
11 and tells you about a better place, I am pretty sure we will  
12 take you up on it, but that is where we are right now, and  
13 I think you had better assume there might be something like  
14 that.

15 As soon as we firm that up, we will let you know.

16 We want to go back once more to these issues that  
17 were raised about the scope of 41 in relationship to the  
18 affidavit from Mr. Chan. Because we think our making some  
19 rulings on scope will clarify the situation for everybody  
20 concerned, and we will know where we are and where we  
21 are to go from there.

22 The issues once more were whether three different  
23 areas were to be considered within the scope of existing  
24 Contention 41. The first area is materials traceability,  
25 which is referred to in paragraph 16, page 10, of the

1 affidavit.

2           The second area characterized as undue production  
3 pressure on construction, that is referred to in paragraph 25  
4 on page 15, and the third area is various deficiencies in  
5 controlling nonconformances, as referred to in paragraph 26,  
6 on page 15.

7           And the Board concludes and rules that none of these  
8 areas are within the scope of present Contention 41. As to  
9 the first area, materials traceability, that does, indeed,  
10 arise in the context of a discussion of pipe hangers in the  
11 affidavit, but we think it is significant that the contention  
12 as presently drafted doesn't make any explicit or really contain  
13 any implicit reference to materials traceability as such.

14           There isn't any necessary connection between  
15 materials traceability and welding, and indeed, bad welds  
16 don't necessarily involve materials traceability, and we  
17 -- and as we understand it, most of them usually don't, so we  
18 don't see any direct necessary nexus between the areas of  
19 pipe hangers that are spoken of in Contention 41, and the  
20 whole area, to us, separate area of materials traceability.

21           As to the second and third areas spoken of on page 15  
22 of the affidavit, the production pressure notion and the  
23 general deficiencies, those discussions don't say anything  
24 about the pipe hangers at all. They are just very broad,  
25 generalized statements. There is no nexus, no tie that we can

1 see.

2 And that, to us, is the first test. If something  
3 is within a contention, the question is does the contention  
4 say so, and the answer here is, no.

5 Beyond that, we asked the parties earlier about  
6 the history of the Contention 41 and discovery, thinking it  
7 significant to know whether these areas were treated by the  
8 parties as within the contention, and the record will show that  
9 there is no indication that the parties thought that these  
10 topics were within the scope of 41.

11 As we view it then, that goes among other things to  
12 the fairness in raising it now as being under 41.

13 So, our conclusion is that they are outside the  
14 scope of these topics. Could be the subject of a proposed  
15 late contention, subject to the five factors test that we are  
16 all familiar with, and if they are cast with the requisite  
17 specificity, but they are in that posture, which would leave  
18 us then by way of I think a brief summary.

19 We expect the Staff to look into Mr. Chan's concerns  
20 as they said they would, but if there are next steps to be  
21 taken with respect to these matters, the Staff and the  
22 Applicants who have indicated no desire to pursue them, and the  
23 Board doesn't intend to move forward on its own Motion, so  
24 it would be up to the Interveners to come in with Motions for  
25 late contentions , or in the case of the matters that may have

1 some bearing on the management point, with a Motion to reopen.  
2 And we don't intend to take any action unless and until such  
3 Motions are made.

4 So, those are the rulings we have on that topic.  
5 Anything else needs to be raised this evening? Mr. Eddleman?

6 (NOTE: No response)

7 Nine o'clock. Thank you. We are adjourned.

8 (Whereupon, the hearing adjourned at 5:47 p. m.,  
9 Wednesday, October 24, 1984, to reconvene at 9:00 a. m.,  
10 Thursday, October 25, 1984.)

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This is to certify that the attached proceedings before the  
UNITED STATES NUCLEAR REGULATORY COMMISSION in the matter of:

NAME OF PROCEEDING:

SHEARON HARRIS NUCLEAR POWER PLANT

DOCKET NO.: 50-400-OL & 50-401-OL

PLACE: APEX, NORTH CAROLINA

DATE: WEDNESDAY, OCTOBER 24, 1984

were held as herein appears, and that this is the original  
transcript thereof for the file of the United States Nuclear  
Regulatory Commission.

*Garrett J. Walsh, Jr.*  
Garrett J. Walsh, Jr.  
(Sigt.)

(TYPED)

GARRETT J. WALSH, JR.  
Official Reporter

Reporter's Affiliation  
Ace Federal Court Reporters

*Myrtle H. Traylor*  
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*Mary Simons*  
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