

# ORIGINAL

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

5 - - - - - X  
6 In the Matter of: :  
7 GEORGIA POWER COMPANY, ET AL., :  
8 (VOGTLE ELECTRIC GENERATING PLANT, :  
9 UNITS 1 AND 2) :  
10 - - - - - X

11 Friday, October 21, 1994  
12 Rockville, Maryland  
13

14 Deposition of ALFRED E. CHAFFEE, a witness herein,  
15 called for examination by counsel for Georgia Power Company,  
16 pursuant to notice, commencing at 8:35 a.m., at One White  
17 Flint North, Conference Room 8B11, Rockville, Maryland,  
18 before Jon Hundley, a court reporter and notary public in  
19 and for the State of Maryland.  
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1 APPEARANCES [continued]:

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## C O N T E N T S

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2

WITNESS

EXAMINATION

3

ALFRED E. CHAFFEE

4

By Mr. Lamberski

6, 98

5

By Mr. Kohn

73, 100

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By Mr. Barth

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## P R O C E E D I N G S

[8:35 a.m.]

MR. BARTH: As a preliminary matter, this is a deposition by Georgia Power Company of Al Chaffee. This is convened pursuant to a Licensing Board Order dated September 19, 1994, and October 14, 1994.

I am Charles A. Barth, attorney with the Office of the General Counsel of the Nuclear Regulatory Commission. My office is here in Rockville, Maryland.

Mr. Lamberski, the deponent is yours.

Whereupon,

ALFRED E. CHAFFEE,

a witness, was called for examination by counsel for Georgia Power Company and, having been first duly sworn, was examined and testified as follows:

## EXAMINATION

BY MR. LAMBERSKI:

Q Good morning, Mr. Chaffee. I am representing Georgia Power Company. I am going to ask you a few questions about the events from 1990 concerning the plant Vogtle, specifically your involvement with the incident investigation team that went to the Vogtle site following



1 the March 20, 1990, site area emergency.

2 Can you tell me a little bit about your  
3 responsibilities at the Nuclear Regulatory Commission  
4 perhaps the year prior to March 20, 1990?

5 A I was assigned to Region V on the West Coast. At  
6 the time, I was the Deputy Division Director for the  
7 Division of Reactor Safety and Projects.

8 Q For the entire year prior to March 20, 1990?

9 A I don't remember.

10 Q Do you recall the circumstances of how you were  
11 assigned to the incident investigation team?

12 A Ed Jordan called me and asked me to do it.

13 Q And who is Ed Jordan?

14 A He is the Office Director for the Office of AEOD.

15 MR. BARTH: He was at the time, Mr. Lamberski.

16 MR. LAMBERSKI: Right.

17 BY MR. LAMBERSKI:

18 Q Do you recall when he called you?

19 A I don't remember the day, I don't remember the  
20 time. I only remember it was prior to my arrival.

21 Q Do you know when you arrived at the Vogtle site?

22 A I don't remember what day it was.

1 Q Do you recall who the other members of the IIT  
2 team were?

3 A I probably can remember all of them. Are you  
4 asking me who they were?

5 Q Yes, if you remember.

6 A Okay. Rick Kendall --

7 MR. BARTH: Could you spell these for the  
8 reporter?

9 THE WITNESS: I believe Kendall is spelled  
10 K-e-n-d-a-l-l, but I am not positive. Gene Traeger, and I  
11 am not positive how to spell his name either, but I think it  
12 is T-r-a-e-g-e-r, but I am not positive. Let's see, Bill  
13 Jones, Garman West, Harvey Wyckoff. I don't remember right  
14 now the names of the other two members. I think there were  
15 two more members.

16 BY MR. LAMBERSKI:

17 Q As best as you can recall, what was the charter of  
18 the IIT?

19 A As I remember, the charter was to investigate the  
20 event that occurred at Vogtle and determine what caused it  
21 to occur.

22 MR. KOHN: Was that the charter that AIT or that

1 IIT had?

2 MR. LAMBERSKI: This is the IIT we are talking  
3 about.

4 BY MR. LAMBERSKI:

5 Q Do you recall that there was an augmented  
6 inspection team, and AIT --

7 A Yes.

8 Q -- at the site before the IIT --

9 A Yes.

10 Q -- arrived?

11 A Yes.

12 Q Do you know who were the members of the AIT?

13 A No.

14 Q If I told you that Mr. Ken Brockman was the team  
15 leader of the AIT, would that refresh your recollection?

16 A What you said is true.

17 Q And do you recall that Mr. Rick Kendall was also a  
18 member of the AIT?

19 A Yes.

20 Q And when the IIT arrived, do you recall, was there  
21 some sort of formal turnover from the AIT to the IIT?

22 A Yes.

1           Q     Can you describe that? I mean, was it an exchange  
2 of papers or meetings with particular people, how did that  
3 occur?

4           A     Turnover took three forms. Ken Brockman verbally  
5 talked to me. Ken Brockman handed me a book, and  
6 separately, although there were papers that the AIT had that  
7 became part of the IIT paper, but I never really had any  
8 direct involvement in that transfer.

9           Q     You don't remember -- I didn't hear what you said?

10          A     I didn't have any direct involvement in the  
11 transfer of the bulk of the AIT information into the IIT  
12 package of information, but I know that in the bibliography  
13 listing of information that we had when we finally published  
14 our report was a segment of information that was included --  
15 that was gotten from what the AIT had gathered.

16          Q     Okay. I have a copy of what I refer to as the  
17 bibliography of documents that were collected by the IIT.  
18 Before I mark this, I will just ask you if you recognize it?

19          A     Yes, this looks like the bibliography. I don't  
20 know if the one you handed me is the one we finally  
21 published or not.

22               MR. LAMBERSKI: Why don't we just go ahead and



1 mark that then. We will call this GPC-Chaffee-1.

2 [GPC-Chaffee Exhibit No. 1 was  
3 marked for identification.]

4 BY MR. LAMBERSKI:

5 Q Mr. Chaffee, the documents that the reporter marks  
6 will be ones for you to refer to.

7 You referred to a book that Mr. Brockman gave you.  
8 I am not sure I know what that book is. Can you describe it  
9 as best as you recall?

10 A I think it was roughly a two-inch wide three-ring  
11 binder that had various information in it, and I don't  
12 remember what that information was.

13 Q Do you know whether there was any information in  
14 there about the diesel generators?

15 A No, I don't remember.

16 Q Would that book, you believe, have become a part  
17 of the documentation that is listed in the bibliography?

18 A I don't know. The reason I don't know is because  
19 your question was, did the book become part of it. I don't  
20 know if the book became part of it. What may be true is,  
21 what was in the book may have been broken apart and became  
22 part of it.

1 Q But you are not sure one way or the other?

2 A I am only assuming now because I can't attest to  
3 the fact, but I would assume that the information that was  
4 in the book probably became part of the bibliography, but I  
5 don't know that for a fact.

6 Q What was Mr. Brockman's role after the IIT  
7 replaced the AIT, if you remember?

8 A Mr. Brockman played the role as the Region II  
9 representative that liaised with the team and helped  
10 facilitate regional support for the IIT activities.

11 Q And how did he interact with the team? Did he  
12 attend each and every meeting that the team attended?

13 A No, I don't believe he did.

14 Q Did he have daily discussions with you about the  
15 activities of the IIT?

16 A At times during the -- in the early stages of the  
17 IIT process, he frequently had daily discussions. I don't  
18 know if we had discussions every day, and I don't remember  
19 in the later portions of the IIT, when we were back in  
20 Washington, D.C., if the discussions with Ken continued  
21 every day, and I am pretty sure that near the end of the  
22 effort the discussions with Ken subsided.

1 Q Do you recall whether there were other Region II  
2 inspectors who came to Plant Vogtle during the time that the  
3 IIT was there to witness testing of the diesel generators?

4 A There were Region II employees, I believe, that  
5 witnessed -- I am almost positive they witnessed portions of  
6 diesel generator activities. I don't remember whether or  
7 not that witnessing occurred while we were on-site, although  
8 possibly part of it did, or if it for the main incurred  
9 after we left the site.

10 Q Do you have any recollection of a Mr. Milt Hunt  
11 from Region II being on the site at the time that you were  
12 there?

13 A The name Milt Hunt sounds familiar to me as  
14 somebody who possibly witnessed some of the testing, but,  
15 again, I don't remember if he did that witnessing while we  
16 were on-site or off-site, and I don't remember -- I think he  
17 is the one that did the witnessing, but I don't remember. I  
18 think he did. Somebody from Region II did do witnessing,  
19 and he is a name that I seem to remember, and I would not be  
20 surprised if he is the one that did the witnessing.

21 Q Okay. Do you remember whether the Region II  
22 inspectors who did the witnessing had interaction with the

1 IIT at that time?

2 A I personally did not interact with the Region II  
3 people that did the witnessing. If they did interact with  
4 the IIT, I would suspect that they interacted with Rick  
5 Kendall, but I don't know that for a fact. I would suppose  
6 that if they found problems they would have interacted with  
7 the team, but I don't remember that.

8 Q Let me ask you to turn to page 7 in Exhibit 1 of  
9 the bibliography. This item on page 7, Item 3, is entitled  
10 briefing book, document for IIT leader, and I am wondering  
11 whether this might be the book that Mr. Brockman gave you,  
12 if you know?

13 A I don't know, but without -- I don't know.

14 Q While the IIT was on the Plant Vogtle site -- I am  
15 primarily interested, by the way, in the diesel generator  
16 activities. I know the IIT team, as a whole, was looking at  
17 other things. I want to focus your attention on the diesel  
18 generator activities.

19 Did the -- why don't you describe for me in  
20 general how the IIT team operated in terms of its  
21 interaction with Georgia Power personnel, attending  
22 meetings, accompanying engineers to the diesel to witness



1 testing, and what-have-you, in a general way?

2 A We set up a system when we arrived on site to  
3 allow interaction with the utility to investigate the event.  
4 We set up communications which consisted of a couple of  
5 levels. I seem to remember I interacted with Brockman at  
6 times. There was an individual or individuals who were sort  
7 of coordinators for information. That is, providing  
8 information to us. I don't remember their names. I believe  
9 Georgia Power -- I am sorry, I believe Vogtle set up some  
10 people on their staff to be sort of coordinators with, I am  
11 not sure if it was each and every team member, but with some  
12 of the team members, perhaps all, to help facilitate their  
13 need for gathering information.

14 Most, if not all, of what we did was in terms of  
15 at least interactions -- well, it was all recorded and  
16 transcribed in terms of all the interview processes. There  
17 were visits made to the diesel generator room. There was  
18 testing that was performed. I don't remember how much of  
19 the testing that was performed was actually witnessed by IIT  
20 members. I seem to recall that there was some, let's call  
21 it, there were some activities that were done by the utility  
22 in terms of diesel -- I am not sure if it is testing or

1     what, before the IIT ever arrived on the site. So I guess,  
2     from that standpoint, there must have been some stuff that  
3     we obviously weren't involved in.

4           Q     You don't need to tell me about it.

5           A     I am not sure if I answered your question.

6           Q     You don't need to tell me about specific testing  
7     that you might have witnessed at this time. I am just  
8     interested in a general way in how the IIT team interacted  
9     with Georgia Power people. For example, did the IIT team  
10    sit in on daily plant status meetings and kind of tag along  
11    with the engineers who are responsible for the diesel  
12    generators in their daily activities, and what-not?

13          A     I think the answer to that question is, no, we  
14    didn't do that.

15          Q     Do you recall when the IIT team left the site?

16          A     I don't remember the date. My recollection is, we  
17    were on-site for something a little over a week.

18          Q     And do you recall, when the IIT team did leave the  
19    site, what sorts of interaction occurred between the IIT and  
20    the Georgia Power personnel?

21          A     Once we had returned back to -- after we left the  
22    site?

1 Q Right.

2 A What I remember is, we had phone calls, and I  
3 think, but I am not positive, that they occurred daily on  
4 workdays, at least that is the way I believe it was for some  
5 period of time after we left the site. I am not sure that  
6 we continued -- assuming we had daily phone calls, that we  
7 continued it all the way up until the report was published,  
8 but that was our process for trying to continue the  
9 communication of issues we were still trying to resolve.

10 Q I am going to show you a handwritten memorandum  
11 that was prepared by Rick Kendall on March 24th and 25th, I  
12 believe, of 1990.

13 MR. LAMBERSKI: I will ask the reporter to mark  
14 this as GPC-Chaffee-2.

15 [GPC-Chaffee Exhibit No. 2 was  
16 marked for identification.]

17 MR. KOHN: The memo was prepared by whom?

18 MR. LAMBERSKI: Rick Kendall.

19 BY MR. LAMBERSKI:

20 Q I will ask you if you recognize this memo?

21 A When you say recognize it, I recognize it as  
22 something that I have seen in the past four to six months.

1 I don't know whether or not -- I can say that much. I don't  
2 remember recognizing it from when I was involved in the IIT,  
3 although that is possible. Actually, I am not sure of that  
4 either. It looks familiar.

5 Q If you would turn to the last page, my  
6 interpretation of this document was/is that this is Mr.  
7 Kendall's turnover from the AIT to the IIT, and he was  
8 discussing the items that he was responsible for, if you  
9 will, in sort of a formal turnover to the IIT, and the last  
10 page, the upper left-hand corner, has handwritten "Al/Ken"  
11 and I interpreted that to mean, Al Chaffee and Ken Brockman,  
12 and here Rick was turning over from the AIT team leader, if  
13 you will, to the IIT team leader, and kind of setting out  
14 all the things that he had observed in his responsibilities.

15 MR. KOHN: You were indicating that this is one  
16 document. It seems to be different documents. The third  
17 page is not numbered, and the third page also ends with a  
18 "proceed without" which indicates that there is a  
19 continuation.

20 MR. LAMBERSKI: Yes, there is. I am missing a  
21 page, apparently, and I believe they are two different  
22 documents because they are dated the 24th and then the 25th.



1 I don't know if I have the last page.

2 MR. KOHN: Can we make Number 2 just the first two  
3 pages of this document?

4 MR. LAMBERSKI: No, I would like to include the  
5 whole thing. I apologize, I seem to be missing the last  
6 page of this document.

7 MR. KOHN: The Intervenor does object to the  
8 introduction of the document in its present form.

9 BY MR. LAMBERSKI:

10 Q Why don't you look the document over, Mr. Chaffee,  
11 and see if it jogs your memory?

12 A I am not sure what you mean by jogs my memory. I  
13 mean, I see the document, and I could -- you know, I could  
14 sort of try to react to it and give you some impressions of  
15 what I think it might be, but I don't --

16 Q Have you read the memo completely?

17 A Sitting here, no, I haven't. Do you want me to  
18 read it completely?

19 Q Please.

20 A Okay.

21 MR. LAMBERSKI: We are going to make an effort to  
22 get the last page faxed to us.

1 MR. BARTH: You have my fax number.

2 BY MR. LAMBERSKI:

3 Q Have you read the memo?

4 A I have read the memo.

5 Q Does it refresh your recollection at all as to  
6 what it is?

7 A From reading it, I would suppose that it was a  
8 document -- well, at least, it looks like the first two  
9 pages which are titled, status of AIT charter, item assigned  
10 to Rick Kendall. It looks to me like -- at least the first  
11 two pages are, it looks like Rick Kendall's attempt to  
12 summarize where he was in the performance of the review of  
13 his areas as part of the AIT.

14 The last page -- I don't know if it is intended to  
15 be part of the previous two pages or separate, but it seems  
16 to be dated a day later, and it seems to be -- I would say  
17 it must be written by Rick because of the detailed  
18 discussion it talks about in regards to the diesel, and my  
19 belief that Rick was the only one assigned in the AIT to  
20 review the diesels. So I would assume he wrote it.

21 It looks like he addressed it to Al and Ken, and I  
22 can only say that considering the context of what he was

1 involved in, it is very likely that the Al and Ken that are  
2 addressed would be indicating myself and Brockman, but I  
3 don't -- I can only -- I am judging from what is written  
4 here.

5 As far as, do I remember having read this thing at  
6 any time; is that your question?

7 Q Sure.

8 A I don't know if I read it or not. I would -- if  
9 it was part of the book that was turned over, there is a  
10 chance that I would have reviewed it. I don't remember --  
11 how do I explain this. I don't remember to what level of  
12 detail I reviewed the information that Ken Brockman gave me.  
13 I think what is true, what I can say is, I must have  
14 certainly gone through the book and tried to determine what  
15 stuff in there seemed of value to me to look at, and what I  
16 don't remember is how detailed a review I made of it, and I  
17 certainly don't remember how -- and then what would be true  
18 then is, once I had done that, I don't believe I ever looked  
19 at it again. I mean, we moved on to other things.

20 Q Okay.

21 Let me ask you to look at page 8 of the  
22 bibliography, Exhibit 1. There are two items labelled 3023

1 and 3-24, which I believe are these two documents that I  
2 have labelled Exhibit 2. Can you confirm that?

3 A No. The reason I can't is because I thought --  
4 no, I can't.

5 Q Do they have the same titles?

6 A Item 3-23 appears to have the same title as page 1  
7 of what you have given me, and I guess page 2 must be part  
8 of that. The other thing, let's see. As far as the second  
9 one goes, I don't know if it is the same thing or not  
10 because it doesn't say it is Rick Kendall although -- again,  
11 I am not a handwriting expert, but it looks the same  
12 handwriting, so it probably is from Rick. So it is likely  
13 the same document. Again, I don't know if there is just one  
14 page for 3-24 or if there are more pages.

15 Q Well, I will represent to you that I think that  
16 there are two pages, and we are, in fact, trying to have  
17 that second page telecopied here. So we will have it to  
18 look at later, hopefully. But would you agree that the  
19 initials at the top right-hand corner of each page are the  
20 initials of Rick Kendall?

21 A I don't know what Rick Kendall's initials look  
22 like, but judging from the fact it says Rick Kendall, they

1       probably are his initials.

2           Q       I am going to show you a copy of selected pages  
3       from a transcript commissioned by the IIT of an interview of  
4       Ken Stokes, a Georgia Power Plant-Vogtle employee, on  
5       Wednesday, March 28, 1990, and it is simply selected pages  
6       from the transcript.

7           MR. LAMBERSKI: I will ask the reporter to mark  
8       this as GPC-Chaffee-3.

9                               [GPC-Chaffee Exhibit No. 3 was  
10                              marked for identification.]

11          MR. LAMBERSKI: I have a number of pages attached.  
12       I think it is six pages.

13          BY MR. LAMBERSKI:

14          Q       I will ask you to read through the entire six  
15       pages.

16          MR. KOHN: Do you happen to have the entire  
17       transcript here?

18          MR. LAMBERSKI: No, I don't.

19                I should state for the record that the pages that  
20       are attached are pages 17, 18 and 62 through 65.

21          BY MR. LAMBERSKI:

22          Q       Have you read the transcript pages that I have



1 given you?

2 A Yes. I have read this document, GPC-Chaffee-3.

3 Q Do you recall this interview with Mr. Stokes now  
4 that you have read those pages?

5 A No, I don't. I must have -- I must have, because  
6 I assume someplace in here it says my name, and I must have  
7 asked the questions, but I don't remember it. And even  
8 reading it now, I am not sure I can fully understand it, but  
9 go ahead.

10 Q Do you notice that on the first page that Mr.  
11 Kendall and yourself are listed as appearances, the first  
12 page, Mr. Chaffee?

13 A Yes. The first page of the document says that  
14 Kendall, West, Lazarus and myself made appearances.

15 Q Do you have any reason to doubt that it was you,  
16 in fact, who asked the questions and heard the answers in  
17 this interview?

18 MR. BARTH: Are you saying all these questions  
19 were asked on page 17?

20 MR. LAMBERSKI: Well, some of them were asked by  
21 Mr. Kendall, but what I am asking is, does he have any  
22 reason to doubt that he was present at this interview?

1           THE WITNESS: I don't think I have -- let me say  
2   that the documents you provided me, on certain pages in  
3   there, it identifies me and that I said things. It  
4   identifies me and says things, it looks to me like that must  
5   have been me. On the first page, 17, it is not clear to me  
6   who is asking questions because it doesn't -- maybe the  
7   previous pages, 16 or 15, make it clear. I don't remember  
8   that detail. I don't remember who was asking questions.

9           BY MR. LAMBERSKI:

10          Q    Okay, is it possible --

11          A    But I have nothing, based on what you have given  
12   me, to indicate that what you have given me in writing is  
13   not what happened.

14          Q    Okay.

15                Is it possible that you could have come in late  
16   and perhaps you weren't present for the discussion on pages  
17   17 and 18?

18          A    I guess I have to say it is possible. It is not  
19   very likely but possible because it is not true that I was  
20   present or participated in all interviews that were done,  
21   and I can't state for a fact that I was present at the  
22   beginning of all of them. But that is very likely the case.

1           Q     Earlier we referred to some Region II inspectors  
2 who witnessed diesel generator testing. Do you recall the  
3 purpose of their visits?

4           A     I don't -- I mean I can't think back to exactly  
5 what the thinking was, but I can surmise, based on my -- you  
6 know, the region was responsible for monitoring testing in  
7 support of the IIT. I remember that.

8           Q     Monitoring diesel testing in support of the IIT?

9           A     Yes, in support of the IIT to determine the root  
10 cause of what went wrong with the diesel. So any testing  
11 that was being done to help determine what was the root  
12 cause of the diesel problem would have been testing that  
13 would have been -- I have to be careful saying in all cases,  
14 but I think in at least most cases, probably all cases, was  
15 covered somehow by somebody to make sure that we knew what  
16 came out of that.

17          Q     Okay. Were they also monitoring testing to assist  
18 the region in making a determination of the operability  
19 and/or reliability of the diesels?

20               MR. BARTH: Could I ask you to repeat the question  
21 or have the reporter read it back? I am sorry, I missed  
22 part of it.

1 MR. LAMBERSKI: Can you read it back?

2 [The reporter read the record as requested.]

3 BY MR. LAMBERSKI:

4 Q You can go ahead and answer.

5 A I don't know.

6 Q I have a number of these IIT team transcripts, by  
7 the way, to show you, sir.

8 MR. LAMBERSKI: This one is dated March 31st, and  
9 the cover page simply says as the title Discussion Regarding  
10 Results of Testing on A Diesel Performed on March 30, 1990.  
11 This one is labelled IIT Document Number 150, which I  
12 believe corresponds to the Document Number 150 in the  
13 bibliography. It is on page 20, if you would like to refer  
14 to it. I have only a single page attached here. It is page  
15 2. Let's label this Exhibit 4, the same way as the others.

16 [GPC-Chaffee Exhibit No. 4 was  
17 marked for identification.]

18 BY MR. LAMBERSKI:

19 Q I will ask you to read that page, Mr. Chaffee.

20 A Okay.

21 MR. BARTH: While you are reading, could you hold  
22 your question while I go find Mr. Lewis, because he just

1 can't wander around unescorted, unfortunately.

2 MR. LAMBERSKI: Okay.

3 BY MR. LAMBERSKI:

4 Q First, actually, I want to refer back to Exhibit  
5 3, the interview with Mr. Stokes, and ask you if you recall  
6 Mr. Stokes?

7 A I don't know who Mr. Stokes is.

8 Q In Exhibit 4 there are two Georgia Power -- well,  
9 one may have been at the time a Southern Nuclear employee,  
10 but Mr. Kochery, it is Paul Kochery, was a Georgia Power  
11 Plant-Vogtle employee at the time. Do you recall him?

12 A No.

13 Q How about Mr. Ken Burr, do you recall him?

14 A I think that the name Burr sounds somewhat  
15 familiar, but I can't picture him either.

16 Q If I told you that Paul Kochery was the Plant-  
17 Vogtle point of contact on the diesel issue with the IIT  
18 team, would that refresh your recollection?

19 A No, but that is probably true. I mean, I just  
20 don't remember those details. It has been a long time.

21 Q I understand. After reading this page 2, does it  
22 refresh your recollection that you witnessed some testing



1 that was done on the 1A diesel when there was a problem with  
2 a jacket water temperature sensor on March 30 of 1990?

3 A Because of the time that has gone by, it is very  
4 hard for me to remember details. I think I remember us  
5 witnessing some testing, but I don't remember the details.  
6 I think the document you have given me, it looks like it  
7 relates to some testing that I may have observed, but I  
8 can't tell you -- I don't remember much about it. I need  
9 more.

10 Q That's fine.

11 Do you recall having discussions with Mr. Bockhold  
12 about the possible or probable causes of the March 20, 1990,  
13 failure of the 1A diesel?

14 A I remember talking to Mr. Bockhold. I don't  
15 remember specifics about the things we talked about. I  
16 wouldn't be surprised by what you are saying, but I don't  
17 remember specifics.

18 Q Okay. Do you recall whether he told you in this  
19 timeframe that the probable cause of the March 20, 1990, 1A  
20 diesel failure was an intermittent problem on a high jacket  
21 water temperature switch, and potentially a second  
22 intermittent problem or a calibration problem on another one

1 of those switches?

2 A I don't remember conversations where he said that.

3 Q Okay. The next exhibit I want to show you will be  
4 Exhibit 5. It is a transcript, again, an IIT transcript  
5 from Monday, April 2, 1990, entitled Diesel Generator  
6 Meeting between NRC and Georgia Power. It is identified as  
7 IIT Document Number 168-2, which is listed, I believe, on  
8 page 23 of the bibliography.

9 [GPC-Chaffee Exhibit No. 5 was  
10 marked for identification.]

11 BY MR. LAMBERSKI:

12 Q This is two pages from the transcript, pages 14  
13 and 18, and I will ask you to read those two pages. Do you  
14 recall these statements by Mr. Bockhold to the effect that  
15 they have had some problems with sensors during overhauls,  
16 but once they are out of the overhaul and in-between  
17 overhauls the switches have performed reliably?

18 A I read what is written here. I don't remember the  
19 specific things that are stated here. I do remember a  
20 general theme that the problems they had were something  
21 along these lines, I guess.

22 Q It sounds vaguely familiar, is that it?

1           A     It sounds familiar. Well, I don't remember these  
2 specific statements. I don't remember the specific  
3 statements. I am not saying they are not true, but I don't  
4 remember them.

5           Q     Okay. I am going to show you another transcript  
6 which I believe is a discussion between you and Mr. Brockman  
7 about this theory of Mr. Bockhold. This transcript is an  
8 IIT teleconference dated April 3rd, 1990. It is identified  
9 as IIT Document Number 257 and is also identified on page 30  
10 of the bibliography.

11           MR. LAMBERSKI: I will ask the reporter to mark  
12 this as Exhibit 6.

13                               [GPC-Chaffee Exhibit No. 6 was  
14                               marked for identification.]

15           BY MR. LAMBERSKI:

16           Q     And attached to the cover sheet I have included  
17 pages 65 through 69, and I will ask you to read those pages.

18           MR. BARTH: Was there a page in this transcript  
19 which identified who was on the telephone conference?

20           MR. LAMBERSKI: The problem with this on is that  
21 the reporter was in some location, and -- let me restate it.

22                       My best recollection is that this transcript was

1 prepared from a unmonitored tape recording, so the reporter  
2 who prepared the transcript didn't know who was speaking.

3 MR. BARTH: So the reporter was not on the  
4 conference -- they taped the conference and the reporter  
5 just relayed it from the tape?

6 MR. LAMBERSKI: I wasn't there, but my best  
7 recollection of the way this transcript is identified is it  
8 was prepared from an unmonitored tape recording.

9 [Pause.]

10 BY MR. LAMBERSKI:

11 Q Can you confirm that this is a conversation that  
12 you had with Mr. Brockman?

13 A It's possible. I mean, in reading what is written  
14 here, it sounds like this type of thing. If I was investing  
15 this thing, I would conclude it probably was that, but I  
16 don't remember the conversation.

17 But it would not surprise me that we had a  
18 conversation like this.

19 MR. KOHN: Did you say a conversation with Mr.  
20 Brockman? Is that the question?

21 MR. LAMBERSKI: Yes.

22 BY MR. LAMBERSKI:

1 Q If I can ask you to look at page 68, lines 10  
2 through 14 -- actually, lines 10 through 18, if you will.

3 A [Reviewing document.]

4 Okay.

5 Q Does that sound like the working relationship you  
6 had with Mr. Brockman at the time?

7 A I don't know. Maybe this was a <sup>conversation</sup> ~~combination~~ <sup>all</sup>  
8 between Kendall and somebody at the site talking about the  
9 same thing. I don't know.

10 Q Do you think it is possible Mr. Kendall had a  
11 conversation like this with somebody at Georgia Power?

12 A I don't know. They are talking about diesels,  
13 they are talking about working relationships, they are  
14 talking about operability.

15 Q Do you think there is any question at all that  
16 these are two NRC people talking?

17 A I guess not because it says IIT conference the  
18 first page, right? So, therefore, it must be --

19 Q I can tell you that other pages from the  
20 transcript included discussions with Georgia Power people.

21 What I am asking you is does this conversation  
22 that you just read on pages 65 through 69 appear to be



1 anything other than a conversation between NRC people?

2 MR. BARTH: John, I am really confused by the  
3 question. Are you saying that all of the people on those  
4 pages are NRC people?

5 MR. LAMBERSKI: What I am saying is -- yes, that  
6 is what I am saying.

7 MR. KOHN: People on which page?

8 MR. LAMBERSKI: 65 through 69.

9 MR. KOHN: But you have already indicated that  
10 there are non-NRC people elsewhere in the transcript?

11 MR. LAMBERSKI: Yes.

12 MR. KOHN: Have you had an opportunity to actually  
13 listen to the tape?

14 MR. LAMBERSKI: No.

15 THE WITNESS: I'm sorry, could you repeat your  
16 question again?

17 BY MR. LAMBERSKI:

18 Q Do you believe that this conversation on pages 65  
19 through 69 is a discussion between people other than NRC  
20 people?

21 [Pause.]

22 A I guess I'm not sure. I don't know.

1           If you just said who was talking it would be  
2 really easy for me, okay, but because it doesn't state who  
3 is making these comments, I am trying to second guess who  
4 the conversation is before.

5           So I guess the truth is I don't know.

6           Q     I want you to take a look at what I think is  
7 Exhibit 2, Mr. Kendall's notes.

8           Earlier you said that you had occasion to see  
9 these notes about four to six months ago. Can you explain  
10 to me the context of your review of these notes at this  
11 time?

12          A     I don't remember the exact circumstances. I  
13 believe that I looked at this stuff. And I think it is -- I  
14 am not positive -- I think I looked at this stuff when I was  
15 trying to develop my deposition, but I don't remember for  
16 sure.

17          Because I think I found -- and that is why I am  
18 not sure. I think I found something like this in all the  
19 stuff that IIT had, but I don't remember for certain.

20          If I looked at this thing before and read it  
21 closely, it would have been as part of that process of  
22 trying to prepare a deposition.

1 Q Trying to prepare a deposition?

2 A Right. I guess. Didn't we -- process at some  
3 point in the past?

4 MR. BARTH: I think he is referring to the  
5 interrogatory he has before you.

6 THE WITNESS: Yes, that's it.

7 MR. LAMBERSKI: Okay.

8 BY MR. LAMBERSKI:

9 Q Do you recall what other documents you may have  
10 looked at at the time?

11 A No, and now that you have asked the question, I  
12 have to be careful. I am not positive I looked at this one  
13 either.

14 Q Do you have those documents you looked at at the  
15 time?

16 A I don't think so. I don't know.

17 Q Do you have files that you believe contain  
18 information relevant to the IIT investigation?

19 A No. Let me say it different.

20 I don't believe I have anything. I have the  
21 report.

22 Q Anything else to your knowledge?

1           A     I don't think so.

2           Q     Do you recall having discussions with Mr. Brockman  
3 about the operability of the Vogtle diesel generators?

4           A     I don't remember.

5           MR. LAMBERSKI:   Number 7, Jon.

6                   We are going to show you another IIT transcript  
7 page -- this transcript is dated April 5, 1990, entitled  
8 "Telephone Conference, IIT Licensee, Region II (Closed)."  
9 It is IIT Document Number 200.

10                               [GPC-Chaffee Exhibit No. 7 was  
11                               marked for identification.]

12           BY MR. LAMBERSKI:

13           Q     And I will ask you to read the single page, Number  
14 34, that I have attached.

15           A     [Witness reviewing document.]

16           Q     Does this refresh your recollection that Mr.  
17 Brockman was investigating evaluating the operability of the  
18 diesels?

19           A     I don't remember this conversation that is  
20 recorded here.

21           Q     Do you have any reason to believe that this is not  
22 you and Brockman identified on page 34?

1           A     I -- no.

2                     [Pause.]

3           MR. LAMBERSKI:   Number 8.

4                                 [GPC-Chaffee Exhibit No. 8 was  
5                                 marked for identification.]

6           BY MR. LAMBERSKI:

7           Q     I am going to show you a handwritten list  
8           entitled, "DG Starting Air Dew Points Taken 4/6/90." It is  
9           a single sheet.

10                    It has another table below it entitled, "Status of  
11           DG L.O." -- I think that is lube oil -- "Pressure Switch  
12           Model Numbers."

13                    I will ask you if you have ever seen this, recall  
14           seeing this document before.

15           A     No, I don't recall seeing it before.

16           Q     At any time prior to today?

17           A     No, I don't recall seeing it at any time prior to  
18           today.

19           Q     Do you recall having any discussions while you are  
20           at the Vogtle site in 1990 concerning the air quality of the  
21           diesel instrument air system?

22           A     I do remember that we looked into the air quality



1 of the diesel air start system.

2 Q Do you recall what you -- why don't you tell me as  
3 best you can recall what you did to look into that matter.

4 A I asked somebody on the team to go look into it.  
5 They looked into it, and I believe we concluded at the end  
6 of our effort that the air quality was not the root reason  
7 why the diesels didn't function properly.

8 Q Do you recall who that person was that did the  
9 evaluation?

10 A No.

11 Q Do you recall whether that person reviewed  
12 documentation, Georgia Power documentation?

13 A I don't remember who it was, and I don't remember  
14 what documentation was reviewed.

15 Q Do you know whether they witnessed any inspections  
16 of components of the diesel instrument air system?

17 A I don't know.

18 Q Other than Rick Kendall, might there have been  
19 someone else on the IIT that could have been assigned that  
20 task?

21 A I would only be able to speculate. I mean, I  
22 don't -- I don't think so.

1 I think Rick did everything, but I am not  
2 positive. And I don't remember exactly who handled this  
3 one.

4 Q I am going to show you a document identified as  
5 180 in the bibliography at page 23.

6 [GPC-Chaffee Exhibit No. 9 was  
7 marked for identification.]

8 MR. LAMBERSKI: It is six pages; three or a list  
9 of diesel starts on DG 1A and three are a list of diesel  
10 starts on DG 1B.

11 The 1A starts begin March 12, 1990 and end March  
12 23, 1990. The 1B starts begin March 13, 1990 and end March  
13 23, 1990.

14 BY MR. LAMBERSKI:

15 Q I will ask if you recall seeing this document  
16 before?

17 MR. KOHN: For the record, Intervenor objects to  
18 what this document purports to be, your statement of what it  
19 purports to be.

20 THE WITNESS: I don't remember seeing this.

21 BY MR. LAMBERSKI:

22 Q I am going to ask you to turn to the second to

1 last page of this document.

2 A Page number 2?

3 Q Yes, DG 1B at the top. And if you look at the  
4 entry under March 22, 1990, for an 1135 hours and 1243 hours  
5 depicts what I think is a load run, and then a trip on DG  
6 high lube oil temperature.

7 MR. KOHN: Excuse me. I didn't get which page.

8 MR. LAMBERSKI: Page 2, DG 1B.

9 BY MR. LAMBERSKI:

10 Q Do you have any recollection of that particular  
11 trip of the 1B diesel, of being informed of that at any  
12 time?

13 A No, I don't remember. I can't -- no.

14 Q Could you turn to the next page, DG 1B, March 23,  
15 1990.

16 The entry is labeled as 1730 and 1731, and it  
17 started for a four-hour run then tripped on low jacket water  
18 pressure/turbo lube oil pressure low.

19 Do you have any recollection of that?

20 A No.

21 Q I want to ask you to look at Exhibit Number 2, Mr.  
22 Kendall's handwritten notes. On the first page of this

1 exhibit, second paragraph labeled Item 6.

2 I would like you to look that over and tell me if  
3 this is describing the trip that occurred on the IB diesel  
4 on March 23 at 17:31 hours.

5 [Pause.]

6 A I don't know if the two are referring to the same  
7 thing or not. They may be.

8 Q Do you have any recollection of following this  
9 trip to the IB diesel that the IIT team or AIT team  
10 requested that Georgia Power include a note in its  
11 maintenance work order packages to the effect to preserve  
12 evidence that in any way is associated with either this trip  
13 or the trip of the IA diesel on March 20?

14 A No, I don't remember doing that.

15 MR. LAMBERSKI: That's 10. The last one was 9  
16 then.

17 [GPC-Chaffee Exhibit No. 10 was  
18 marked for identification.]

19 BY MR. LAMBERSKI:

20 Q I am going to show you a sheet describing a number  
21 of diesel generator switches, a lube oil high temperature  
22 switch, another lube oil high temperature switch, jacket

1 water heater out, high temperature switch, and jacket heater  
2 out high temperature switch, and I will ask you if you have  
3 ever seen this before.

4 MR. KOHN: Is this Number 10?

5 THE WITNESS: I don't know if I have seen this  
6 before or not.

7 BY MR. LAMBERSKI:

8 Q Do you recall having discussions at the site with  
9 Georgia Power people about the history of switches?

10 A Yes.

11 Q If you will read over Exhibit 10, I will ask you  
12 to recall if you have had any discussions like this  
13 concerning the times and that particular switches failed  
14 calibration and the results of those readings?

15 Let me say for the record that I believe this is  
16 IIT Document Number 178 identified on page 23 of the  
17 bibliography.

18 A Could you repeat your question again.

19 Q I asked if you recall having discussions about  
20 calibration of switches or when they failed, the results  
21 that were found, and so on.

22 A I remember we had discussions in that general



1 area. I don't remember the specifics of the discussions.

2 Q Do you believe you reviewed the documents that the  
3 IIT team collected concerning the diesel generator?

4 A I did not review all the documents concerning the  
5 diesel generator.

6 Q Do you recall reviewing any of the documents?

7 A I reviewed some.

8 Q Do you recall generally the kinds or the specific  
9 documents that you reviewed?

10 A No.

11 [Pause.]

12 Q On April 9, 1990, Georgia Power gave a  
13 presentation to the NRC at Region II in Atlanta.

14 Do you recall participating in that presentation?

15 A I remember participating by phone in a  
16 conversation in which the Utility presented information  
17 relative to region making a restart decision.

18 I don't remember whether or not I participated in  
19 all of it, and for some reason I recollect that we didn't  
20 fully participate somehow.

21 [Pause.]

22 Q I am going to show you a copy of two

1 transparencies that Georgia Power used in its presentation  
2 on April 9, 1990.

3 MR. LAMBERSKI: This is 11.

4 [GPC-Chaffee Exhibit No. 11 was  
5 marked for identification.]

6 BY MR. LAMBERSKI:

7 Q And I will ask you if you have ever seen these  
8 transparencies before?

9 A I don't ever remember seeing the second one, and  
10 the first one -- the first one I may have seen before.

11 Q Do you recall when you may have seen it?

12 A I don't remember if I saw these transparencies as  
13 part of the meeting that was held, and I don't know if I saw  
14 this one as part of -- I don't know, when we were working on  
15 the interrogatory things.

16 The reason I say this is because I went back and  
17 looked at the IIT stuff and there was stuff in there, and I  
18 don't know if there was something in there like this or not,  
19 so I don't -- but I may have seen it in that role, trying to  
20 go back and dig out information that existed, but I don't  
21 know for sure. I don't know for sure whether this was  
22 looked at or not.

1           Q     You don't recall whether or not at the time of the  
2     April 9, 1990 presentation the Georgia Power transparencies  
3     were provided to you in some way so you could follow the  
4     presentation?

5           A     No, I don't remember whether we had them or not.

6                     [Pause.]

7           Q     Before I mark this one, let me ask you. This is  
8     another copy of that same transparency. It has some  
9     handwriting in the upper righthand corner.

10                    Do you recognize that handwriting as your own or  
11     someone else that you know of?

12           A     No, I don't recognize it as -- I don't recognize  
13     it.

14           Q     Okay. Let's not bother marking that then.

15                    Do you have any recollection of the discussions --  
16     the Georgia Power presentation on that day, April 9, 1990,  
17     concerning the diesel generator?

18           A     I do remember that they presented something on the  
19     diesels but I don't remember any of the specifics about what  
20     they presented.

21           Q     Does the diesel testing transparency, Exhibit 11,  
22     the first page of Exhibit 11, does the testing listed there

1 on either the 1A or the 1B diesel look familiar to you at  
2 all?

3 A Only in the most general sense that there was a  
4 lot of testing that was done.

5 Q And if you look at the second slide of that same  
6 exhibit, Quarantine Components, does this reflect your  
7 recollection that there were a number of sensors that the  
8 Company -- temperature sensors in particular -- that the  
9 Company found problems with during the course of the  
10 investigation following the March 20, 1990 event?

11 A I am not sure if this -- ask your question again.

12 Q Does this slide refresh your recollection that  
13 there were a number of temperature sensors that the Company  
14 had a problems with following the March 20, 1990 event?

15 A No.

16 Q You don't have any recollection at all that there  
17 were a number of 1A diesel and 1B diesel components that  
18 failed calibration or otherwise had problems?

19 A Yes, I do remember that.

20 Q You do remember that?

21 A Yes.

22 Q Okay. And you were aware of that at the time?

1           A     I was aware at the time of the event that there  
2     were a variety of sensor that had a variety of problems with  
3     them.

4           Q     You said at the time of the event. That would be  
5     March 20?

6           A     I mean -- I'm sorry -- I meant as part of the IIT  
7     investigation, at some phase of the investigation, I  
8     remember that there were a number of components that were  
9     quarantined because there was some type of problem that had  
10    been identified with those components and there were a  
11    number of them.

12          Q     Do you remember that there were some from 1A and  
13    some from 1B?

14          A     I don't remember specifically which diesels they  
15    came from.

16          Q     Do you remember that there some from 1B as well as  
17    1A, which was the diesel that had the problem on March 20?

18          A     That may be true. I don't remember.

19          Q     Okay.

20                 You said you were aware of the problem with the  
21    sensors at some phase of your investigation.

22                 Would that be the period between the time that you



1 first arrived at the site and first left the site?

2 A I don't remember. I don't remember what stage of  
3 the investigation the problems were identified, and I don't  
4 know that the problems weren't identified over a period of  
5 time.

6 Q Do you recall that during -- at the time of the  
7 April 9, 1990 presentation Georgia Power had only been able  
8 to identify the probable cause of the March 20 trip of the  
9 1A diesel and that further examination and testing was to be  
10 conducted at Wylie Labs?

11 A Ask it again.

12 Q At the time of the April 9 -- Jon, why don't you  
13 read that one back.

14 [The reporter read the record as requested.]

15 THE WITNESS: I think that is true.

16 BY MR. LAMBERSKI:

17 Q Do you recall any discussion at the April 9  
18 presentation about out of spec high dew point readings from  
19 the diesel instrument air system?

20 A You mean as being part of the April 9 discussion?

21 Q Yes.

22 A I don't remember that.

1 MR. LAMBERSKI: 12.

2 [GPC-Chaffee Exhibit No. 12 was  
3 marked for identification.]

4 BY MR. LAMBERSKI:

5 Q I am going to show you a copy of some notes that  
6 were taken at the April 9, 1990 presentation by Mr. Jim  
7 Bailey who is a Georgia Power -- I'm sorry -- a Southern  
8 Nuclear employee who was present at the April 9  
9 presentation.

10 I am not going to ask you to read all of his  
11 notes.

12 I want you to focus, though, on the discussion  
13 that begins at the bottom of the fourth unnumbered page,  
14 under the heading, "Diesel Generators," and read, if you can  
15 -- I understand that if you have trouble reading his  
16 handwriting I will help you -- but just read under Diesel  
17 Generators read on to the top two paragraphs of the  
18 following page.

19 A [Witness reviewing document.]

20 Do you want me to read down to the third bullet?

21 Q Just the second bullet.

22 A Okay.

1           Q     Does this refresh your recollection at all about  
2     discussions about dew point ratings --

3           A     No.

4           Q     -- that you might have participated in at the  
5     time?

6           A     No. I don't remember any discussions.

7                     Can I talk to you for a second?

8                     Is that permissible?

9           MR. LAMBERSKI: As long as we are listening.

10          MR. BARTH: Do you want to discuss this? I am not  
11     suppose to prompt you on answering.

12          MR. LAMBERSKI: We can take a break if you want,  
13     Charles.

14          THE WITNESS: I'm not sure -- okay, well.

15          MR. BARTH: Let's go have a chat. We will relate  
16     it on the record.

17          THE WITNESS: Okay.

18                     [Recess.]

19          MR. LAMBERSKI: Back on the record.

20          BY MR. LAMBERSKI:

21          Q     Did any of your conversation with Charles concern  
22     your testimony here today?

1           A     I asked Charles if I should volunteer the  
2 following information, which he told me to volunteer.

3                     You have been asking me questions about this  
4 meeting that you said was on April 9.

5                     What I thought was germane that you need to know  
6 is that, one, I am not sure that I participated in the  
7 entire meeting because I think we got cut off and through a  
8 part of the meeting the phone connection got cut off, and,  
9 two, the phone connection that we had wasn't very good, and  
10 I could not hear all that was being discussed in the  
11 meeting.

12                    So that is why, you know, part of asking me  
13 questions about the meeting is difficult for me to answer  
14 because we didn't --

15            Q     You needed to talk to Charles in order to  
16 determine whether to volunteer that information?

17            A     That's correct.

18            Q     In connection with the IIT's work at the site on  
19 the air quality issue of the diesel instrument air system,  
20 do you recall whether Mr. Milt Hunt was involved in that --  
21 evaluating that issue as well?

22            A     I don't remember.

1           Q     Following the April 9, 1990 Georgia Power  
2 presentation, Mr. Ebnetter held a meeting among NRC Staff  
3 personnel including Mr. Brockman and Mr. Hunt, Mr. Steve  
4 Varga, Mr. Dave Matthews, and, I believe, yourself tied in  
5 on the telephone.

6                     Do you recall that discussion?

7           A     No, I don't.

8           Q     Do you recall whether you were ever asked if you  
9 had any concern about the region releasing Georgia Power to  
10 restart Unit 1?

11                   MR. BARTH: I believe he said ever. I think you  
12 mean to tie it down to --

13                   MR. LAMBERSKI: I did mean to tie it down to this  
14 particular time.

15                   THE WITNESS: I don't recall if they asked me or  
16 not.

17                   BY MR. LAMBERSKI:

18           Q     If they did ask you, would you have identified to  
19 them any significant concerns that you might have had with  
20 the diesel generators in connection with their decision on  
21 restart?

22           A     No, I wouldn't.



1 Q I'm sorry, did you say no, you would not?

2 A I wouldn't.

3 Q Can you tell me why?

4 A Because I didn't evaluate the operability of the  
5 diesels.

6 Q I asked you if you knew -- if you would disclose  
7 any significant concerns about the diesels that you had?

8 MR. BARTH: This is a hypothetical. He does not  
9 understand. This is a hypothetical --

10 MR. LAMBERSKI: Okay. Let me repeat the question.

11 MR. BARTH: -- did you have concerns, then you  
12 would reveal them.

13 MR. LAMBERSKI: Let me repeat my question.

14 BY MR. LAMBERSKI:

15 Q If you had knowledge of problems with the Vogtle  
16 diesel generators that you considered significant and you  
17 were asked by Region II officials if you had any concerns  
18 about restart, would you have disclosed your concerns to  
19 them?

20 A I have a problem with the way you asked the  
21 question.

22 Q Can you explain what your problem is?

1           A     If I had information that caused me to believe  
2     that the diesels were inoperable, I would have told them  
3     that.

4                     If I -- and I guess implicit in your question you  
5     are saying if I knew there were problems, your implication  
6     is that those problems were significant enough that they  
7     could jeopardize the operability of the diesels.

8                     If that were the case, yes, I would have told them  
9     that.

10           Q     Same question with respect to the reliability of  
11     diesels.

12                     Would you have told them that?

13           A     It is the same thing. If I had thought that the  
14     diesels could not perform the safety function, I would have  
15     told them that.

16           Q     Okay.

17                     Do you recall whether the numbers of consecutive  
18     successful starts of either the 1A or the 1B diesel as  
19     reported by Georgia Power on April 9 of 1990 were  
20     significant to you in any way?

21                     Were they important to you in your evaluation?

22           A     They were not important to me in the conduct of

1 the IIT?

2 Q Do you recall having any discussions with Georgia  
3 Power people about the number of consecutive successful  
4 starts?

5 A I don't recall having any conversations.

6 I do recall seeing in the IIT bibliography  
7 transcript stuff, I think, a piece of paper that indicated  
8 that some type of dialogue on that might have occurred.

9 Q Do you recall having discussions with Mr. Kendall  
10 on or before April 9 about diesel operability or  
11 reliability?

12 A No.

13 MR. KOHN: That was on or before April 9?

14 MR. LAMBERSKI: Yes.

15 BY MR. LAMBERSKI:

16 Q Do you believe Mr. Kendall reviewed most, if not  
17 all, of the information collected by the IIT concerning the  
18 diesel generators?

19 A Oh, boy.

20 I don't know all that he reviewed. He --

21 Q Do you recall having -- I'm sorry -- you wanted to  
22 continue?

1           A     He would have reviewed what documentation he  
2     thought was necessary to determine the root cause of the  
3     problem with the diesel.

4           Q     And did you and he discuss that matter?

5           A     We constantly discussed what we thought was the  
6     root cause of the problem with the diesel.

7                     That was the major part of what the IIT  
8     investigation was trying to determine.

9           Q     Do you recall whether Mr. Kendall put together a  
10    listing of diesel starts?

11          A     I don't remember. I don't remember if he did or  
12    not.

13          Q     He has described to us a large piece of paper that  
14    he prepared in which he attempted to list all of the diesel  
15    starts.

16                     Does that jog your memory?

17          A     No, I don't recall that at all.

18                     MR. KOHN: May I ask when this discussion  
19    occurred?

20                     MR. LAMBERSKI: In the past.

21                     MR. KOHN: When you say "us," are you referring to  
22    Georgia Power counsel? John?

1 MR. LAMBERSKI: Can we discuss this at another  
2 time?

3 [Pause.]

4 BY MR. LAMBERSKI:

5 Q Before I mark this as an exhibit, let me ask you,  
6 Mr. Chaffee, if you ever recall seeing this letter from  
7 Georgia Power to the NRC dated April 9, 1990?

8 A Oh, boy.

9 I don't recall seeing this letter.

10 Q Let me direct -- I know you have not been able to  
11 read the entire letter, so let me direct your attention to  
12 page 3 of the letter, the top paragraph G.

13 If you would read that paragraph and tell me if  
14 you ever recall reading that paragraph before.

15 A [Witness reviewing document.]

16 I don't remember reading this paragraph.

17 Q No recollection of that whatsoever?

18 A Of this paragraph?

19 Q Yes.

20 A No.

21 Q Okay.

22 MR. BARTH: If you are not going to make it an



1 exhibit, could you more fully identify it so -- pin it down  
2 besides the date?

3 MR. LAMBERSKI: I described the letter and the  
4 date. It is entitled "Vogtle Electric Generating Plant  
5 Confirmation of Action Letter."

6 MR. BARTH: And the paragraph?

7 MR. LAMBERSKI: It is numbered -- this ought to  
8 settle the matter -- ILV-01516.

9 BY MR. LAMBERSKI:

10 Q Now I am going to show you a copy of IIT Document  
11 Number 212. It is a portion of a transcript from April 10  
12 of 1990 entitled, "Teleconference between IIT, Licensee, and  
13 Region II," and I have attached pages 5 and 6 from the  
14 transcript.

15 If you would read those pages please.

16 MR. LAMBERSKI: This is Number 13.

17 [GPC-Chaffee Exhibit No. 13 was  
18 marked for identification.]

19 [Pause.]

20 THE WITNESS: Okay, I've read it.

21 BY MR. LAMBERSKI:

22 Q Does this refresh your recollection that you have

1 had discussions?

2 A I still don't recall the conversation, but I read  
3 what it says here, and I don't -- I have no reason to  
4 believe that what these transcripts you have here are in any  
5 way in error.

6 Q Do you have any recollection of the table referred  
7 to by Mr. Kendall at the top of page 6 that was prepared by  
8 Paul Kochery?

9 A I don't -- nothing comes to mind when I read that.

10 Q Do you recall whether you had any conversations  
11 with Mr. Brockman or other Region II officials concerning  
12 the count of successful starts, diesel starts, that you  
13 inquired about?

14 A No, I don't remember that.

15 I need to offer something. The same type of thing  
16 as last time.

17 From reading this I would surmise that -- and the  
18 way this is written, it appears to me that our concern was  
19 that we had identified all the testing that was done so we  
20 could make sure that we had evaluated it relative to trying  
21 to determine the root cause.

22 And that would have been our main interest.

1 I -- that is what we were focusing in on at part  
2 of the IIT.

3 Q Okay.

4 [Pause.]

5 MR. LAMBERSKI: This is 14.

6 [GPC-Chaffee Exhibit No. 14 was  
7 marked for identification.]

8 BY MR. LAMBERSKI:

9 Q I am going to give you a copy of a document  
10 entitled, "Failures of Calcon Temperature and Pressure  
11 Sensors at Vogtle Units 1 and 2."

12 It is a three-page document with a single telefax  
13 cover sheet attached dated April 12, 1990, 8:00 a.m. to Mr.  
14 Ken Brockman from George Bockhold/Herb Beacher.

15 Do you remember Mr. Beacher?

16 A No.

17 [Pause.]

18 Q I will ask you to look this document over and see  
19 if you recall ever seeing this document before.

20 A I don't remember seeing this.

21 MR. KOHN: I notice this does not have a project  
22 number.

1 Is this a new document?

2 MR. LAMBERSKI: No, it is not. The copy that I  
3 have gotten just happened to be one that isn't Bates stamped  
4 number, but it is not new.

5 It is identified as Document Number 210 of the  
6 bibliography on page 26.

7 THE WITNESS: Can I write on this?

8 MR. LAMBERSKI: No, those are to go with the court  
9 reporter, Mr. Chaffee. They will be attached to the  
10 transcript.

11 MR. KOHN: And this is Document Number 14?

12 MR. LAMBERSKI: Yes, it is 14.

13 THE WITNESS: What do we do, I wrote on this one?

14 MR. LAMBERSKI: That's okay. Why don't you  
15 initial it and date it, if you would.

16 [Pause.]

17 MR. BARTH: If you want to make notes, you can use  
18 mine to make notes on.

19 BY MR. LAMBERSKI:

20 Q Before I mark this document, let me ask you if you  
21 have seen this document before.

22 It is a April 19, 1990 licensee event report

1 submitted by Georgia Power Company to the NRC, numbered LER-  
2 9D-006.

3 I will save you the trouble of trying to peruse  
4 this rather lengthy document.

5 If you will turn to page 6, the top three  
6 paragraphs of page 6.

7 A [Witness reviewing document.]

8 Your first question was have I see this before, is  
9 that right?

10 Q Do you recall seeing any of the statements on page  
11 6, those first three paragraphs, before today?

12 [Pause.]

13 A I believe I read this LER, again, when I was  
14 looking at the interrogatory.

15 I don't remember if I read it, you know, if I read  
16 it carefully at the time of the IIT investigation.

17 Q Do you think you saw it at the time of the IIT  
18 investigation?

19 A I don't know.

20 MR. LAMBERSKI: Let's just go ahead and mark this  
21 one Number 15.

22 [GPC-Chaffee Exhibit No. 15 was



1 marked for identification.]

2 MR. LAMBERSKI: Mr. Chaffee, if you could give the  
3 reporter your copy so he can mark it.

4 BY MR. LAMBERSKI:

5 Q If you turn back to page 6 and read the third  
6 paragraph carefully, and give me your opinion of what the  
7 phrase "comprehensive test program" refers to.

8 A [Witness reviewing document.]

9 Okay.

10 The sentence, "After the 329 event, the control  
11 system of both engines have been subjected to a  
12 comprehensive test program."

13 I can't describe for you what they meant by the  
14 comprehensive test program. I can't give you the details of  
15 that. I don't know.

16 Q Okay. Thank you.

17 On April 19 of 1990, the Plant Vogtle Plant Review  
18 Board held a meeting and a comment was made in the meeting  
19 concerning some draft language -- I should say some language  
20 from the draft of this LER 90-06 that you have just looked  
21 at.

22 I want to back up for a minute and ask you if you

1 believe Mr. Kendall would have a better understanding than  
2 yourself as to what this phrase refers to in terms of the  
3 testing?

4 A Comprehensive test program?

5 Q Yes.

6 A He might, but I am not sure if he does either  
7 because I don't know what they mean by comprehensive test  
8 program.

9 Q Among the IIT team members, would he have been the  
10 one that had the best understanding?

11 A Yes.

12 Q Okay, getting back to my other question.

13 On April 19, 1990 the Plant Vogtle Plant Review  
14 Board held a meeting to discuss, among other things, a draft  
15 of this LER 90-06, and during their conversation there was a  
16 statement made that I am going to read to you from a  
17 transcript of a tape recording made of that meeting.

18 This is for counsel's benefit, and if you want me  
19 to attach this as an exhibit I will, but it is rather bulky  
20 and I don't see the need to.

21 This is the transcript of Tape Number 57, the  
22 latest and greatest version that we have distributed to the

1 parties.

2 Of course, it is dated April 19, 1990, and it is  
3 page 15 of the transcript.

4 The conversation relates to a draft of the  
5 language which appears in the third paragraph, specifically  
6 the reference to the number of times that the diesel  
7 started.

8 And I will tell you the language is not the same  
9 as the language that you see here, but let me read to you  
10 from the transcript.

11 Mr. Kitchens says -- do you know who Mr. Kitchens  
12 is, recall Mr. Kitchens?

13 A The name is familiar.

14 Q Skip Kitchens?

15 A It is familiar, but it has been a number of years  
16 ago.

17 Q Okay.

18 A He was a manager in the organization.

19 Q Operations Manager, I believe, at the time.

20 A Okay.

21 Q How about a Mr. George Frederick, do you recall?

22 A No.

1           Q     He was the -- they had a different name for it,  
2 but essentially he was the QA Manager at the plant.

3           Mr. Kitchens says, "Now, if we can verify the  
4 sentence, I think it would be more appropriate to say since  
5 March 20 that there has been -- there were 18 consecutive  
6 starts of the DG. John is going to go" -- this is John  
7 Oftencamp that he is referring to.

8           Do you recall who John Oftencamp is?

9           A     No, I don't.

10          Q     Okay.

11          "John is going to go and either verify it or take  
12 these numbers out and take out the wording that says there  
13 are no problems are failures basically says that there are  
14 no failures and no problems."

15          Mr. Frederick: "I think what caught his attention  
16 on the number of starts was when they tallied them up in  
17 front of the NRC they were a different number. One came out  
18 20, and," and the rest of his statement is inaudible.

19          Mr. Kitchen says: "Yes, but we have started them  
20 a dozen times," and then the rest of his statement is  
21 inaudible.

22          Mr. Allen Mosbaugh -- do you know who Mr. Mosbaugh

1 is?

2 A I don't remember him from the investigation, but I  
3 have heard his name since.

4 Q Mr. Mosbaugh was the one who tape recorded this  
5 conversation. The people speaking were not aware of the  
6 fact that they were being tape-recorded.

7 The tape, of course, was made into this  
8 transcript.

9 And Mr. Mosbaugh wrote on the transcript at this  
10 portion of the transcript the follows: "Chaffee team had  
11 questioned the start data in COA" -- which is a reference to  
12 Georgia Power's April 9, 1990 letter to the NRC -- "and  
13 could not figure how we counted starts."

14 He's also got -- before Chaffee team, he's got in  
15 parentheses "Milt Hunt."

16 Make any sense to you?

17 A No.

18 Q Don't have any recollection of having starts  
19 tallied in front of you?

20 A No, I don't remember that.

21 Q In the same timeframe, shortly after April 19 of  
22 1990, do you recall having conversation or discussion with



1 Mr. Brockman in front of Georgia Power employees concerning  
2 the accuracy of Georgia Power's statements in either the LER  
3 or the April 9 letter?

4 MR. BARTH: Could you identify which statements  
5 you are referring to?

6 MR. LAMBERSKI: The statements concerning the  
7 numbers of diesel generator starts.

8 THE WITNESS: No, I don't remember that. I don't  
9 remember that.

10 MR. LAMBERSKI: Let's take a short break. I think  
11 we are pretty much finished with our questioning.

12 [Recess.]

13 BY MR. LAMBERSKI:

14 Q I've now received, thanks to Charles, by facsimile  
15 message a copy of what will be -- it is the same page that  
16 we already have?

17 MR. BARTH: Oh, what a smart but cute reporter. I  
18 was going to read it as it was --

19 MR. LAMBERSKI: They sent the wrong page. They  
20 obviously could not find the right one. So nevermind.

21 MR. BARTH: Next question.

22 MR. LAMBERSKI: If it is appropriate for us to

1 supplement the record of this deposition in the future with  
2 that other page, recognizing that Mr. Chaffee will not have  
3 had an opportunity to review it, we will do so. If not, we  
4 won't.

5 BY MR. LAMBERSKI:

6 Q I have just a few more questions for you, Mr.  
7 Chaffee.

8 Do you believe that you were aware prior to April  
9 that the Company would be requesting approval from Region  
10 II, NRC officials, to restart Unit 1?

11 A I was aware that some time in the future the  
12 Utility would have discussions with the region and focusing  
13 on the issues of starting the plant up.

14 Q And do you believe that regional -- NRC regional  
15 officials would be interested in your views in making their  
16 decision to restart?

17 A I recognize that they would probably check to make  
18 sure I wasn't aware of any problems.

19 Q And before they did that, would you have discussed  
20 with Mr. Kendall, for example, in connection with the diesel  
21 generators any concerns that he might have had, so you would  
22 be fully aware of the IIT's knowledge on the diesel

1 generators?

2 A If I thought it appropriate I would.

3 Q Well, looking back now, do you think it would have  
4 been appropriate for you to do so?

5 A The IIT process is one in which you are constantly  
6 assimilating information, and the work that I did with Rick,  
7 we worked fairly closely together.

8 I am not sure that at the time whether -- the way  
9 you phrased your question was would I have gone back to  
10 check.

11 I'm not sure that there was a need to go back and  
12 check because there was ongoing dialogue.

13 Q In other words, if you believed, you already knew  
14 everything that he knew of any significance then there was  
15 no need for you to check with him?

16 A Yes.

17 How do I explain this? I guess I need to explain  
18 the IIT focus was on trying to find the root cause, not  
19 trying to go determine whether or not they had done  
20 something to make the diesels so it can performance function  
21 in the future.

22 So because of that mindset, that is why -- we

1 weren't in the mode of go checking to see. It was, you know  
2 -- if something had come up where we knew clearly the diesel  
3 would not work, we would have raised it to everybody.

4 Q During the course of the IIT, did you find Georgia  
5 Power personnel to be cooperative with your investigation?

6 A I found them to be reasonably cooperative.

7 Q What, following the IIT -- how would you term it?  
8 Following the close out of the IIT, did you return to the  
9 previous position that you held?

10 MR. BARTH: Do you mean with the NRC?

11 MR. LAMBERSKI: Yes. He was in Region IV as a  
12 division director prior to the IIT, if I am not mistaken.

13 THE WITNESS: No.

14 BY MR. LAMBERSKI:

15 Q Then what position did you move to at that time?

16 A At the time of the IIT, I was on a rotation  
17 assignment to headquarters, and that original rotation  
18 assignment was to go be the Deputy Director for -- I think  
19 it was Drill at the time.

20 In the process of me going, before I actually  
21 completed that, I was assigned to be the Team Leader for the  
22 Incident Investigation Team.

1           At the completion of that, I then was given -- I  
2   was then to complete the rotation, but not at that position.  
3   I was sent to a different position, which was to be the  
4   Branch Chief for the Events Assessments Branch, which I did  
5   for several weeks.

6           Thereafter that, I accepted a position back here  
7   and I was reassigned.

8           Q   Did you receive any commendations for your work on  
9   the IIT?

10          A   No, I didn't.

11          MR. LAMBERSKI: No further questions.

12          THE CLERK: Mr. Kohn?

13          MR. KOHN: Thank you.

14                               EXAMINATION

15          BY MR. KOHN:

16          Q   Mr. Chaffee, my name is Michael Kohn. I represent  
17   the intervenor in this case, Allen Mosbaugh.

18               First, are you generally aware whether a notice of  
19   violation has been issued against Georgia Power with respect  
20   to any issues concerning the diesel generators?

21          A   I don't know any details and I don't recollect --  
22   I don't know a lot about that.



1 Q As I understand it, you were interviewed by NRC's  
2 Office of Investigation. Do you recall that?

3 A No.

4 Q I'm going to show you Exhibit 25 to a NRC OI  
5 report and ask you if you could review this particular two-  
6 page document and tell me if you recall this interview.

7 A Okay, what was your question again?

8 Q Do you recall being interviewed by the NRC Office  
9 of Investigation?

10 A Yes -- I mean, from reading this, I remember  
11 talking about this stuff to somebody and it must have been a  
12 fellow from the Office of Investigation.

13 Q Is there anything in this written report that I've  
14 given you that you believe is inaccurately portrayed or you  
15 believe needs further clarification?

16 MR. LAMBERSKI: You're going to mark this as an  
17 exhibit?

18 MR. KOHN: We can. I wasn't planning on it.

19 MR. LAMBERSKI: We need to because I may want to  
20 ask him a question about it.

21 MR. KOHN: Sure.

22 THE WITNESS: It's a broad question, is there

1 anything in this document that I'm --

2 BY MR. KOHN:

3 Q Let me rephrase the question and maybe it will  
4 make your review a little easier. Is there any factual  
5 information contained in this report that you believe is  
6 inaccurately reported?

7 MR. BARTH: Let me look at that.

8 THE WITNESS: The report states that we returned  
9 to the site on April 16th for a couple of days. I know we  
10 returned to the site, I agree with that, but I don't know if  
11 it was April 16th and I don't know if I gave him a date.  
12 This is probably something that the OI people pulled  
13 together from the travel records or something.

14 MR. BARTH: What was this damned thing -- 1991?

15 THE WITNESS: Yes. It states that I spent 60  
16 percent of the time focused on the diesels. At this point,  
17 I can't recall, you know, exactly what the percentage was.  
18 I'd have to treat that number as sort of a ballpark.

19 The sentence in here which states, "He advised  
20 that he was somewhat forced to do this because the IIT could  
21 not isolate the diesels and pull them out the system," is --  
22 I guess that's accurate in a sense.

1           The document states, "He advised that" -- it gives  
2     the impression that I left the site when I did without some  
3     written documentation, then it gives an example in the next  
4     sentence. The example given, I think, is the written  
5     documentation that I didn't have. There was not -- I don't  
6     remember there being a lot of other things. I remember  
7     machinery history being an item that we didn't have before  
8     we left the site.

9           The sentence in here concerning George Bockhold  
10    where it says, "He made himself very much involved with the  
11    IIT and would personally try to answer as many of the  
12    questions without consulting his staff," that's true but  
13    it's perhaps overemphasized in this document.

14           Then I don't remember making this statement,  
15    "Chaffee said that more often than not, the system engineer  
16    would not answer the question." I would have characterized  
17    that more as on occasion, that was the case as opposed to  
18    implying it was the predominant situation.

19           I don't recall the basis for the sentence saying,  
20    "Chaffee noted the licensee did not want to count certain  
21    types of VEGP failures as failures." I don't know -- I  
22    guess because this document was taken in 1991, perhaps in

1 the intervening three years, I don't recall as much  
2 information perhaps as I did when this was taken.

3 What was your question again?

4 BY MR. KOHN:

5 Q Other than the facts that you've pointed out, is  
6 there any other factual information that you believe is  
7 incorrect in there?

8 A No, but I would have to qualify that. A lot of  
9 time has elapsed, so based on what I can remember today,  
10 there is nothing else in here.

11 MR. LAMBERSKI: How do you want to mark this  
12 document?

13 MR. KOHN: You can mark it as Intervenor-Chaffee  
14 Exhibit 1.

15 [Intervenor-Chaffee Exhibit No. 1  
16 was marked for identification.]

17 BY MR. KOHN:

18 Q I'm going to show you now your December 17, 1993  
19 interrogatory responses and ask if you could look through  
20 that and tell me whether the factual information in that is  
21 accurate as best you can recall at this time?

22 A What was your question again concerning this



1 document?

2 Q Is there any factual information in this  
3 interrogatory response document that you believe is  
4 inaccurate?

5 A There's nothing based -- I don't recall anything  
6 that would cause me to believe that anything in this is  
7 inaccurate.

8 MR. KOHN: I guess we might as well mark that as  
9 Intervenor-Chaffee Exhibit Number 2.

10 [Intervenor-Chaffee Exhibit No. 2  
11 was marked for identification.]

12 BY MR. KOHN:

13 Q I assume you are familiar with NUREG 1410?

14 A Yes. I know it exists, obviously I helped develop  
15 it.

16 Q On page 3-10, I believe the NUREG makes the  
17 following statement, "Air quality does not appear to have  
18 been a factor in the emergency diesel response during the  
19 incident." Do you want to look at that and try and find it?  
20 I have that in my notes, I haven't underlined it in this  
21 particular document. Assuming that I've read it verbatim,  
22 what was your basis -- what did you understand the basis for



1 the NUREG's conclusion that "Air quality does not appear to  
2 have been a factor in the emergency diesel response during  
3 the incident"?

4 A I don't recall all of our considerations that went  
5 into putting that statement in there.

6 Q Do you recall what documentation was relied upon?

7 A No.

8 Q Do you recall whether your team was made aware of  
9 dew point readings on the 1A Diesel Generator just before  
10 the site area emergency occurred?

11 A I don't recall.

12 Q Were you aware of out-of-spec-to-point  
13 measurements taken in April just before Georgia Power was  
14 allowed to restart the reactor?

15 A I don't recall that.

16 Q Is it the type of fact you think you would tend to  
17 recall whether high dew point readings were being obtained  
18 after the site area emergency in the April time frame?

19 A I'm sorry, say your question again.

20 Q Is that the type of fact you would expect to be  
21 able to recall, whether your or your team members became  
22 aware of high dew point readings occurring after the site

1 area emergency?

2 A That I would recall that four or five years later,  
3 is it likely I'd recall that? I don't know.

4 Q If you had obtained knowledge of high dew point  
5 readings, is it something that you believe would have been  
6 included in NUREG 1410?

7 A I don't know if we would have included them or  
8 not.

9 Q Do you recall what the acceptable dew point was  
10 for the diesel air generators?

11 A No, I don't recall.

12 Q I believe it was under 50 degrees Fahrenheit. Do  
13 you recall dew point readings in the 80 and up to 90 degree  
14 temperatures being obtained in April of 1990?

15 A I don't recall that.

16 Q Do you recall ever being aware of a history of  
17 high dew point readings at the plant or being provided with  
18 information about a history of high dew point readings?

19 A I recall us looking into that and I recall there  
20 being something but I don't recall any details.

21 Q With respect to the air quality and dew point  
22 readings, what documentation do you know of that would still

1 exist in the NRC that you had or obtained?

2 A The IIT report in NUREG 1410 and the bibliography  
3 information that exists in the public document room.

4 Q Are all the bibliography documents contained in  
5 the public documents room?

6 A I don't know.

7 Q Do you know -- I assume that the bibliography  
8 documents are maintained somewhere, the originals?

9 A I don't know.

10 Q Were you aware of whether air control dryers for  
11 the diesel generators were out of service at any point?

12 A In the history of the plant?

13 Q Either slightly before or after the site area  
14 emergency?

15 A I remember that was something looked into, I don't  
16 remember the specifics of what we found.

17 Q On the NUREG, page 3-10, it states, "Dryers on  
18 occasion have been out of service for short periods." Do  
19 you recall the basis for that statement?

20 A No, I don't.

21 Q Do you recall -- what would constitute a short  
22 period?

1           A     I don't know how to answer that question at this  
2 point. That would have been a determination we made at the  
3 time and I don't remember what considerations we used at  
4 that time.

5           Q     If the diesel generator air dryers had been out of  
6 service for four to five months, would that, from your  
7 perspective, be a short period?

8           A     I don't know how to answer that question.

9           Q     Were you aware that out of service dryers were  
10 found during the course of the time period that the II Team  
11 was at the plant site?

12          A     I don't recall that.

13          Q     Were you aware that Georgia Power diesel engineers  
14 had found water pouring out of some of the diesel trip  
15 lines?

16          A     I don't recall that.

17          Q     Were you ever made aware that water that had  
18 poured out of a diesel trip line had been collected in a  
19 bottle?

20          A     I don't recall that.

21          Q     Would you have been interested in knowing that  
22 water had poured out of a diesel trip line?

1           A     That depends.

2           Q     What would it depend on?

3           A     When, what the impact is of the water you're  
4 talking about, when it would have occurred, what the safety  
5 implications are, what is the potential impact it would have  
6 on the operability of the diesel.

7           Q     If the water had poured out on March 28th or March  
8 29th?

9           A     Is that before or after the event?

10          Q     That's eight days after the event?

11          A     If somebody had told me that -- it would have  
12 depended on the context of the information.

13          Q     What would it depend on?

14          A     I would have to know more about the specifics in  
15 terms of the water you're talking about. An isolated piece  
16 of information, you need to know more to understand what its  
17 implications are.

18          Q     I understand what you're saying, I think. So if  
19 someone had told you that, you would have initiated further  
20 inquiry?

21          A     Yes.

22          Q     And you would have considered whether this was a



1 contributing factor to the diesel generator failure during  
2 the site area emergency?

3 A Yes.

4 Q Were you ever told that water was found in the  
5 diesel air start system?

6 A I don't recall.

7 Q Were you ever told of a series of trips of the  
8 diesel generator which occurred on May 23, 1990?

9 A I don't know.

10 Q I'm going to show you a document previously marked  
11 as Intervenor Exhibit Number 46 which concerns diesel trips  
12 that occurred on May 23, 1990 and a sequence of events with  
13 respect to the diesel generators. I'm going to ask you if  
14 you could just review this document. The reason I'm going  
15 to have you review the document is to see if it refreshes  
16 your recollection of whether you were ever told about this  
17 particular sequence of failures or trips that were occurring  
18 on the 23rd?

19 A What was the question?

20 Q Does this document -- I'm showing you the document  
21 to see if it would refresh your recollection of whether you  
22 were ever told about this sequence of events occurring?

1           A     This document doesn't refresh my memory at all.

2           Q     Okay. According to Georgia Power technicians, the  
3 diesel generator had tripped -- let me just give you a brief  
4 history. The diesel generator tripped after operating for  
5 60 to 90 seconds on jacket water temperature and low jacket  
6 water pressure and then it was restarted and tripped again  
7 after operating 60 to 90 seconds on low jacket water  
8 pressure. When the second trip indicated low jacket water  
9 pressure, there were technicians standing at the calcon  
10 sensors using snoop detectors to see if the calcons were  
11 venting and none of the calcon sensors were venting with  
12 respect to the low jacket water pressure trip that came in.  
13 Do you recall being made aware of any of these facts?

14          A     Too much time has passed. I don't recall what  
15 you're talking about.

16          Q     Do you recall the sequence of trip events that  
17 resulted in the site area emergency?

18          A     Not completely.

19          Q     Is it your understanding that if a calcon sensor  
20 was causing the diesel to trip, that the calcon sensor has  
21 to vent?

22          A     I don't recall, I'd have to refresh my memory.

1 Q Were you aware that on May 23rd, there were five  
2 trips during normal starts of the diesel generator?

3 A I don't recall.

4 Q Were you aware there were an additional two starts  
5 during emergency starts of the diesel generator?

6 A When?

7 Q On May 23rd?

8 A On the day of the event?

9 Q No, this event was March 20th, this is May 23rd,  
10 two months later?

11 A I'm sorry. I don't recall.

12 Q If you were aware that the diesel generator  
13 experienced a sequence of events with respect to the cause  
14 of the diesel -- let me rephrase it. If you were aware that  
15 the factual events associated with the diesel generator  
16 trips, that is, what calcon sensor alarms were enunciated  
17 and all the specific factors which resulted in the trips for  
18 the site area emergency, if you were aware that a parallel  
19 set of events resulted in trips two months later, is that  
20 factual information that you would want brought to your  
21 attention?

22 A What I'm struggling with is the time. Two months

1 later, I don't even know if the IIT was still in place and  
2 once the IIT was done, my function is gone, my interest  
3 ends.

4 Q Was the IIT technically in place until NUREG 1410  
5 was published?

6 A It was in place up to within a close proximity of  
7 that, although what's true is in the latter stages of the  
8 effort, you're mainly focusing on publishing the document.

9 Q I understand, but before the document was  
10 published, if a factual event occurred at the site which may  
11 call into question the root cause of the trips attributed in  
12 NUREG 1410, would it be normal to hold up publication on  
13 NUREG 1410 to allow that additional factual information to  
14 be investigated?

15 A I don't know. We'd have to evaluate the  
16 situation.

17 Q If I understand it, you do not recall ever being  
18 asked to evaluate a sequence of trips occurring on May 23,  
19 1990?

20 A It's been a long time and I don't recall what  
21 you're talking about.

22 Q The NUREG covers Appendix I in matters related to



1 calcon sensor problems at other plants, within other nuclear  
2 plants in the industry. Are you generally aware of that  
3 table?

4 A If it's in the book, I was aware that we developed  
5 it. Okay, I'm aware that there is an Appendix I in the  
6 book.

7 Q If you would generally flip through the list of  
8 plants having calcon problems, you'll see that Catawba and  
9 Plant Vogtle make up the vast bulk of the problems?

10 A If you say so.

11 Q I just want to make sure you're looking. Do you  
12 see that?

13 A I'm looking at pages 1-5 of Appendix I through 1-  
14 11 -- no, 1-13, 1-14 of Appendix I and on those pages, at  
15 least on -- it looks like the largest number of entries are  
16 for Catawba and Vogtle. I'm not sure what that means but  
17 those seem to be the largest number of entries.

18 MR. BARTH: Can we just leave the document speaks  
19 for itself? It does have the table in it.

20 MR. KOHN: Yes.

21 BY MR. KOHN:

22 Q Were you generally aware, either before or during



1 the course of the IIT investigation, of the fact that  
2 Catawba had experienced a problem with its calcon sensors?

3 A I don't recall.

4 Q Were you generally aware that Catawba's problems  
5 with its calcon sensors were later attributed to a moisture,  
6 water problem?

7 A I don't recall that.

8 Q Do you recall being told about the apparent  
9 improper intermittent operation of the calcon sensors as a  
10 reason that the diesel generator failed during the site area  
11 emergency?

12 A I recall that there was a belief that there was an  
13 intermittent problem with the sensors, yes.

14 Q Could you describe what you understood to be the  
15 intermittent problem?

16 A I don't know if I can recall it accurately. I can  
17 tell you what I think I remember if that's what you want to  
18 hear?

19 Q Yes?

20 A I seem to remember that the issue was of foreign  
21 material being into the high jacket water temperature calcon  
22 sensor and that that foreign material would move about

1     inside that sensor and depending on where it would be  
2     located, it could cause the sensor to, on some occasions,  
3     work properly and on other occasions, to not work properly.  
4     I remember that was the theory we had at one point. I don't  
5     remember really much more than that.

6           Q     Were you generally aware that for the intermittent  
7     operation of the calcons to occur, that the two separate  
8     calcons would have to fail simultaneously?

9           A     I seem to remember that the calcon system was a  
10    two out of three logic.

11          Q     Were you aware that the post calibration check of  
12    the diesel jacket water sensors never found a sensor so far  
13    out of adjustment to cause an actual trip?

14          A     I don't recall.

15          Q     Did the IIT team ever investigate any correlation  
16    between high dew points and diesel problems or failures?

17          A     As I said before, I remember that we looked into  
18    air quality. I don't remember the details.

19          Q     And the documentation you received concerning air  
20    quality from Georgia Power would be, to the best of your  
21    knowledge, included in the bibliography of the IIT report?

22          A     I don't know if it's included in there or not.

1 Q Why would that documentation not be included?

2 A I don't know.

3 Q So if I understand your earlier testimony, you  
4 have no real recollection of what statements were made  
5 during the April 9th meeting concerning air quality of dew  
6 points?

7 A I don't recall. I don't recall anything about  
8 that.

9 Q These are the notes of a licensing manager  
10 associated with Georgia Power. The notes indicate to me  
11 that Al, it looks like Chapin, but I assume he was probably  
12 referring to you, using a Sumner Instrument receiving a 60.9  
13 degree Fahrenheit out-of-spec reading on Unit 2. Do you  
14 have any recollection of those facts?

15 A I don't recall that.

16 Q If you had known that water had been found in trip  
17 lines, water had been found in the air start systems, that  
18 the dryers had been out of service for potentially months at  
19 a time, and the fact that the same sequence of events which  
20 resulted in the site area emergency were repeated two months  
21 later, would those facts potentially affect your root cause  
22 determination?

1           A     Again, I mean I don't know.

2           MR. BARTH: That's the same answer he gave before.

3           THE WITNESS: It's a lot of what ifs.

4           BY MR. KOHN:

5           Q     The root cause determination, was it ever  
6           affirmatively determined that was in fact the cause of the  
7           diesel failures, it wasn't just a probable determination?

8           A     I don't know. Whatever the report states in terms  
9           of the root cause is what we concluded and I haven't been  
10          involved in this beyond the publication of this report.

11          Q     If I understand it, the IIT specifically was  
12          interested in looking at water issues as a potential root  
13          cause of the site area emergency trips?

14          A     At one point, we were -- yes -- I'm sorry, repeat  
15          your question again?

16          MR. BARTH: It wasn't a question, it was a  
17          statement.

18          THE WITNESS: Say it again?

19          BY MR. KOHN:

20          Q     At one point, the IIT team was looking into water  
21          issues to determine -- as a potential root cause?

22          A     I'm sorry. That statement -- no, not the way you

1 made your statement.

2 Q Was the IIT looking at water-related issues with  
3 respect to the site area emergency trips?

4 A I'm having a real problem with -- we weren't  
5 looking into water quality issues. I don't understand what  
6 you mean by water quality issues.

7 Q If I said water quality, I apologize, either  
8 water-related cause for the site area emergency?

9 A As the report states, we looked into air quality.

10 Q I'm going to show you a document previously marked  
11 as Intervenor's Exhibit Number 13, which is a portion of an  
12 executive summary on diesel operability prepared by Georgia  
13 Power Company. Do you recall seeing in particular the  
14 portion of this document that says "diesel reliability" and  
15 it has a chart underneath it, "Safety System Performance"?

16 A I don't recall seeing this document.

17 Q Do you ever recall being told that Georgia Power's  
18 diesels had been more reliable than other industry diesels  
19 in the past?

20 A I don't recall that.

21 Q Earlier you were shown Georgia Power's Exhibit  
22 Number 6. Do you have that in front of you by chance?



1           A     Yes, I have that in front of me.

2           Q     On page 69 of the transcript, it talks about some  
3     air quality on lines 10 through 21, indicating that the air  
4     quality hard copy information that was received from the  
5     site was going to be transmitted up here I assume to  
6     Washington, D.C. or to Region II, I believe. Do you know  
7     what the comment is, "Assuming what George tells us is  
8     correct," would refer to? Is that, I believe, George  
9     Bockhold?

10          A     You're asking me -- what are you --

11          Q     Let me start over. The "George" referred to on  
12     line 14 of page 69, do you believe that refers to George  
13     Bockhold?

14          A     I don't know who it refers to. It's been four  
15     years and I'd only be speculating.

16          Q     So you don't recall any particular concerning the  
17     air quality information being transmitted from the site?

18          A     I don't recall that discussion.

19                 MR. KOHN: Let's go off the record.

20                 [Brief recess.]

21                 BY MR. KOHN:

22          Q     In NUREG 1410, there is no mention of either any

1 trips or problems of the diesel 1B generator occurring on  
2 March 22 and March 23, 1990 and March 24, 1990. Do you know  
3 why that would be?

4 A No, I don't know why.

5 Q Do you believe information concerning those trips  
6 would have been included if you had had it?

7 A I don't know, I'd have to evaluate the  
8 information.

9 Q Were you aware that the diesel generator trips  
10 which occurred during the site area emergency occurred  
11 during the coldest day of the month? Is that a fact that  
12 could be significant with respect to air quality and dew  
13 points?

14 MR. LAMBERSKI: I object to the form. You've got  
15 two questions mixed up in there. Why don't you fix it?

16 BY MR. KOHN:

17 Q Were you aware of or did you look at the  
18 temperature on the date of the event?

19 A I don't recall.

20 MR. BARTH: Could you clarify that, Mr. Kohn? Do  
21 you mean the ambient temperature outside or the temperature  
22 inside the diesel room?

1 MR. KOHN: The ambient temperature outside at the  
2 plant site? I don't believe there's any records on the  
3 temperature inside the diesel room.

4 I have no further questions of the witness but I  
5 do request that Georgia Power acknowledge the basis for  
6 their statement to the witness that Mr. Kendall prepared the  
7 diesel generator start list.

8 MR. LAMBERSKI: I stated the basis on the record.

9 MR. KOHN: You did not indicate who was present  
10 when Mr. Kendall --

11 MR. LAMBERSKI: I'm not being deposed here, Mr.  
12 Kohn.

13 MR. KOHN: So are you refusing to answer that?

14 MR. LAMBERSKI: I'm refusing to answer your  
15 questions, yes.

16 MR. BARTH: I have a single question to ask Mr.  
17 Deponent.

18 EXAMINATION

19 BY MR. BARTH:

20 Q Could you look at Exhibit Number 9, please and  
21 could I ask you to turn to Exhibit Number 1 and look up Item  
22 180 which is on page 23. Item 180 states it is a diesel

1 generator start log, is that correct, Mr. Chaffee?

2 A That is correct.

3 Q It was represented to you that Exhibit Number 9  
4 was the diesel generator start log. Do you recall that?

5 A I recall being talked about this document. I  
6 don't remember whether or not they said it was 180.

7 Q Looking at Exhibit Number 9, does it appear to you  
8 to be a diesel generator start log?

9 A I'd have to give you a qualified answer. I would  
10 have thought a diesel generator start log wouldn't be typed,  
11 it would probably be handwritten. This looks like it's been  
12 typed. I don't know if this is a reproduction of a diesel  
13 generator start log or what.

14 MR. BARTH: I'll hand you a document which I will  
15 ask be marked as NRC Exhibit Number 1.

16 [NRC Exhibit No. 1 was marked for  
17 identification.]

18 BY MR. BARTH:

19 Q This is titled, "Diesel Generator Start Log."  
20 Does that appear to be the same sort of document as Exhibit  
21 Number 9?

22 A Well, I mean it's very different in the sense that

1 one is typed and one is not. I don't know if it -- no, it's  
2 different.

3 MR. BARTH: It's different. I don't have any  
4 further questions to ask Mr. Chaffee.

5 MR. LAMBERSKI: I want to follow up on this line  
6 of questioning here.

7 FURTHER EXAMINATION

8 BY MR. LAMBERSKI:

9 Q Mr. Chaffee, is it your recollection that the  
10 documents that were collected by the IIT and are listed here  
11 in the bibliography were identified by the number that  
12 appears in the bibliography somewhere on the documents?

13 MR. KOHN: I'm sorry, I'm not following your  
14 question.

15 THE WITNESS: Yes, I think that's the case.

16 BY MR. LAMBERSKI:

17 Q If I were to -- if I did file a Freedom of  
18 Information Act request with the NRC asking for Document 180  
19 and I got back what is marked as GPC-Chaffee Number 9, would  
20 you agree that indeed was IIT Document 180?

21 A Unless they made a mistake.

22 Q Unless who made a mistake?



1           A     The FOI folks that provided you the information.

2           MR. BARTH: John, to make it easier, if you assure  
3 me that this is the document that's listed as Number 180,  
4 I'll take your word for it. I just can't tell myself from  
5 looking at it and I have not looked at the Public Document  
6 Room documents.

7           MR. LAMBERSKI: Then you need to because I filed  
8 and FOIA request and that's what I got back.

9           MR. BARTH: There are 865 documents, so I have not  
10 memorized what they look at. If you'll tell me that's what  
11 this is, I'll take your word for it.

12          MR. LAMBERSKI: You shouldn't take my word for it,  
13 you should check on your own but that's my understanding.

14          BY MR. LAMBERSKI:

15          Q     Mr. Chaffee, at the time you were assigned to the  
16 IIT team, did you consider that to be an important  
17 assignment?

18          A     Yes, I did.

19          Q     Not too many site area emergencies had occurred?

20          A     That's correct.

21          Q     My understanding is there weren't too many IITs?

22          A     That's correct.

1 Q So I take it you took your duties very seriously?

2 A Yes, I did.

3 Q And were as diligent as you could be in your  
4 investigation of the failure of the diesel generator as you  
5 could be?

6 A Yes, I believe I was.

7 MR. LAMBERSKI: I don't have any further  
8 questions.

9 MR. KOHN: Just a follow up.

10 FURTHER EXAMINATION

11 BY MR. KOHN:

12 Q I assume the Georgia Power engineers and persons  
13 at the site knew the scope of your responsibility and your  
14 interest in obtaining all relevant information? Is that  
15 your general understanding?

16 MR. LAMBERSKI: I object to the question on the  
17 grounds that you're asking him to speculate about what other  
18 people thought.

19 MR. KOHN: Let me rephrase the question.

20 BY MR. KOHN:

21 Q Did you make the licensee -- in this case, Georgia  
22 Power Company -- aware of the scope of your investigation

1 and the type of documentation and information you would be  
2 interested in?

3 A To the best of my ability, I attempted to.

4 Q Is it the general understanding of the NRC that  
5 the licensee has a responsibility to produce and make the  
6 NRC aware of relevant information?

7 A The NRC expects the licensees to be candid about  
8 information -- candid and forthcoming with information that  
9 would be, I guess, pertinent to the regulatory process.

10 Q Did you think Mr. Bockhold was candid?

11 MR. BARTH: I don't think this comes within the  
12 scope of my questions or the rejoinder of counsel for  
13 Georgia Power. This is a new line of questioning, so I  
14 think it's precluded and I object to it.

15 MR. KOHN: Can the witness answer the question?

16 MR. BARTH: Give me a moment, please. Answer the  
17 question, please, Mr. Chaffee.

18 THE WITNESS: Repeat the question?

19 BY MR. KOHN:

20 Q Did you believe that Mr. Bockhold was candid?

21 A I am not aware of any situations where Mr.  
22 Bockhold withheld any information from me.

1 MR. KOHN: If I could see Intervenor's Exhibit  
2 Number 1, please?

3 BY MR. KOHN:

4 Q In your statement to the Office of Investigations,  
5 you state that "Bockhold had a tendency to 'put blinders on'  
6 with regard to the past performance of the EDGs." What did  
7 you mean by that?

8 A That's what OI wrote in terms of their terminology  
9 of what I said and I don't really recall exactly what I told  
10 them that caused them to write that.

11 Q They put "blinders on" in quotation marks  
12 indicating that they believed those were the exact words  
13 that you said?

14 A I don't recall if those were my exact words or  
15 not.

16 Q If those were the exact words that you said or  
17 similar in content, can you tell me at this point what you  
18 would recall about that?

19 A I guess the truth is I can't recall the specifics.

20 MR. BARTH: Do you have another question?

21 BY MR. KOHN:

22 Q Can you at this time actually recall your

1 communications with Mr. Bockhold to judge them as to whether  
2 they were candid or not candid?

3 A Too much time has passed for me to recall the  
4 specifics to be able to remember exactly what I might have  
5 believed that caused the OI folks to write those particular  
6 statements in that report.

7 MR. KOHN: I have no further questions.

8 MR. BARTH: No more questions. We are adjourned.

9 [Whereupon, at 12:49 p.m., the deposition was  
10 concluded.]

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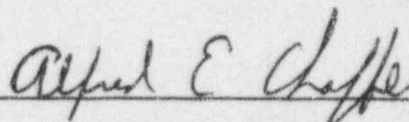
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## 1 CERTIFICATE OF DEPONENT

2 I, Alfred E. Chaffee, do hereby certify that I  
3 have read the foregoing transcript of my deposition  
4 testimony and, with the exception of additions and  
5 corrections, if any, hereto, find it to be a true and  
6 accurate transcription thereof.

7  
8 

9 ALFRED E. CHAFFEE

10  
11 11-7-94

12 DATE

13  
14 Sworn and subscribed to before me, this the

15 7th day of November, 1994.

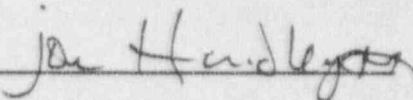
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17 

18 NOTARY PUBLIC IN AND FOR  
19 STATE OF MARYLAND  
COUNTY OF MONTGOMERY

20 My commission expires: 12/1/97

CERTIFICATE OF NOTARY PUBLIC

I, JON HUNDLEY, the officer before whom the foregoing deposition was taken, do hereby certify that the witness whose testimony appears in the foregoing deposition was duly sworn by a notary public; that the testimony of said witness was taken by me and thereafter reduced to typewriting by me or under my direction; that said deposition is a true record of the testimony given by the witness; that I am neither counsel for, related to, nor employed by any of the parties to the action in which this deposition was taken; and further, that I am not a relative or employee of any attorney or counsel employed by the parties hereto, nor financially or otherwise interested in the outcome of the action.

  
\_\_\_\_\_

JON HUNDLEY

Notary Public in and for the  
State of Maryland

My Commission expires November 1, 1996.

September 14, 1990

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Subject: Investigation of March 20, 1990 Event at Vogtle  
Nuclear Power Plant Involving loss of offsite Power on  
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2. Documents Collected and Provided by Augmented Inspection  
Team (AIT)
- 2-1 Instruction Manual For S & C Circuit Switches  
(Outdoor 230kv)
  - 2-2 Instruction Manual For Westinghouse Type Co  
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  - 2-3 Instruction Manual For ASEA Type RADSE Transformer  
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  - 2-4 Instruction Manual For Brown Boveri Type AOT, AOK  
& AOS High  
Voltage Current Transformer
  - 2-5 Instruction Manual For General Electric Type PVD  
Differential Voltage Relay
  - \*2-6(124) Nuclear Plant Maintenance Work Order No. 28900466
  - \*2-7(267) Bechtel Drawings 1X3D-AA-A01A (Main One Line -  
Unit 1)
  - 2-8 Bechtel Drawings 2X3D-AA-A01A (Main One Line -  
Unit 2)
  - 2-9 Bechtel Drawings AX3D-AA-A01A (Main One Line -  
Common Units 1 & 2)
  - 2-10 Bechtel Drawings AX3DL060 (Switchyard General  
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  - 2-11 Bechtel Drawings 1X3DH7A1 (Low Voltage Switchyard  
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  - 2-12 Company Services/GPC Drawing AX3D-BA-L55A (230kv  
Offsite Source No. 1 C.T. & P.T. Connecting -  
Sheet 1)
  - 2-13 Bechtel Drawings 2X3D-BB-BOIL (Elementary Diagram  
-Electrical System Generator Tripping)
  - 2-14 Southern Company Services/GPC Drawing AX3D-BA-  
L57D (500kv PCB No. 161520 Close & Trip No. 1)
  - 2-15 Southern Company Services/GPC Drawing AX9D-AA-  
L50T (500kv PCBs No. 161520/161620/161660 Single  
Line)
  - 2-16 Southern Company Services/GPC Drawing AX3D-BA-  
L55A (230kv Offsite Source No. 1 C.T. & P.T.  
Connecting - Sheet 1)
  - 2-17 Southern Company Services/GPC Drawing AX3D-BA-  
L55B (230kv Offsite Source No. 1 C.T. & P.T.  
Connecting - Sheet 1)
  - 2-18 Southern Company Services/GPC Drawing AX3D-BA-  
L55C (230 Offsite Source No. 1 Diff. & Backup  
Relaying)

\*Refer to document number in parentheses

GPC Chaffee -1

10/21/94

2-19 Southern Company Services/GPC Drawing AX3D-AA-L50B (230kv Single Line For PCBs 161760/161860/161960)

2-20 Bechtel Drawings 2X3D-AA-B04A (Three Line Diagram - Unit 2 AC Generator)

2-21 Bechtel Drawings 2X3D-AA-B02A (One Line - Relays & Meters For RATs)

2-22 Bechtel Drawings 2X3D-AA-B01A (Relays & Meters - Generator, Main, & UAT)

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2-24 Southern Company Services/GPC Drawing AX3D-AAL50A (500kv & 230kv Sunstation Single Line Index Drawing)

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2-28 Southern Company Services/GPC Drawing AX3D-BA-L52P Diagrams For 230kv PCB

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\*2-34 (2-40) Bechtel Drawing 1X3D-AA-D03A (4160 V Switchgear)

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2-38 Bechtel Drawing 1X3D-AA-D04A (4160 V Switchgear 1NA04)

2-39 Bechtel Drawing 1X3D-AA-D02A (4160 V Switchgear 1NA02)

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2-41 Bechtel Drawing AX3D-BA-D02C (4160 V Breaker ANA0203)

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2-43 Bechtel Drawing AX3D-BA-D03B (4160 V Breaker ANA0301)

2-44 Bechtel Drawing 1X3D-BA-D01J (4160 V Breaker 1NA0111)

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 2-46 Bechtel Drawing 1X3D-BA-D02C (4160 V Swgr 1AA02  
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 2-47 Bechtel Drawing 1X3D-BA-D02B (4160 V Swgr 1AA02  
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 2-58 Delaval Drawing 09-500-76021 Sh 6  
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 2-63 10 Mile EPZ Map  
 2-64 NOUE ED Checklist Of 3/23/90  
 2-65 EOF Personnel For 3/20/90  
 2-66 Security Emergency Response Organization for  
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 2-67 TSC Personnel 3/20/90  
 2-68 CR Personnel 3/20/90  
 2-69 OSC Personnel 3/20/90  
 2-70 Training Records EOF  
 2-71 Communicator Package Consisting Of:  
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 Lesson Plan RE LP 07001-02  
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 2-72 Control Room Layout  
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50-424/425 88-38 & 88-42 8/15-19/89 ERF  
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2-77 TSC Log  
2-78 Emergency Notification Messages:  
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2-79 EOF Manager Log  
2-80 Met Info  
2-81 Dictated From GEMA To VEGP (FAX 3/22/90)  
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2-82 Assorted News Dispatcher & Newspaper Articles  
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2-85 Handbook For General Employee Badge Training  
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2-89 8 Hr Report Dated 3/20-90  
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2-94 Interview Pauline Jenkins - Communication  
2-95 Interview Theresa Jones - Communication  
2-96 Interview Jimmy Cash - Operations Supt.  
2-97 Interview William Burmeister - Plant Duty Manager  
2-98 Results Of Selected Sampling Of Employee In  
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2-99 E Plan Section H-3 "Activities And Staffing of  
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2-100 Interview John Hopkins - Shift Supt. Unit 1  
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2-101 Interview Capt. William Johnson Accountability &  
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2-102 Interview Lt. William Stewart Accountability

2-103 Historical Classification of Emergency & Phone  
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Notes - Bob Trojanowski - RII GAO

2-104 E Plan, Section B, "Onsite Emergency Organization"

2-105 Results Of CR Walkdown Of Procedure File As Found

2-106 Backup ENN Description

2-107 Met Bldg. Inspection Notes

2-108 Listing Of Onshift People For Inspection

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2-130 Licensed Operator Training Materials For Loss Of  
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2-131 Licensed Operator Training Materials For Loss Of  
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2-132 Licensed Operator Training Materials For Emergency  
Plan Implementing

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2-133 Outside Operator Training Material For Diesel  
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 2-134 Procedure No. 12006-C Unit Cooldown to Cold  
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 2-140 Procedure No. 18019-C Abnormal Operating Procedure  
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 2-148 1X4DB114 Rev. 25 P&I Diagram Reactor Coolant  
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 2-150 1X4DB116-1 Rev. 23 P&I Diagram Chemical & Valve  
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 2-157 1X4DB122 Rev. 27 P&I Diagram Residual Heat Removal  
 System No. 1205

- 2-158      Loss of All AC/4160V IE Power Lesson Plan
3.      Briefing Book document for IIT Leader
- 3-1      Ltr to W. G. Harston, III fm S. D. Ebnetter dtd 3/23/90.  
         Subject: Confirmation of Action Letter
- 3-2      PNO-II-90-16, Subject: Site Area Emergency at Vogtle  
         Unit 1 Loss Of Offsite Power (3/20/90)
- 3-3      PNO-II-90-16A, Subject: Site Area Emergency at Vogtle  
         Unit 1 Loss Of Offsite Power (3/21/90)
- 3-4      PNO-II-90-16B, Subject: Augmented Inspection Team is  
         Dispatched to Vogtle Unit 1 (3/22/90)
- 3-5      EVENT NUMBER: 18024 (3/20/90)
- 3-6      DRAFT: NRC Staff Dispatches Augmented Inspection Team  
         to Vogtle Nuclear Power Plant
- 3-7      Meeting Purpose: NRC ENTRANCE (3/22/90)
- 3-8      Status Summary 1: (3/20/90)
- 3-9      Status Summary 2: (3/20/90)
- 3-10     Article: Alert Declared at Vogtle after Truck Hits  
         Tower (3/21/90) (The Augusta Chronicle)
- 3-11     Article: Outage at Vogtle Means Moment of Fear of Some  
         (3/21/90) (The Augusta Chronicle)
- 3-12     Questions and Responses
- 3-13     Electrical Distribution Schematic Charts
- 3-14     VR-1 Update 1500 3/22, Site Area Emergency (3/20/90)
- 3-15     VR-2 Update 1500 3/23, Site Area Emergency (3/20/90)
- 3-16     Attention - Quarantine List and Licensee Restrictions
- 3-17     Chart - D/G Testing Unit 1 (3/24/90)
- 3-18     1st Draft of GPC's Event Critique (uneventful). Event  
         Title: Loss of Offsite & Onsite AC Power (3/20/90)
- 3-19     Power Level/Mode and Inoperable Equipment/Abnormal  
         System Alignment (Info)



- 20 Interview Notes (3/20/90)
- 3-21 Interview List (3/23/90)
- 3-22 Miscellaneous Notes
- 3-23 Status of AIT Charter Item Assigned to Rick Kendall  
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- 3-24 Discussion w/ Paul Kochery (10:30 a.m.) (3/25/90) notes  
from Rick Kendall
- 3-25 Offsite Commendation 5a
- 3-26 Onsite Notification 5b
- 3-27 GPC, Vogtle Plant, Unit 1 Auxiliary Building Radwaste  
Operator Log (3/20/90)
- 3-33 GPU, Vogtle Electric Generating Plant, Unit 1 Outside  
Area Operating Log (3/20/90)
- 3-34 Preliminary Thermocouple Reading Charts for Unit 1
- 3-35 Interview Schedule (3/23/90)
- 3-36 Interview Schedule - AIT (3/24/90)
- 3-37 Warren Lyon - Status Report Notes for Item 1 (3/24/90)
- 3-38 Status Regarding AIT Charter Item No. 3, Charter Item  
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- 3-39 Status Regarding Summer (#4) (3/24/90) (Testa)
- 3-40 Vogtle AIT Chart Item 7 (Trager)
- 4. Evaluation of Potential Explosion in the Vogtle Switchyard
  - 4-1 Event Evaluation #1 (3/24/90)
  - 4-2 Event Evaluation #2 (4/10/90)
  - 4-3 Event Evaluation #2 (4/12/90)
- 5. Entrance Presentation by Georgia Power Company 3/26/90
- 6. PNO-IIT-90-02 3/26/90 Subject: IIT arrive at Vogtle Site



7. Agreements signed by (3) industry representatives on Waiver of Compensation, Conflict of Interest and release of Investigation Information for industry participating in IIT
8. Bulletin Board Notice
9. Letter to Document control desk, USNRC from W. G. Hairston III, Sr. V.P., Nuclear Operation, Georgia Power Co., dated 11/30/89. Subject Vogtle Electric Generating Plant Hardware Modifications pursuant to generic Letter 88-17
10. Letter to document control desk, USNRC from W. G. Hairston III, GPC, dated 2/2/89. Subject: Plant Vogtle - Units 1 and 2, NRC docket 50-424, 50-425, Operating License NPF-68, Construction Permit CPPR-109 Response to Generic Letter 88-17
11. Letter to document control desk, USNRC W. G. Hairston, III, GPC, dated 12/29/88; Subject: same as #10
12. Sequence of Events Chronology of Site Area Emergency 3/20/90 (Received 3/27/90) from license
13. Letter to W. G. Hairston, III, GPC, from A. R. Herdt, NRC, dated 7/31/89. Subject: Notice of Violation (Inspection Report Nos. 50-424/89-19 and 50-425/89-23) w/NRC Inspection Manual Temporary Instruction 2515/101
14. Local newspaper coverage - March 27, 1990
15. Interoffice Memo from G. Bockhold, Jr., Plant Manager, to Vogtle Site Personnel dated 3/27/90. Subject: Vehicles in Perimeter Area
16. Entrance Meeting with Licensee and Personnel Statements (3/26/90)
  - 16-1 Entrance Meeting Notes
  - 16-2 J. Hopkins - SS
  - 16-3 R. B. Snyder - SS
  - 16-4 P. Vannier - RO
  - 16-5 K. Jones - CRO
17. Order to quarantine
18. Letter to C. C. Miller, Mgr. of Engineering, Vogtle, from W. C. Ramsey, Jr., dated 2/16/90. Subject: Vogtle, Units 1 & 2, Final Response to Request for Engineering Assistance. Attachment: Loss of Decay Heat removal Analytical Studies for Vogtle 1 & 2, A response to GL 88-17

9. Training Student Handout No. GE-HO-88002-00-001-C Continuing Training--RHR Mid-Loop Oper"
20. Training Lesson Plans:
  - 20-A Continuing Training--RHR Mid-Loop Oper. No. GE-LP-88002-00-C
  - 20-B Emergency Diesel Generator Auxiliaries Fuel Oil System No. NL-LP-11202-01-C
  - 20-C Emergency Diesel Generator General Overview No. NL-LP-11201-00-C
  - 20-D Emergency Diesel Generator Auxiliaries No. NL-LP-11203-02-C
21. EOP No. 19100-C, Revision 4, ECA-0.0 Loss of All AC Power
22. 4160V AC 1E Electrical Distribution, Procedure No. 13427-2, Revision 5
23. Loss of Class 1E Electrical System, AO Procedure No. 18031-C, Revision 6
24. Boron Injection Flow Path Verification - Shutdown, Procedure No. 14406-1, Revision 3
25. Generator and Engine Control Panel Functional Test Procedure No. 27563-C, Revision 2
26. T-ENG-90-11, Rev. 1, "A-TRAIN UNDERVOLTAGE TEST" Expiration Data: 4/8/90
27. Temporary Procedure No. T-ENG-90-12, B-Train Undervoltage Test
28. Temporary Procedure No. T-ENG-90-13, Sequencer Operability Check
29. Temporary Procedure No. T-ENG-90-14, Unit One Train B DCP 88-VIN0070 Sequencer Functional Test
30. T-ENG-90-15, Unit One Train A, DCP 88-VIN0070 Sequencer Functional Test
- \*1. Maintenance Work Order (MWO) 19001576, 3/28/90 (D/G 1A)
- \*32. Proteus Alarm Printout (U2) \*(22)

\*Refer to document number in parentheses

33. Proteus Alarm Printout (U2)
34. List of Quarantined Equipment (Revised 3/29/90 Rev. 2)
35. Personnel Interviews
  - 35-1 K. Pope - SS
  - 35-2 W. Burmeister - Unit Superintendent
  - 35-3 N. Dewbre, P. Jenkins, T. Jones - Shift Clerks
  - 35-4 F. Thompson - EGS; R.Moye - ESS
  - 35-5 G. Bockhold - PM
  - 35-6 D. Vineyard - SS
  - 35-7 W. F. Kitchens - Ass't. PM
  - 35-8 D. Hines, D. Daughhetee, E. Pickett, J. Stanley
  - 35-9 J. P. Cash - OS
  - 35-10 T. C. Eckert - Oper. Dept.
36. List of quarantined equipment (Revised 3/29/90 Rev. 3)
37. Personnel interviews
  - \*37-1 W. Johnson, W. Stewart - Security
  - 37-2 M. Lackey - Outage Planning Mgr.
  - 37-3 M. Lackey, R. Barlow, J. D'Amico - Scheduling
  - 37-4 J. Roberts - EP
  - 37-5 H. Handfinger - Maintenance Mgr.
  - 37-6 G. Brenenborg, I. Kochery
38. PNO-IIT-90-02A
39. Training Lesson Plan No. NL-11204-OOC Emergency Diesel Generator-Engine Control and Protection 5/11/89
40. Procedure No. 13415-1, Rev. 6, Reserve Auxiliary Transformers, 6/30/89
41. Training Lesson Plan No. LO-LP-28201-09-C Sequence Operation, 7/26/89
42. EOP No. 19101-C, ECA-0.1 Loss of all AC Power Recovery without SI Required
43. Training Lesson Plan No. NL-11205-01C, Emergency Diesel Generator Control and Protection, 8/29/89
44. Training Lesson Plan No. LO-LP-11102-05-C Emergency Diesel Generator Auxiliaries Air Start System, 12/8/89
45. Training Lesson Plan No. LO-LP-11001-06-C, Emergency Diesel Generator Introduction and Overview, 12/11/89

\*SAFEGUARDS DOCUMENT NOT TO BE RELEASED

46. Personnel Interviews

- 46-1 E. Dannemiller, D. Huyck - Security
  - 46-2 J. D. Jiles - Safety Specialist
  - 46-3 R. Berry - Security
  - 46-4 S. Chestnut - Training
  - 46-5 K. Stokes - Sr. Plant Eng.
47. Procedure No. 13426-C, 4160V AC Common  
Non IE Electrical Distribution System, 1/26/90
48. Training Lesson Plan No. LO-LP-11103-06-C  
Emergency Diesel Generator Auxiliaries:  
Combustion air and exhaust, 2/28/90
49. Training Lesson Plan No. LO-LP-11104-C,  
Emergency Diesel Generator Auxiliaries Lube Oil  
and Crank Case Ventilation, 12/8/89
50. Training Lesson Plan No. LO-LP-11105-08-C,  
Emergency Diesel Generator Auxiliaries Jacket  
water cooling system, 12/8/89
51. Training Lesson Plan No. LO-LP-11101-07-C  
Diesel Generator Auxiliaries Fuel Oil System  
12/8/89
52. Letter to J. P. Kane, GPC, from W.C. Ramsey  
(unsigned and undated). Subject: Response to REA  
VG-9010, Loss of decay heat removal
53. Emergency Response Facilities Input  
List, Revision 07.05, 12/11/86
54. Procedure No. 14406-1, Revision 3,  
Boron Injection Flow Path Verification-  
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55. VEGP Standing Order No. 1-90-05,  
Emergency Boration Flow Path, 3/1/90
56. Memorandum for A. Chaffee from S. Ebnetter,  
undated (received 3/30/90). Subject: Designated  
Regional Point of Contact
57. Procedure No. 17038-1, Rev.7, Annunciator  
Response Procedures for ALB 38 on EAB Panel, 3/11/90
58. Procedure No. 13011-1, Rev.18, RHR System, 3/11/90
59. Vehicle Access Request, 3/20/90
60. (AOP) Procedure No. 18019-C, Rev.7, Loss of RHR, 3/16/90



61. PRB Comment Review Sheet (PRB-90-44) for Temporary Procedure No. T-ENG-90-14
62. GPC VEGP Handbook for General Employee Badge Training, GE-HO-00101-001-C, Rev. 5, 10/23/89 w/record of training dates for D. Willhite
63. Event Report No. 1-90-003, Additional Support Items
64. SPDS Checklist
65. Items on Fuel Truck 3/2-30/90
66. Photographs
  - 66-1 Roll 1 - (3/24/90)
    - 66-1-1 Voltmeters
    - 66-1-2 Auto XFML No. 2
    - 66-1-3 Auto XFMRs Nos. 1 & 2
    - 66-1-4 Electrical Panel
    - 66-1-5 Annunciators and Electrical Panel
    - 66-1-6 Electrical Panel and Annunciator
    - 66-1-7,8 Letdown/Chg. Flow and Bit Press
    - 66-1-9 Accumulator Pressure Tanks 1 and 2
    - 66-1-10 Accumulator pressure, Tanks 3 and 4
    - 66-1-11 PROTEUS Computer Display
    - 66-1-12 RWST Reset Switches (2) and RHR Suct Vent Line TRN-B
    - 66-1-13 RHR to HL, RHR Suct Vent Line TRN-A, RWST Reset
    - 66-1-14 RHR X Train A & B Outlet and Bypass
    - 66-1-15 RHR Pump Pressure Trains A & B
    - 66-1-16 Incore TC
    - 66-1-17 Operator Aid for mid-loop on RCS Loop 1 Hot Leg NR Level, and RCS Loop 4 Hot Leg WK Level
    - 66-1-18 SI Pump Disch Trains A & B
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    - 66-2-1,2 Plant Safety Monitoring System
    - 66-2-3 Control Rod Position
    - 66-2-4 RCS Flow Trip Alarms
    - 66-2-5 PRZR Pressurizer, PRZK Spray, PRZK LVL
    - 66-2-6 RCS Press, RCS HL Temp
    - 66-2-7 RCS CL Temp OP delta T, OT Delta T, Delta T
    - 66-2-8 Chg. Flow. RCS Loops 1-4, Delta T
    - 66-2-9 Press, LTDN Flow, RCS Loop 4, RCS Temp Loop 3, Delta T
    - 66-2-10 RCS Loop 4, RCS Temp Loop 2, Delta T
    - 66-2-11 Safety A, RCS Loop 1 HL Press, RCS Temp Loop 1, Delta T



66-2-12 RCS Loop 4 (Delta T, OP Delta T, OT Delta T,  
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66-2-13 RCS Loop 4, & RCS Flow Loop 4  
66-2-14 RCS Loop 2, & RCS Flow Loop 2  
66-2-15 RCS Loop 1, & RCS Flow Loop 1  
66-2-16 RCS Loop 1 HL Press, RCS Temp Loop 1, Delta T  
66-2-17 PRZR Relief Temp, RCS Loop 1  
66-2-18 In Core TC  
66-2-19-23 Electrical Panel and Annunciators

66-3 Roll 3 - (3/25/90) - Truck

66-3-1,2 Rear View  
66-3-3-6 Blind Spot Assessment (180 to 195 feet)  
66-3-7 Left View  
66-3-8 Fuel Can  
66-3-9 Closeup of event-related damaged area 1  
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67. Personnel Interview of G. Lee, J. Aufdenkampe, W. F.  
Kitchen, W. Burmeister & D. West

68. Diesel Generator Failure Analysis

69. Personnel Interview: D. DeLoach, J. Jackson, and S.  
Whitman

70. Photographs

70-1 Roll 4 - (3/24/90)

70-1-1 Operator Aid - RCS Loop 1 HL NR Level, and  
RCS Loop 4 HL WK Level  
70-1-2 SI Sump Disch Trains A & B, and Containment  
Press  
70-1-3 Letdown/Chg. Flow, BIT Press  
70-1-4,5 Proteus Computer: In Core TC  
70-1-6 Accumulator Level  
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70-2 Roll 5 - Photos provide by Licensee (3/30/90) - The  
Welder

70-2-1-3 Side View  
70-2-1-4,5 Front View

71. Meeting Attendance Record

- 71-1 IIT Entrance (3/26/90)
- 71-2 Diesel Generator (3/28/90)
- 71-3 Diesel Generator (3/30/90)

72. Access Record History, 3/20/90

73. Badge Record - 3/30/90

74. Evaluations of Initial Plant Conditions - J. D'Amico

75. Procedure No. PTDB-1 Tab 8.0, Rev. 2 - Pictorial Aids: RCS Elevations and Mid Loop Level Instrumentation (3/2/90)

76. Procedure No. 18015-C, Rev. 5, Loss of Instrument Air

77. Procedure No. 12000-C, Rev. 16, Refueling Recovery 3/8/90

78. Procedure No. 12006-C, Rev. 15, Unit Cooldown to Cold Shutdown 3/8/90

79. Procedure No. 12007-C, Rev. 14, Refueling Entry (Mode 5 to Mode 6), 3/8/90

80. Procedure No. 13005-1, Rev. 10, Reactor Coolant System Draining, 2/23/90

81. Procedure No. 17006-1, Rev. 11, Annunciator Response Procedure for ALB 06 on Panel 1A2 on MCB, 3/6/90

82. Bechtel Drawings

- 1X3D-AA-G02 C, Rev. 6, Vital Instr. Distr. Pnls.
- AX3D-AA-A01A, Rev. 13, Main One Line 1 & 2
- AX3D-AA-F19A, Rev. 10, 480V Motor Control Center
- 1X3D-AA-G05B, Rev. 14, 120V AC Non-Class IE key Instr.
- AX3D-AA-H01A, Rev. 9, TSC 125V DC/120V AC Non-Class IE Distr. Panels
- AX3D-AA-A01A, Rev. 16, Main One Line Unit 1
- AX3D-AA-G02B, Rev. Main One Line Non-Class IE 125V DC & 120V Ess. AC System

83. MWO 18906587, SG#4, Unit 1, 12/23/89

84. Procedure No. 25270-C, REV.6, SG Nozzle Dam Checkout, Installation and Removal 12/16/88

85. Procedure No. 18004-C, Rev. 6, AOP RCS Leakage, 12/9/90
86. (AOP) Procedure No. 18006-C, Rev. 2, Fuel Handling Event, 8/4/88
87. (AOP) Procedure No. 18020-C, Rev.3, Loss of Component Cooling Water, 2/14/90
88. (AOP) Procedure No. 18021-C, Rev. 4, Loss of Nuclear Service Cooling Water System, 3/16/90
89. Procedure No. 18034-1, Rev. 1, Loss of Class IE 125V DC Power, 9/12/89
90. (AOP) Procedure No. 18028-C, Rev. 7, Loss of Instrument Air, 3/16/90
91. (AOP) Procedure No. 18038-1, Rev. 10, Operation from Remote Shutdown Panels, 8/29/89
92. Radiation Monitors Status
93. Relief Request 7 and 11 (with accompanying documents) Safety Injection System No. 1204
94. Procedure No. 00350-C, Rev.19, Work Request Program (12/27/89)
- 95-1. MWO #18807746 3/31/90
- 95-2. MWO #19001339 3/31/90
96. Section 6.0, Administrative Controls (Vogtle 1 & 2)
97. Information on Critical Safety Function Status Frees on SPDS (on EXF computer)
98. Training Records: A. L. Blalock, F. Redivannz, W. Hennessy, J. D. Williams, W. P. Stephens, W. M. Watkins, D. Haile, J. W. Covington, R. LeGrand, G. J. Durrance
99. Information on Maintenance Personnel Training on Mid-Loop Ops
100. Procedure No. 00400-C, Rev. 11, Plant Design Control, 2/24/90
101. Request for Engineering Review (Procedure No. 00400-C) of System 500 kv

102. Relaying Data Sheet - Gen. No. 2 Main Bk. Primary
103. Sequence of Events w/source of information
104. 2.0 Hardware Configuration
105. Vendor Document Status Sheet-Manual Change No. 76021-9,  
9/9/86
106. Security Department Report No. 3941-90
107. Joint News Release - 3/20/90
108. MWO (continued) No. 19001576
109. T-ENG-90-11, Rev. 1, A-Train under voltage Test w/related  
MWO's
110. 1A Diesel Generator Reference Material
111. 3/20/90 Logs: Unit 1 & 2 Shift Supervisor; 1 & 2 Control
112. Memo to G. Bockhold from G. R. Fredrick, dated 9/27/89.  
Subject: VEGP-1 and 2 QA Audit finding Report 350
113. Release #1 and # 2 - 3/20/90
114. OSC Log
115. MWO 18906328, 3/27/90
116. Attendance Roster - Diesel Generator Mtg. (3/31/90)
117. Personnel Interviews:
  - 117-1 K. Exly
  - 117-2 P. Humphrey
  - 117-3 J. Williams, D. Gustafson, G. McCarley
118. Operational Journals, 3/20, w/Situation Chart
119. MWO No. 19001684, (3/31/90) Diesel Generator - To Verify  
Timing of Two Trips During LOSP
120. Personnel Interviews:
  - 120-1 G. Schnieder (EP) and S. Throatt (SRH-EPC)
  - 120-2 R. Dorman - Training



120-3 M. Cagle - Maintenance  
 120-4 S. Driver - Training  
 120-5 D. Willhite - Truck Driver  
 120-6 E. J. Kozinsky - SS  
 120-7 S. Young - PFS

121. Design Change Request No. 88-VIN0070 w/Design Change Package Closure - Train A & B Sequencer Panels

122. Operation and Maintenance Instructions (SFSS) w/drawings

123. Vogtle Operating Records - VPO401GP

124. MWO 19001684 - 3/31/90

MWO 19001576 - 3/31/90

MWO 28900466 - 3/31/90

125. PROPRIETARY DOCUMENTS: W FIELD SERVICE PROCEDURES\*

125-1 MRS 2.2.2 GPC-1, Post Activity Sign-Off for Area Cleanliness

125-2 MRS 2.2.2 GPC-21 Rev. 0, Nozzle Dam Hydrotest

125-3 MRS 2.2.2 GPC-22 Rev. 0, Nozzle Dam

125-4 MRS 2.2.2 GPC-23 Rev. 0, Nozzle Dam Manual

125-5 MRS 2.2.2 GPC-24 Rev. 0, Nozzle Dam, Leak Detection Manual

126. Procedure No. 29536-C, Outage Management Program (3/4/88)

127. Procedure No. 27505-C, Rev. 2, Opening and Closing Containment Equipment Hatch (7/18/88)

128. Procedure No. 10013-C, Rev. 6, Writing EOPs from the Westinghouse Emergency Response Guidelines (9/22/88)

129. Procedure No. 29537-C, Rev. 1, Outage Scheduling (4/11/89)

130. Procedure No. 01000-C, Rev. 1, Management of Outages (6/9/89)

131. Procedure No. 10011-C, Rev. 13, Operations Procedure Preparation and Review Guidelines (7/5/89)

132. Procedure No. 10018-C, Rev. 11, Annunciator Control (9/26/89)

133. Procedure No. 10000-C, Rev. 16, Conduct of Operations (3/23/90)

\*NOT TO BE RELEASED



134. Procedure No. 11011-1, Rev. 7, RHR Removal System Alignment  
(4/18/89)

135. Temporary Change to Procedure Form (TCP) No. 13001-1-12-90-  
1, RCS Filling and Venting (Expiration Date: 4/6/90)

136. Procedure No. 14230-1, Rev. 4, AC Source Verification  
(7/27/88)

137. Procedure No. 91403-C, Rev. 4, Site Evacuation (12/6/88)

138. (EOP) Procedure No. 19101-C, Rev. 8, ECA-0.1 Loss of All AC  
Power Recovery Without SI Required (7/26/89)

139. Procedure No. 19111-C, Rev. 8, ECA-1.1 Loss of Emergency  
Coolant Recirculation (7/26/89)

140. Procedure No. 13001-1, Rev. 12, Reactor Coolant System  
Filling and Venting (10/10/89)

141. System Block Diagrams - SFSS

142. Bechtel Drawings:

1X4DB113, RTD BY-PASS REACTOR COOLANT SYSTEM NO. 1201  
1X4DB100, P & ID'S AND FLOW DIAGRAM LEGEND  
AX3AEO3-9-10, ELECTRICAL SCHEMATIC  
ZX3AEO3-10-10, ELECTRICAL SCHEMATIC

✓✓ → 143. Unit 1 D/G Trip Sensor History w/Licensee's Draft Analysis  
of 1A Diesel Shutdown

✓✓ → 144. PNO-IIT-90-02B - 4/2/90

✓✓ → 145. Transcript: Briefing Meeting - 3/28/90

146. Personnel Interviews

✓✓✓ → 1 - J. Acree - SS  
✓✓✓ → 2 - J. Aufdenkampe - Tech Support  
✓✓✓ → 3 - F. Pope - EO  
✓✓✓ → 4 - S. Owyong  
5 - J. Ealick  
6 - M. Cagle  
7 - M. Lackey (3/30/90)

✓✓ → 147. Transcript: Meeting IIT and Licensee Personnel re Diesel  
Malfunction (3/30/90)

W ✓ → 148. Transcript: Meeting w/ Event Critique Team - 3/31/90

149. Personnel Interview - D. Hines - PE

✓✓ → 150. Transcript: Discussion re Results of Testing on A-Diesel Performed on 3/30/90

✓✓ → 151. Memo for A. Chaffee from G. Zech, dated 4/3/90. Subject: Lessons Learned: Vogtle Site Area Emergency

✓✓ → 152. Memo from M. S. Briney to G. Bockhold, Jr., dated 4/3/90. Subject: Calcon Temperature Switches

153. PROPRIETARY DOCUMENTS (INPO)\*

Operating Experience Close Out Packages for the following:

SOER 85-01  
SER 17-88  
SER 73-83  
SER 42-84  
O&MR 272  
SOER 85-04  
O&MR 365  
SOER 88-03  
SER 5-89  
SER 26-89  
SER 36-88  
SER 2-87  
SER 35-86  
SER 31-86  
SER 23-86  
SER 17-86

✓✓ → 154. Calcon Switch Information

✓✓ → 155. Quarantined Equipment List, Rev. 4 - 4/2/90

✓✓ → 156. Meeting Attendance Record - Diesel Generator and IIT Exit - 4/2/90

✓✓ → 157. Procedure 14980-1, Rev. 18 - Diesel Generator Operability Test (2/5/90)

158. Letter to Director, I&E, NRC, from B. C. Guntrum, Mgr., QA, IMO. Subject: Notification of a Potential Defect in a component of a DSR or DSRV Standby, D/G (1/23/88)

\*NOT TO BE RELEASED

159. VHS Video Tape Recording: RHR Mid-Loop OPS

160. Photographs

160-1 Roll 6 - (3/31/90)

160-1-1,2	TSC
160-1-3-7	D/G 1A CK Control Panel
160-1-8,9	D/G 1A CK Annunciator Panel
160-1-10	PSMS Codes
160-1-11	Plasma Display and Keyboard of PSMS
160-1-12,13	Proteus Computer
160-1-14-16	NSCW, CCW
160-1-17,18	NSCW: Return Temp, Basin Lvl. & Hdr. Press.
160-1-19	NSCW A Flow: Supply and Return
160-1-20,21	Misc. Status Lights for NSCW
160-1-22,23	CCW PMP-1, 3
160-1-24,25	Rx MW Wtr. to CCW
160-1-26,27	CCW Train A Surge Tank
160-1-28,29	CCW Cnmt. Spray, & SI Panels
160-1-30,31	RHR & CVCS, & Accum. Panels
160-1-32-33	RWST Level
160-1-34	Page 1 of D/G Procedure (13145-1)

160-2 Roll 7 - (3/31/90)

160-2-1-5	Jacket Water Pressure Sensor
160-2-6-9	Pressure Sensor
160-2-10,11	Lube Oil Pressure Sensors (3)
160-2-12-14	Lube Oil Temperature Sensor
160-2-15-25	Jacket Water Temperature Sensors (3)
160-2-26-31	Turbo Lube Oil Sensor
160-2-32-34	Emergency Break Glass Start
160-2-35	Break Glass Hammer vs Flashlight Size

161. List of Vogtle 1 Event Headquarters Operations Center Participants

162. History of Quarantined Items

163. Quarantine Sign

164. Unit 1 Second Refueling Outage Charts:

164-1	Electrical System Work
164-2	IR-1 Target vs. Actual Critical Path

164-3	Fire - Drain to Mid-loop
164-4	IR-2 Target vs. Actual Critical Path
164-5	D/G Activities/TRN B
164-6	D/G Activities/TRN A

165. Unit 1 First Refueling Outage Charts:

165-1	Mid-loop Work and Support
165-2	Electrical System Work
165-3	D/G Activities/TRN B
165-4	D/G Activities/TRN A

166. Photographs

166-1 Roll #8 - (3/31/90)

166-1-1	D/G Control Panel
166-1-2	D/G Control & Annunciator Panels
166-1-3,4	D/G Annunciator Panel
166-1-5	SI Signal
166-1-6,7	Emergency Start
166-1-8	Procedure Sec. 4.4.3.1
166-1-9	Procedure Sec. 4.4.3
166-1-10	Jacket Water Lv. In.
166-1-11,12	Jacket Water In
166-1-13,14	Generator Bearing Temp.
166-1-15-17	Day Tank Level
166-1-18	D/G Control Panel
166-1-19-21	Local Remote Control Switch
166-1-22-25	D/G Back Panel (Inside)
166-1-26	Gaitronics Phone
166-1-27	Commercial Phone
166-1-28,29	Sound-Powered Phone
166-1-30	P. 1 of Procedure 13145-1
166-1-31	Lube Oil Press

166-2 Roll #9 - (3/30/90)

→ 166-2-1-7	Sensor Points on Blackboard. in Large Conference Rm (LCR)
→ 166-2-8-10	Electrical Configuration of Vogtle Plant
→ 166-2-11	Blackboard Note to IIT
→ 166-2-12-19	Sensor Points on Blackboard in LCR
→ 166-2-20-34	Sensor Points on Blackboard in LCR showing steps to de-energize Sequencer on Panel



166-3 Roll #10 - (3/26/90)

166-3-1,2	New Restricted Area Sign and Rope
166-3-3,4	D/G Panel
166-3-5	D/G Annunciator Panel

167. Procedure No. 00053-C D/G 1A - Temperature Monitoring and Recording (4/4/90)

168. Meeting Transcripts:

✓✓ → 168-1 Telecon between IIT, Licensee Personnel, and RII Personnel.  
✓✓ → 168-2 D/C Meeting (4/2/90)

169. Technical Specifications - Vogtle Unit 1 - Sections 1-5

170. 1985 Maintenance Work Orders (MWOs) - History, Unit 1, D/G-Sensor Switches

171. 1986 MWOs - History, Unit 1, D/G-Sensor Switches

172. 1987 MWOs - History, Unit 1, D/G-Sensor Switches

173. 1988 MWOs - History, Unit 1, D/G-Sensor Switches

174. 1989 MWOs - History, Unit 1, D/G-Sensor Switches

175. 1990 MWOs - History, Unit 1, D/G-Sensor Switches

176. 1988 MWOs - History, Unit 2, D/G-Sensor Switches

177. ERF Computer Points

✓✓ → 178. D/G Temperature Switch Calibration Data Received from Licensee - 4/6/90

179. PROPRIETARY DOCUMENTS - WESTINGHOUSE\*

179-1	Core Map - Instrument Locations
179-2	Reference Loading Pattern

✓✓ → 180. D/G (1A/1B) Start Logs

181. Ltr to R. Newton, WOG, fm A. Thadani, NRC, dtd 12/11/89.  
Subject: Loss of RHRS Cooling While the RCS is Partially Filled, WCAP-11916, July 1988, and Other Related WOG Activities

\*NOT TO BE RELEASED



182. IE Bulletins

182-1	No. 80-12 (5/9/80)
182-2	No. 86.01 (5/23/86)

183. Information Notices

183-1	No. 80-20
183-2	No. 80-41
183-3	No. 81-09
183-4	No. 81-10
183-5	No. 86-39
183-6	No. 86-74
183-7	No. 86-101
183-8	No. 87-01
183-9	No. 87-23
183-10	No. 87-59
183-11	No. 89-41
183-12	No. 89-67

184. Memorandum for T. Murley, NRC, and E. Beckjord, NRC, fm E. Jordan, NRC, dtd 5/18/87. Subject: Loss of Decay Heat Removal Function at Pressurized Water Reactors with Partially Drained RCSS

185. NUREG/CR-5015; BNL-NUREG-52121, Improved Reliability of Residual Heat Removal Capability in PWRs as Related to Resolution of GI-99

186. Case Study Report AEOD/C503, Decay Heat Removal Problems at U.S. PWRs, 12/85

187. Documentation of Special Test of RHR Lineup to be Used with Path to Loops 1&2 only

188. MWOs on S/G Manway and Nozzle Dams

188-1	No. 18906589
188-2	No. 18906581
188-3	No. 18906579
188-4	No. 18906580
188-5	No. 18906582
188-6	No. 18906588
188-7	No. 18906590
188-8	No. 18906587

189. Operator Aids - Local Control Stations

190. Ltr to USNRC Document Control Desk fm W. G. Hairston, III, GPC, dtd 8/15/89. SUBJECT: VEGP LER 50-425/1989-023
191. Selected Licensed Operator RHR Training Material
192. Selected Licensed Operator Annunciator Training Material
193. Selected PEO, D/G Training Material; Lessons Plans & Response to Annunciators
194. Procedure No. 13431-1, Rev. 4, 120V AC IE Vital Instrument Distribution System (4/20/90)
- ✓✓ → 195. Presentation to Region II NRC on Vogtle Site Area Emergency, March 20, 1990 (4/9/90 - by Licensee)
196. Generic Letters
  - 196-1 No. 87-12, Loss of RHR While the RCS is Partially Filled (7/9/87)
  - 196-2 No. 88-17, Loss of Decay Heat Removal (10/17/88)
- ✓✓ → 197. Memo for J. P. Stohr, NRC, fm A. T. Boland, NRC, dtd 4/3/90, Subject: Critique of RII's Response to the Vogtle Incident
198. Appendix A to NRC TI 2575/103, Supplemental Information, Containment Closure and Reactor Coolant System Level Instrumentation (2/26/90)
199. Letter to R. C. Jones, NRC, from L. A. Walsh, WOG, dated 4/6/90; Subject: WOG Transmittal of Information Copy for Loss of RHR While Operating at Mid-Loop Conditions Guideline and Background Documentation
- ✓✓ → 200. Transcript: Telephone Conversation w/IIT, Licensee, R-II (4/5/90)
- ✓ → 201. NRC Personnel Interviews: 4/5/90
  - 201-1 A. Thadani, NRR
  - 201-2 W. Lyon, NRR
- ✓✓ → 202. Unit 1A Train D/G - Air Receiver Dew Point Measurements
- ✓✓ → 203. Transcript: Telephone Conference w/IIT, Licensee, R-II (4/5/90)

204. Personnel Interviews: 4/6/90

204-1 L. Walsh, Seabrook (telecon)  
204-2 D. Marksberry, NRC/AEOD  
204-3 J. MacKinnon, NRC/AEOD  
204-4 P. Ray, NRC/AEOD  
204-5 D. Ross, NRC/AEOD

✓→ 205. Transcript: Telephone Conference w/IIT, Licensee, R-II  
(4/7/90)

✓→ 206. Transcript: Telephone Conference w/IIT, Licensee (4/9/90)

207. NRC Personnel Interviews: 4/9/90

207-1 W. Hodges, R-I  
207-2 G. Zech, AEOD

208. IE Information Notices

208-1 No. 83-56  
208-2 No. 84-42

✓✓→ 209. Preliminary D/G Instrument Test Outline (4/11/90)

✓→ 210. Failures of Calcon Temperature & Pressure Sensors at Vogtle  
1 & 2

211. NRC Information Notice No. 88-36

✓✓→ 212. Transcript: Telephone Conference w/IIT, Licensee, R-II  
(4/10/90)

213. NRC Personnel Interviews: 4/10/90

213-1 R. Jones, DST  
213-2 R. Eckenrode, HFAB  
213-3 D. Tondi, ESB

214. Graph: Times To Core Uncovery Following Loss of RHR -  
During Mid-Loop Operations (4 loop W Plants Including  
Vogtle) - H. Ornstein (3/29/90)

215. Memorandum for M. W. Hodges, NRR, From J. E. Rosenthal,  
AEOD, dated 6/29/87; Subject: Additional Information on  
Loss of DHR at PWRs with Partially Drained RCSs

- 216. Memorandum for K. Kniel, RES, From J. E. Rosenthal, AEOD, dated 8/28/87; Subject: BNLS 8/18/87 Presentation of the Results of Draft Report "Improved Reliability of RHR Capability in PWRs as Related to Resolution of GI-99"
- 217. Memorandum for T. E. Murley, NRR, from E. S. Beckjord, RES, dated 4/4/88; Subject: GI-99 Risk Assessment Results
- 218. Event Report #1-90-003, Loss of Off-Site and On-Site AC Power (1E); Date of Event: 3/20/90
- 219. Data Sheets - MWO 19000092
- 220. Data Sheets - MWO 19000093
- ✓ → 221. Commitments and Commitment Change Reports for D/G Preventive Maintenance: Report Nos. 9023, 9034 through 9038, 9052, 9082, 9086, and 13764
- 222. Data Sheets - MWO 19000094
- 223. Data Sheets - MWO 19000095
- 224. Letter to Director, IE/NRC, from L. R. Block, QA Engineer, IMO, dated 5/12/88; Subject: Additional Information to Supplement Letter of 4/29/88
- 225. Operation and Maintenance Manual, Appendix VII, Alarms and Safety Shutdowns (pp. 8-8, 8-8A)
- 226. Procedure No. 29101-C, Rev. 1, Emergency Lighting Surveillance (FSAR Fire Protection Surveillance), 12/5/89
- 227. Procedure No. 00414-C, Rev. 7, Operating Experience Program, 11/29/89
- ✓ → 228. Procedure No. 11885-C, Rev. 10, D/G Operating Log, 5/11/89
  - 228-1 Data Sheets, DG1A - 3/20/90
  - 228-2 Data Sheet, DG1B - 3/23/90
- X → 229. Videocassettes - GPC, Vogtle, March 1990 D/G Tests
- 230. Bechtel Drawings:
  - 230-1 Lube Oil Piping Schematic 1X4AK01-27-11
  - 230-2 Starting Air Piping Schematic 1X4AK01-29-12



230-3 Jacket Water Piping Schematic 1X4AK01-26-11  
230-4 4160V INCM.BRKR 152-1BA0319 (DG 1B) 1X3D-BA-D03D  
230-5 4160V INCM.BRKR 152-1AA0219 (DG 1A) 1X3D-BA-D02D

231. Operating Experience Close-Out Packages for the following:

IN 88-36  
IN 86-101  
IN 87-23  
IN 80-20  
IN 84-42  
IN 89-64  
GL 87-12  
IN 89-67  
IE Bulletin No. 80-12

232. PROPRIETARY DOCUMENTS (INPO):\*

SER 60-83  
SER 79-84

✓✓→ 233. Transcript: Telephone Conference w/IIT, Licensee (4/11/90)

234. NRC Personnel Interviews: 4/11/90

234-1 S. Shankman, NRR  
234-2 C. McCracken, NRR  
234-3 H. Ornstein, AEOD

235. Maintenance Work Request (MWO 19001563) indicating when malfunction (communications failure) was recognized

236. Procedure to Test Annunciator Including First-Out (VEGP-1, 1-3KJ, 03, Rev. 1)

237. VEGP Plant Review Board Meeting Minutes Which Include Discussion of Plant Condition on 3/20/90

✓✓X→ 238. Note to A. Chaffee, IIT, from R. Jones, RSB, dated 4/11/90;  
Subject: Documents Requested by IIT

239. MWO No. 1900909 (Data Concentrator) 2/22/90

240. Drawings:

240-1 Field Change Requests; Reference Drawing Numbers:  
2X4AK01-369 R/S - Eng. Cont. Pnl. Schm.  
2X4AK01-498 P/S - Elec. Schm.  
2X4AK01-361 R/S  
2X4AK01-369 R/S

\*NOT TO BE RELEASED



240-2 VE/SP Procedure No. 50009-C, As Built Notice No.  
69-VLMO70A001 (1/18/90)

240-3 Bechtel Drawings:

1X4AK01-42-11 Engine Control Panel Installation  
1X4AK01-52-9 Engine Control Panel Schematic  
1X4AK01-357-9 A.C. Schematic  
1X4AK01-358-8 Control Schematic  
1X4AK01-443-4 Engine Pneumatic Schematic  
1X4AK01-458-7 Instrument Identification Schedule  
2X4AK01-367-8 Engine Control Panel Schematics (2)  
2X4AK01-428-5 Engine Pneumatic Schematic  
2X4AK01-459-6 Instrument Identification Schedule

241. Receiver Air Pressures Observed by Plant Personnel on  
3/30/90

242. History (Unit 1 - From First RHR During Second Refueling  
Outage to Initiation of 3/20/90 Event) Defining "Windows" of  
Operational Configurations Potentially Affecting the NSSS,  
Containment, and Supporting Systems

243. Licensing Document Change Request Pkg. No. FS 88-99-Rev. 1

244. Description of Electronic Data Reading ERF, Proteus and  
Fault Recorder

✓✓ → 245. Transcript: Telephone Conference w/IIT, Licensee, R-II  
(4/12/90)

✓✓ → 246. NRC Personnel Interviews: 4/12/90

246-1 K. Brockman, R-II  
246-2 S. Ebnetter, R-II  
246-3 F. Rosa, NRR

247. Outage Scheduling Information

248. RAT Scheduling Information

249. PRT, RCS, RWST, SG, TS Information

250. Letter to C. K. McCoy, GPC, from J. L. Tain, Westinghouse,  
dated 3/16/90, w/RHR B Pump Vibration Data

✓ → 251. MWO No. 19001432, 3/20/90 (D/G 1B)

252. MWO No. 19001433, 3/20/90 (D/G 1A)

253. MWO No. 19001537, 3/25/90 (D/G 1B)

254. MWO No. 19001576, 3/28/90 (D/G 1A)

255. MWO No. 19001684, 3/31/90 (D/G)

256. D/G Function Checkout Data

257. Transcript (unmonitored tape recording): Teleconference w/IIT, Licensee, R-II (4/3/90)

258. Transcript: Telephone Conference w/IIT, Licensee, R-II (4/13/90)

259. Transcript: Telephone Conference w/IIT, Licensee, R-II (4/16/90)

260. GPC Personnel Interview: R. Odom, G. McCarley, M. Sheibani (4/17/90)

261. VHS Audiocassette: Calibration Tests on Temperature Sensor for D/G (4/18/90)

262. Meeting Attendance Records: IIT Entrance Briefing (4/17/90); IIT Exit (4/18/90)

263. MWOs:

263-1 No. 18906592 - Containment Equipment Hatch (12/23/89)

263-2 No. 18906593 - Personnel Hatch (12/23/90)

264. Calcon Temperature Switch Response Test on 4/4/90

265. Note to D. Gustafson and K. Burr from R. Jones (GPC), 4/13/90; Subject: Vibration Readings on Temperature Switch Piping - 1A Diesel

266. Drawings: As Built Notices

No. 00517

No. 00121

No. 00122

267. Bechtel Drawings: One Line Diagrams

1X3D-AA-E17A, Rev. 6 - 480V Switchgear 1BB16  
1X3D-AA-E07A, Rev. 7 - 480V Switchgear 1BB07  
1X3D-AA-E06A, Rev. 6 - 480V Switchgear 1BB06  
1X3D-AA-E10A, Rev. 9 - 480V Switchgear 1NB10  
1X3D-AA-D03B, Rev. 9 - 4160V Switchgear 1BA03  
1X3D-AA-D03A, Rev. 8 - 4160V Switchgear 1BA03  
1X3D-AA-E01A, Rev. 11 - 480V Switchgear 1NB01  
1X3D-AA-E04A, Rev. 6 - 480V Switchgear 1AB04  
1X3D-AA-E05A, Rev. 8 - 480V Switchgear 1AB05  
1X3D-AA-D02B, Rev. 6 - 4160V Switchgear 1AA02  
1X3D-AA-D02A, Rev. 8 - 4160V Switchgear 1AA02  
1X3D-AA-E16A, Rev. 5 - 480V Switchgear 1AB15  
1X3D-AA-A01A, Rev. 16 - Unit 1

268. Deficiency Tracking System

269. Containment Penetration Control Package (Procedures and Surveillance Task Sheets)

270. Letter to All Holders of RO and SRO Licences for PWRs from T. E. Murley, NRC/NRR, dated 11/3/88; Subject: Operator Diligence While in Shutdown Conditions

271. Letter to H. P. Allen, Southern California Edison Co., from T. E. Murley, NRC/NRR, dated 12/2/88; Subject: Loss of Decay Heat Removal

272. Calibration Data Sheets for Pressure Switch

273. Annunciator Response Procedures for ALB-09

273-1 Panel 1C1 on MCB  
273-2 Panel 2C1 on MCB

274. ERF Computer Points (continued)

275. Training Student Handout - RHR System

276. Annunciator Response Procedures for ALB 36 on EAB Panel

277. Conoseal Status and Description at Time of Site Area Emergency on 3/20/90 (Note: Drawing No. 1X6AB02-288-1 contains proprietary data\*)

278. Procedure No. 00260-C, Rev. 5 - Hazardous Substance and Waste Control (10/24/89)

\*NOT TO BE RELEASED

279. Containment Building Penetrations Verification - Refueling

279-1 Procedure No. 14210-1, Rev. 4  
279-2 Procedure No. 14210-2, Rev. 2

280. Bechtel Drawings: Containment Building Piping Areas

281. Westinghouse Drawing: Safeguard Actuation System -  
PROPRIETARY\*

282. Drawings: Electrical, Control Systems, Mechanical, Nuclear

Pressurizer Press Control  
Steam Dump Control  
Rod Controls  
Steam Generator Trip Signals

283. Security Vehicle Log -3/20/90

284. NRC Personnel Interview: J. Calvo, NRR

✓ → 285. MWOs:

285-1 No. 19001482 - D/G 1B  
285-2 No. 19001542 - D/G B  
285-3 No. 19001677 - D/G A

✓ → 286. Deficiency Cards:

286-1 No. 1-88-3016 - D/G A  
286-2 No. 1-88-3083 - D/G B  
286-3 No. 1-88-3453 - D/G 1A  
286-4 No. 1-90-0182 - D/G 1A

287. Information Notice No. 90-25: Loss of Vital AC Power with  
Subsequent RCS Heat-Up

288. Interoffice Memorandum to C. K. McCoy, GPC, from M. J.  
Ajluni, GPC, dated 10/16/89; Subject: Vogtle's Operations  
Experience Program Assessment

→ 289. INPO Database KEYWORD; DIESEL

290. Vogtle Status of NRC and INPO Operating Experience Document  
Reviews as of 4/18/90

291. Bechtel Drawings Related to Lighting

\*NOT TO BE RELEASED



292. Bechtel One-Line Diagrams:

Non-Class 1E Distr. Panels  
480V Motor Control Center

293. Bechtel Drawings:

1K4-1208-486-01, Reactor Head Vent  
1K4-1201-064-02, RCS  
2X6AB02-66-4, Reactor Vessel General Arrangements

294. VHS Audiocassette Tape: D/G Local, Control Room, Sequencer,  
TSC Local; Counter Nos.:

0000-363 Procedural Steps to Reset Sequencer (3/29/90)  
0364-969 DG1A Sensors (3/31/90) - Lube Oil High Temperature  
Switch, Lube Oil Low Pressure Switches, Jacket  
Water Temperature Switches, Turbo Oil Pressure  
Switch, Jacket Water Pressure Sensor and Governor  
0970-1004 Back of DG1A Control Station  
1005-1380 Tested Emergency Lighting  
1381-1507 Scanned DG1A Control Panel  
-1508 Headset and Extension Cord  
-1536 Normal and Emergency Jacks for Cord  
1550-1614 Overview of DG1A Room  
1615-1668 Inside of DG1A Control Panel Showing Sensor Lines  
1669-1810 Front of DG1A Control Panel Showing Emergency  
Start Button Using Break Glass Instrument (or  
Unscrew Glass)  
→ 1811-2207 Walkthrough of Emergency Start Procedure, SOP No.  
13145-1, Section 4.4.3  
(2043) Operator Aid Needed: Trips on Front  
Panel  
2208-2837 First Out Walkthrough, Noting Annunciator Trips  
Provided  
(2289) Operator Aid: Stand for Procedures  
(2423) Required by ARP to Log First Out and  
Report to Control Room  
(2544) Tested Annunciators Using Annunciator  
Response Control Buttons  
(2740) Must Report All Major Functions and  
Malfunctions (DG Trips, First Out  
According to Admin. 10000 Procedure;  
also 13145, 14980); If Tripped, Logged  
and Reported to Engineering



2838-2925 Front of DG1A Panel; Magnetized Procedure Book;  
 Ties on First Out Discussed (Two Valid Trips  
 Simultaneously); one Reactor Trip is Eliminated or  
 Might Not Work  
 2926-2993 Communication Phones: Gaitronics, Commercial  
 Headphones, Sound Powered, and Extension Cords (25  
 feet)  
 2994-3311 Technical Support Center  
 3312-3430 DG1A Annunciator and Control Panels  
     (3329) Sticker on C-9 for MWO and Another  
           Sticker  
     (3400) First Out on Reactor Trip Shown  
     (3429) First Out Response Control Buttons for  
           Reactor System  
 3431-3500 Safety Parameter Display System (SPDS)  
     -3505 PROTEUS  
     -3517 ERF  
 3526-3804 Walkthrough of Control Boards  
     (3535) Plant Status Monitoring System (RVLIS,  
           Incores, etc.) on Plasma Screen  
     (3621) Relevant Indications  
     (3636) Reactor Vessel Level and RVLIS, Scanned  
     (3680) NCSW System  
     (3703) CCW System  
     (3732) RHR System  
     (3800) Tower Platform in Control Room  
 3805-3844 Jacket Water Temperature Sensor in I/C Shop  
 3845-4179 Unit 1 Control Room (4/2/90)  
     (3855) Description of Response Control Buttons  
           in Control Room for DG1A: ACK, RESET,  
           TEST, Including Contrast of What Happens  
           at DG1A Local Control Station  
     (4130) Reactor Trip; First Out Described and  
           Shown  
 4180-4322 Turbine Trip (on Back Panel); First Out Explained,  
 Including Response Button Controls; Electrical  
 Hydraulic Control Cabinet Shown  
     (4290) First Hit and Electrical Malfunction  
           Reset Explained  
 4440-4934 DG1A Control Station  
     (4625) How to Clear F6 (Switch Not in Auto);  
           Clears Itself  
 4680-4878 Summary of What Operator Has to Do to Clear  
 Audible Response Condition; Alarm Goes Solid (If  
 in series, Silence, Acknowledge, Reset)  
     (4878) How Operator Knows Condition is Cleared  
 4934 END

- 295. Spare Temperature Sensor Calibration Data
296. Test Procedure No. 17133
297. Security Access Printout for M. Lackey and S. Chessnut  
(3/20/90)
298. Letter to C. K. McCoy, GPC, from J. L. Tain, Westinghouse,  
dated 4/20/90; Subject: Vogtle, Unit 1, Vent Rate Through  
Reactor Vessel Head, Thermocouple Assemblies
- 299. Calcon Temperature and Pressure Switch Data (3 Volumes)
300. Letters to NRC Document Control Desk from W. G. Hairston,  
III, GPC, dated 4/19/90; Subjects:
- 300-1 VEGP LER, Loss of Offsite Power Leads to Site Area  
Emergency
- 300-2 VEGP LER, Unit 2 Reactor Trip from Unit 1 Reserve  
Auxiliary Transformer Feeder Line Fault
301. Security Logs for Entering and Exiting Control Room,  
Containment, D/G Room (3/20/90)
302. PROPRIETARY DOCUMENTS (INPO)\*

Operating Experience Closeout Packages for the Following:

IN-81-09  
SER-5-83  
SER-38-83  
SER-76-84  
SER-36-87  
SER-5-89  
SER-74-81  
SER-78-81  
SER-87-8  
O&MR-295  
SER-15-87  
SER-26-89

- 303. Wyle Laboratories Test Results - Temperature Sensors  
(submitted 4/26/90)
304. Response to Questions Regarding Containment LCO Logging, RCS  
Level, Gravity Feed

\*NOT TO BE RELEASED

305. Event Data Collection System - Equipment Locations Sketch
- 306. Wyle Laboratories Test Results - Temperature Sensors  
(submitted 4/27/90)
307. Unit 1 Control Log for 3/19/90 through 3/21/90 (pp. 5281-5287)
308. VEGP Plant Review Board Meeting Minutes Prior to the Event  
(3/2/90 through 3/19/90)
- 309. Wyle Laboratories Test Results - Temperature Sensors  
(submitted 4/30/90)
310. MWO for Head Removal/Replacement
311. Core-Exit Thermocouple Channel Calibration
312. Steam Generator Drawing
313. RHR Pump B Modification Data
- 314. Wyle Laboratories Test Results - Temperature Sensors  
(submitted 5/1/90)
- 315. Test Procedure for As-Received Testing and Calibration of  
Seven Calcon Model A3500-W3 Temperature Sensors (4/30/90) -  
by Wyle Laboratories for GPC
316. VEGP Procedure No. 93240-C, Rev. 8T, Reactor Vessel  
Assembly/Disassembly Instructions
317. MWO No. 18905286 - #036 Check Valve
- ✓✓ → 318. Letter to GPC, Attn. K. S. Burr, from Wyle Laboratories,  
dated 5/2/90; Subject: Reliability Evaluation Testing of  
Calcon Model A3500-W3 Temperature Sensors
319. Information Notices
- |       |                         |
|-------|-------------------------|
| 319-1 | No. 82-20               |
| 319-2 | No. 86-09               |
| 319-3 | No. 83-17               |
| 319-4 | No. 83-51               |
| 319-5 | No. 85-28               |
| 319-6 | No. 85-73               |
| 319-7 | No. 85-91               |
| 319-8 | No. 84-69               |
| 319-9 | No. 84-69, Supplement 1 |

319-10 No. 86-73  
319-11 No. 88-75  
319-12 No. 89-87

- 320. IE Bulletin 77-01, Pneumatic Time Delay Relay Setpoint Drift
- 321. IE Circular 77-16, Emergency Diesel Generator Electrical Trip Lock-out Features
- 322. MWO for Accumulator Isolation Valve
- 323. Note to W. Lyon, IIT, from J. F. D'Amico, GPC, dated 5/2/90; Re: Information on Seal Table
- 324. Pressurizer Detail Drawing
- 325. MWO for Charging Line Check Valve 036 and 035
- 326. Wyle Laboratories Test Results - Temperature Sensors (submitted 5/4/90)
- 327. Bechtel Drawings of Accumulator Isolation Valve
- 328. Clearance Sheet for Reactor Head Vent
- 329. Instruction & Operating Manual Series X12 & X16 Models Solid State Annunciator Systems
- 330. PROPRIETARY DOCUMENTS (INPO)\*

Operating Experience Closeout Packages for the Following:

SOER 83-01  
SOER 81-10  
SOER 83-06  
O&MR 97  
O&MR 110  
O&MR 334  
SER 82-78  
SER 82-079  
SER 09-85  
SER 25-85  
SOER 86-003  
SER 89-028  
SOER 85-001 (also includes 82-008 and 84-007)  
SER 84-72  
SER 88-031

\*NOT TO BE RELEASED



331. Operating Experience Closeout Packages for the Following:

IN 77-01  
IN 80-41  
IN 82-20  
IN 83-17  
IN 83-51  
IN 84-69 (and Supplement 1)  
IN 85-28  
IN 85-73  
IN 85-91  
IN 86-70  
IN 86-73  
IN 88-75  
IN 89-87

→ 332. Wyle Laboratories Test Results - Temperature Sensors  
(submitted 5/7/90)

333. Operating Experience Closeout Package for IMO Report

334. Deficiency Card No. 1900125 - S/G Manway

335. Bechtel Drawings: Swing Check Valve 3-CS8; Motor Op. Gate  
Valve Mod. 10001GM99FNH010

✓ → 336. Draft "Corrective Actions for Site Area Emergency" and Unit  
1 Status Report from 3-18 to 4-1-90 (submitted by licensee)

337. Memorandum to H. Wyckoff, EPRI, from J. O'Brien, EPRI, dated  
5/11/90; Subject: Nuclear Plant Worker Capabilities Under  
Extreme Environmental Conditions

338. Letter to NRC Document Control Desk, from W. G. Hairston,  
III, GPC, dated 5/14/90; Subject: Vogtle Electric  
Generating Plant Corrective Actions for Site Area Emergency

✓ → 339. Cooper Industries Test Results - Pressure Sensors and  
Shutdown Logic Board (submitted 5/15/90)

340. Motor Control Center Load Lists for 1NBS, 1NBI, and 1ABA to  
LABF

→ 341. Wyle Laboratories Test Report (Preliminary), dated 5/12/90,  
"Reliability Evaluation Testing of Ten Calcon Model A3500-  
W3 Temperature Sensors"

342. List of Personnel On Site on March 20, 1990



343. Procedure No. 00150-C, Rev. 10, Deficiency Control (5/10/90)
344. Photographs - Switchyard Where Incident Occurred (Affected Pole, Fuel Truck, Fallen Insulator)
- 345. D/G 1B Troubleshooting Plan; Procedure 22981-C, Calcon Pneumatic Temperature Sensor Calibration (telecopy received 5/24/90)
- 346. Unit One "B" D/G Sensor Testing Sequence of Events - Preliminary (telecopy received 5/24/90)
- 347. Unit One "B" D/G Sequence of Events (telecopy received 5/29/90)
348. Telephone Conversations at NRC Headquarters Operations Center on March 20, 1990
- 348-1 Unmonitored Transcript
- 348-2 Memorandum from E. Weiss, AEOD to C. Siegel, IIT, dated May 31, 1990; Subject: Transcript of Telephone Conversations Relevant to the Vogtle Event
349. GPC Interoffice Correspondence from J. E. Swartzwelder to Department Heads dated 1/13/89; Re: Deficiency Control and QA Audit and Surveillance Finding Trend Report for Vogtle Unit 1
- ✓ → 350. Test Report No. 17133-1, "Reliability Evaluation Testing of Ten Calcon Model A3500-W3 Temperature Sensors," by Wyle Laboratories for GPC (May 12, 1990)
351. Letter to M. W. Hodges, NRC, from R. A. Newton, WOG, dated November 21, 1988, with enclosure, WCAP-11916
352. NRC Inspection Manual, Temporary Instruction 2515/101, "Loss of Decay Heat Removal" (GL 88-17)
353. NRC Inspection Manual, Temporary Instruction 2515/103, "Loss of Decay Heat Removal" (GL 88-17) "Programmed Enhancements (Long Term) Review"

# STATUS OF AIT CHARTER ITEM ASSIGNED TO RICK KENDALL (ITEMS Nos. 5 & 6)

ITEM 5. A FAULT IN THE UNIT 1 SWITCHYARD CAUSED UNIT 2 TO TRIP. THE CAUSE WAS A "MISWIRED" CURRENT TRANSFORMER. GIVEN THE "WIRING ERROR", THE UNIT 2 TRIP SHOULD HAVE BEEN EXPECTED. THE ERROR APPEARS TO HAVE BEEN DUE TO A MISTAKE MADE WHILE TRANSFERRING GPC DESIGN SPECIFICATIONS INTO FIELD DRAWINGS. THE FIELD WIRING WAS IN ACCORDANCE WITH THE INSTALLATION DRAWINGS. IT DOES NOT APPEAR THAT UNIT 2 IS OVERLY SUSCEPTIBLE TO UNIT 1 TRIPS OR VICE VERSA. THE UNIT 1 SWITCHYARD BREAKER ACTUATIONS IN RESPONSE TO THE FAULT WERE APPROPRIATE AND EXPECTED. THE REVIEW CONDUCTED FOR THIS ~~SECTION~~<sup>ITEM</sup> HAS EXPANDED BEYOND ITS SCOPE TO INCLUDE 1) IDENTIFICATION OF POSSIBLE ALTERNATE SOURCES OF POWER TO THE UNIT 1 TRAIN A BUS HAD THE EDG NOT EVENTUALLY STARTED OR HAD NOT RESTARTED AFTER IT TRIPPED, AND 2) LICENSEE ACTIONS TAKEN AND BEING CONSIDERED TO MAKE THE SOURCES AVAILABLE. THE "AIT REVIEW" FOR THIS SECTION IS ~90+% COMPLETE AS FAR AS INFORMATION GATHERING, AND ~15-20% COMPLETE AS FAR AS DRAFT WRITING.

ITEM 6. RESPONSE OF THE 1A EDG. THE "AIT REVIEW HERE HAS NOT GOTTEN VERY FAR. THERE HAS BEEN A SIGNIFICANT NEW DEVELOPMENT; NAMELY, THE 1B EDG WHICH WAS BEING TESTED ON 23 MAR 90 WAS RUNNING WHEN SEVERAL ALARMS CAME IN (LOW TACKET WATER PRESSURE, AND LOW TURBO OIL PRESSURE) THAT ALSO CAME IN WHEN THE 1A EDG TRIPPED DURING THE 20 MAR 90 EVENT. BOTH EDGs HAD UNDERGONE REFUELING INTERVAL MAINTENANCE (MUCH OF WHICH WAS PERFORMED BY THE VENDOR) AND HAD SUCCESSFULLY PASSED POST MAINTENANCE TESTING. IT APPEARS THAT THE MAINTENANCE MAY HAVE BEEN A FACTOR. THE LICENSEE IS PREPARING FOR THE INITIAL ~~TESTS~~ TESTS FOR TROUBLESHOOTING. THE VENDOR (COOPER INDUSTRIES, FORMERLY TDI) WILL ARRIVE ON SITE

GPC-Chattee 2

IS PLANNED TO  
TESTING ON THE 1B EDG ~~WILL~~ BEGIN ON 25 MAR 90. EDG 1A  
TESTING IS NOT PLANNED UNTIL 26 MAR 90 AT THE EARLIEST. WE HAVE  
MORE OR LESS (?) QUARANTINED EDG 1A, BUT ARE ALLOWING THE  
LICENSEE TO DO WORK ON EDG 1B WITHOUT CONSULTING US  
FIRST TO ALLOW THEM TO COMPLY WITH TECH SPECS WITH REGARD  
TO RESTORING AN EDG TO OPERABILITY. ALL WORK ON THE EDGs  
REQUIRES A MAINTENANCE WORK ORDER (MWO). WE PREPARED A  
CAUTION STATEMENT THAT WILL BE PART OF EACH EDG <sup>1B</sup> MWO (AND  
ALSO FOR EDG 1A) THAT ADDRESSES NEED TO BE CAREFUL NOT TO  
DESTROY AND TO CAREFULLY DOCUMENT ANY INFORMATION RELEVANT TO  
ROOT CAUSE. WE ARE MONITORING THE LICENSEES ACTIVITIES.  
INFORMATION GATHERING PHASE FOR AIT IS - 40% COMPLETE.  
WRITUP HAS NOT BEGUN.

ALY KEN EJ

AK  
25/11/90

25 MAR 90 DISCUSSION W/ PAUL KUCHERY (~10:30 AM)

ON 23 MAR 90 THE 1B EDG WAS STARTED FOR AN 8-HR TEST. THE EDG RAN FINE FOR ~2 HRS AND THEN TRIPPED. THE TRIP ALARMS THAT CAME IN WERE LOW TACKET WATER PRESSURE AND LOW TURBID LUBE OIL PRESSURE (THESE TWO ALARMS, AND OTHERS, ~~WERE~~ ARE BELIEVED TO HAVE COME IN ON THE 1A EDG TRIPS ON 20 MAR 90). THE TRIP SIGNALS WERE RESET <sup>AND</sup>, THE EDG (1B) WAS <sup>THEN</sup> RUN FOR 8 HRS WITHOUT ANY PROBLEMS.

LIPC PLANS TO DO EDG 1B LOGIC TESTING BEGINNING SOMETIME THIS MORNING (MAY HAVE ALREADY STARTED), AND EDG 1B SEQUENCER TESTING THIS AFTERNOON. PAUL CONFIRMED THAT NO TESTING IS PLANNED FOR EDG 1A UNTIL 26 MAR 90 AT THE EARLIEST. THE SEQUENCER TEST WILL BE MADE AVAILABLE <sup>TO THE TEST</sup> A PRIOR TO THE TEST. LIPC WANTS TO VERIFY PROPER OPERATION FOLLOWING PART REPLACEMENT (DON'T KNOW WHICH PART). THE SEQUENCER WAS NOT ACTIVATED OR INVOLVED DURING THE EDG 1B TESTING ON 23 MAR 90 DISCUSSED ABOVE.

IN A PREVIOUS DISCUSSION WITH PAUL (~9:00 AM.), HE CONFIRMED THAT THE VENDOR REPS PERFORMING THE EDG 1B LOGIC TESTS ARE <sup>AND ARE THE</sup> THE EXPERTS MOST QUALIFIED TO DO THE TESTS. THE VENDOR REPS HAVE BEEN CAUTIONED CONCERNING THE NEED TO ENSURE THAT INFORMATION RELEVANT TO THE CAUSE(S) FOR THE 23 MAR 90 EDG 1B TRIP IS NOT LOST BECAUSE OF THE TESTS, AND TO CAREFULLY DOCUMENT ANY INFORMATION THAT MAY BE RELEVANT TO THE CAUSE(S). ALL UNNECESSARY / UNRELATED ACTIVITIES IN THE EDG AREA HAVE BEEN STOPPED TO ALLOW THE VENDOR REPS TO PROCEED WITHOUT

OF DISTURBANCE



U. S. NUCLEAR REGULATORY COMMISSION

INTERVIEW OF:

KEN STOKES

)  
)  
)  
)

Site General Manager's  
Conference Room  
Administrative Building  
Vogtle Electric Generating Plant  
Waynesboro, Georgia

Wednesday, March 28, 1990

The interview commenced at 6:00 p.m.

APPEARANCES:

On behalf of the U. S. Nuclear Regulatory Commission:

RICK KENDALL  
GARMON WEST  
WILLIAM LAZARUS  
and  
AL CHAFFEE

On behalf of EPRI:

HARVEY WYCKOFF



1 Q It then had a run later on. I understand that the  
2 vendor was headed back to California or wherever they were  
3 from--

4 A Yes.

5 Q And then you had some problems there, some trip  
6 alarms came in, or whatever, and the question is, have you  
7 looked to see whether or not there could have been anything  
8 introduced by the maintenance performed that may have led to  
9 the diesels subsequently having problems?

10 What are your feelings on that, the likelihood of  
11 that, or the possibility?

12 A Nothing mechanical, okay, but, it is obvious the  
13 possibilities of, since we don't know exactly what the  
14 problem is, or, okay, let's just address B train, I guess,  
15 at this time. We found some temperature calibration  
16 problems, so that was definitely suspect. Our ISE  
17 department did that, did those calibrations and as far as  
18 the logic board, you know, his test was--it is a good test.  
19 It is one that was written by Sheldon O. Young, the vendor  
20 that was primary in designing these circuits, that panel.  
21 He and another guy made the design and set it up and we took  
22 that, I say we, Bill Chennault, an employee that was  
23 contracted with Georgia Power at that time, reviewed the  
24 procedure and he and I both had worked through the start up  
25 on both units and, you know, it is an acceptable and good

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1 procedure that they do.

2 So as far as those guys creating anything, if they  
3 went specifically by the procedure, it might have, but a lot  
4 of the work was done on night shift, without Georgia Power  
5 in here and present, and he had the assistance of our ISE  
6 department while doing the test and QC, whatever was  
7 required by the procedure, but there shouldn't have been  
8 anything used by these guys, I guess, at the bottom line,  
9 they would have caught, let me say, until we finally  
10 approved of the product.

11 Q This procedure, and what I am referring to is the  
12 pneumatic logical functional test procedure, this has been  
13 run or performed on the diesels at this plant before?

14 A Yes, back in the first refueling outage.

15 Q So that is for Unit 1, so it has been performed once  
16 before on both the 1A diesel and the 1B diesel?

17 A That's correct.

18 Q Were there any problems subsequent to those tests?

19 A To what, sir? The same people did--well, excuse me,  
20 but the same persons, Sheldon O. Young, was responsible for  
21 doing the procedure back then too, if I am correct. I  
22 wasn't on Unit 1 at that time, but I believe that is the  
23 case.

24 Q So it sounds like it is the same test performed by  
25 the same people on the same equipment?

1 think maybe filters are checked maybe every 18 months or  
 2 something, or every five years, I don't know.

3 MR. CHAFFEE: Do you know, is pneumatic tripping in  
 4 control, is that the state-of-the-art for diesel?

5 THE WITNESS: Pneumatics?

6 MR. CHAFFEE: Yeah.

7 THE WITNESS: I don't think so.

8 MR. KENDALL: Just the opposite?

9 THE WITNESS: Probably so. That's the dark ages for  
 10 diesel?

11 THE WITNESS: I don't know if it is dark ages, but  
 12 their reason for doing it was it was a reliable, supposedly  
 13 reliable type system back when they were initially doing the  
 14 design, and I believe that is their reason for using the  
 15 diesel unit at that time. Their past experience had been  
 16 good with pneumatics.

17 MR. CHAFFEE: Was there any discussion in the owner  
 18 group meetings of going to something--

19 THE WITNESS: In the owner group meetings?

20 MR. CHAFFEE: Yeah, going to something new.

21 THE WITNESS: Yes, quite a few of the owners, they  
 22 are asked to--considering, weighing off the possibilities of  
 23 going to some sort of solid state system, I think.

24 MR. CHAFFEE: And why is that?

25 THE WITNESS: Mainly, I think it is the problems

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1 of--I guess it is the problems with the--I would have to say  
2 problems with the pressure switches and stuff and the way  
3 they relate with the logic. Those darn things are so  
4 timely, you know, to calibrate the temperature sensors and  
5 pressure sensors and the problems that have existed  
6 throughout the industry, I believe, with these type sensors  
7 being pneumatic. Sometimes they are difficult to get set  
8 up. Time consuming, you know.

9 MR. KENDALL: The pressure switches that you have  
10 experienced or the industry has experienced the difficulty  
11 with are the sensors. They are not the pressure switches,  
12 internal or the panel?

13 THE WITNESS: The panel switches are fine and I  
14 don't think they even recommend touching those until the  
15 five-year outage which is something we are going to look at  
16 changing. We did have people go in and just do a wholesale  
17 calibration of all of the pressure switches and relays and I  
18 think we are going to back up to five years on the relays  
19 and also the pressure switches inside the panel, they don't  
20 pose any problem to us, but, yes, the sensors, the  
21 temperature and the pressure sensors that are on the engine.

22 MR. CHAFFEE: Can you explain why it is so difficult  
23 to set those up? I don't understand the mechanics of it.  
24 Maybe just explain to me what the sensors are like, what is  
25 a pneumatic sensor, how does it work?



1 THE WITNESS: It just senses, you know, specifically  
2 inside of them, it is just a temperature probe, say, we will  
3 take a temperature element, for instance, it sits down  
4 inside a thermal well, inside the system, or whatever it is,  
5 lube oil jacket or whatever, and as you go up in  
6 temperature, the seat will start to lift at a particular  
7 pressure, okay, and the pressure may--it may be, uh, what is  
8 it, I think like 45 pounds or something like that. It is  
9 depending on your system sometimes; but, anyway, say it  
10 starts to lift at 45 pounds, there may be another gradient  
11 of 5 PSI or something before it completely lifts, and so it  
12 starts to lift slowly, you know, based on the temperature  
13 and then it will come on up.

14 MR. CHAPFEE: Oh.

15 THE WITNESS: So, it is sort of tedious, you have to  
16 go very slow, whether you test them on the engine, or test  
17 them off the engine, and that is something we did a  
18 correlation on yesterday.

19 They took the high temperature lube oil switch and  
20 they calibrated it, put it in this method in the shop with  
21 the strictest detail, they did it in the shop, and they took  
22 it back out on the unit, and they reperformed it in a bath,  
23 just at the engine, to make sure that the logic fits at the  
24 same time you are seeing the pressure go inside the shock.

25 And I think there was like a 1 PSI--I am sorry, a



1 one degree temperature difference in the set point and so it  
2 looks like if we are having a calibration problem, they  
3 aren't using the vendor's procedure properly, because it  
4 seemed to work just fine yesterday when we checked that one  
5 sensor, but it is time consuming, and I think possibly, and  
6 I can't say documentation by any means from other companies,  
7 but I believe some of the temperature sensors may have a  
8 tendency to trip down or drift over a period of time, and  
9 so--and I can't say if it is 18 months or what, you know,  
10 and so--but, I think that is the main thing that I can see  
11 with it.

12 The logic itself, you know, seems to me anyway--we  
13 haven't had that much problem with it. I don't know what  
14 other plants have had, but the logic elements themselves  
15 just haven't given us that much of a problem.

16 MR. CHAFFEE: What would your best guess be as to  
17 what went wrong with the diesel?

18 THE WITNESS: You know, it could be so many things,  
19 to guess, I would have to say, something similar, not in the  
20 specific nature, but something similar, it could have  
21 actually been some pressure switch, pressure switch  
22 calibrations.

23 It is not--that is not something that normally shows  
24 up intermittently. Okay. Usually--

25 MR. CHAFFEE: It is something borderline or

150-P-96

## OFFICIAL TRANSCRIPT OF PROCEEDINGS

**Agency:** U. S. NUCLERA REGULATORY COMMSISION

**Title:** DISCUSSION REGARDING RESULTS OF TESTING ON A-DIESEL  
PERFORMED ON 3/30/90

**Docket No.**

**LOCATION:** Waynesboro, Georgia

**DATE:** March 31, 1990

**PAGES:** 1-33

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10-21-94

P R O C E E D I N G S

1  
2 MR. CHAFFEE: It's March 31, 2:13 in the afternoon,  
3 and this is the IIT team at Vogtle, and we're here to talk  
4 about the results of the -- go over what happened in the  
5 testing that was done on the A-diesel generator last night  
6 on Friday evening.

7 I'm Al Chaffee. As I said, we'll get just -- we  
8 were there until the first start and operation and we  
9 observed the jacket water temperature sensor malfunction  
10 alarm I guess it was that went in that was associated with  
11 one of the sensors for the jacket water temperature not  
12 working properly.

13 And I understand from talking to Paul that on  
14 subsequent starts, that particular enunciator didn't come in  
15 again.

16 MR. KOCHERY: That's right.

17 MR. CHAFFEE: And I guess what you would conclude  
18 from that is that the sensor that caused that must have  
19 stopped doing whatever it was doing the first time to cause  
20 that alarm to come in?

21 MR. BURR: We put gauges on those sensors up there  
22 later on to see which one was tripped and with the gauges in  
23 there, we could see which one was tripped. Then we -- what  
24 we did is pinched off the air supply to that gauge  
25 momentarily and released it again and then the sensor reset

## OFFICIAL TRANSCRIPT OF PROCEEDINGS

Agency: Nuclear Regulatory Commission

Title: Diesel Generator Meeting  
Between NRC and Georgia Power

Docket No.

LOCATION: Waynesboro, Georgia

DATE: Monday, April 2, 1990

PAGES: 1 - 60

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1           MR. JOHNSTON: You would have to do the emergency  
2 stop reset after the third stop. You couldn't do it before  
3 that.

4           MR. CHAFFEE: Oh, you can't do emergency reset  
5 until you've done an emergency start?

6           MR. JOHNSTON: Right.

7           MR. CHAFFEE: Oh, okay, and therefore, the  
8 scenario is that if the emergency start hadn't worked, they  
9 would have had to emergency reset to have been able to get  
10 this out or they would have found that they couldn't  
11 probably -- there's a possibility they wouldn't have been  
12 able to get it started with the fourth or subsequent ones,  
13 if they hadn't tried to do emergency reset.

14           Okay. Let's talk about the jacket water  
15 temperature sensors themselves and their reliability and  
16 what's possibly causing them to have problems. My guess is  
17 in looking at the history -- is there anybody here that can  
18 describe the history and what it sort of tends to suggest  
19 about reliability or what might be going wrong with these  
20 sensors?

21           MR. BOCKHOLD: Well the way we summarized it was,  
22 you know, we have problems, have had problems associated  
23 with these sensors during initial startup phases of the  
24 engine and during overhaul times, and we have not had  
25 problems in between overhaul periods of time. You know,

1 being told and if that's true, then there's a discontinuity  
2 there that can maybe be used to figure out what's going on  
3 with these, I guess -- or maybe it makes me a little dubious  
4 that the monthly maintenances are as rigorous as you say,  
5 although I don't disbelieve what you're saying because it  
6 makes sense, operators tend to do that. Do you see the  
7 dilemma I find?

8 MR. BOCKHOLD: The -- you know, working with the  
9 vendor, we have some switches -- we received -- I think I  
10 told you we received a switch in that he calibrated on  
11 3/24/90 and we received it in and part of the repair process  
12 is we recalibrated his switch and it failed. Okay, that  
13 switch is currently quarantined. We're going to take the  
14 vendor with his switch and try to figure out if there is  
15 some difference there, what the problem is.

16 But you know, the facts show that when we've come  
17 out of overhauls basically associated with engine runs  
18 around overhauls, we've had problems and we've replaced the  
19 switches and we've gotten good switches in that have run  
20 until the next overhaul. Those facts have shown that on the  
21 four engines.

22 MR. CHAFFEE: Have you ever had either of the  
23 units, when you've done your monthly surveillances, an  
24 occurrence where the diesel was tripped, you know, for an  
25 unexplained reason? I guess you've had in Unit 2 recently?

257-F

## OFFICIAL TRANSCRIPT OF PROCEEDINGS

Agency: Nuclear Regulatory Commission

Title: IIT Teleconference

Docket No.

LOCATION:

DATE: April 3, 1990

PAGES: 1 - 74

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1           VOICE: And as far as diesel generator being  
2 operable, I don't know if it's operable or not. The reason  
3 I say that is that in the case of the A diesel, the licensee  
4 had gone through testing the diesel and it included  
5 [inaudible] the event occurred.

6           So their testing process that they used prior to  
7 the event was not comprehensive enough to prevent what  
8 happened in the event, so there is some question in terms of  
9 how comprehensive their testing is in this case.

10           Although, I do have to admit what George  
11 [inaudible] is saying has some merit. It does seem as  
12 though, based on the history, that eventually whatever is  
13 causing these things to trip seems to work themselves out.  
14 They eventually worked themselves out and they tell us, we  
15 haven't verified it yet, that their monthly surveillances on  
16 the diesels go without problem. Again, we haven't verified  
17 that yet, but that's what they tell us.

18           So it's possible -- it's possible that the diesel,  
19 the one A diesel right now, that the problems are all worked  
20 out and that it would be able to perform its function. But  
21 not knowing exactly what's causing it yet and recognizing  
22 that the past testing they did is not fully comprehensive,  
23 that does leave some doubt.

24           The other thing that's true is that as far as the  
25 testing they've done, most of that testing has been done not



1 from the configuration on the diesel. It sat for many days  
2 dead and then it [inaudible,] but it's been done from a  
3 configuration where they've done some sort of an air roll in  
4 the diesel prior to doing the testing and their diesel, I  
5 guess -- they tell us that this is the industry practice  
6 now.

7 In order to ensure that you don't have damage done  
8 to the cylinders, they require an air roll of the diesels to  
9 make sure that there's no water in there, so they can get  
10 the water out. So then you get into the question, well,  
11 does that air roll in some sense have an impact on the  
12 validity of the monthly tests.

13 Well, we've looked at that some and the licensee  
14 tells us that they don't believe it -- they don't believe it  
15 has any significant impact because they don't -- it doesn't  
16 really roll that long that it has a really big impact on,  
17 you know, like lube oil temperature distribution and  
18 [inaudible] water temperature distribution.

19 However, what's true is that they themselves right  
20 now are putting together a test to go in and take a look at  
21 just how significant the distribution of [inaudible] water  
22 temperature variance becomes when the diesel has been  
23 secured for a long period of time, [inaudible] contributed  
24 to the trip.

25 So what that tends to suggest, then, is they're

1 beginning to focus in on where the [inaudible] may exist in  
2 terms of how comprehensive their [inaudible] testing and --

3 VOICE: Perhaps, although maybe not.

4 VOICE: Are they operable?

5 VOICE: [Inaudible] great.

6 VOICE: Perhaps we should, at the next  
7 conversation with them, ask them for written submittals  
8 justifying operability of the diesel.

9 VOICE: I think that's an excellent idea. Again,  
10 as the ~~IAP~~, I'm not in the business of making a  
11 determination if it's operable. From a [inaudible]  
12 perspective, I agree with you. Getting them to provide a  
13 written submittal to the Region in terms of their position  
14 relative to the operability of the diesels, I think, is an  
15 excellent idea.

16 VOICE: What's the status of the ~~IIP~~?

17 VOICE: The ~~IIP~~ is currently in Washington. We  
18 are continuing to fact-find, both -- as you -- tell --  
19 what's going on with the diesels at Unit 1, as well as fact-  
20 find relative to how other portions of the -- other parties  
21 involved in the event conducted their activities, and also  
22 looking at this thing from a more generic standpoint. We  
23 just relocated to Washington today. We just got here.  
24 We're basically just getting set up.

25 VOICE: Okay. Do you have anybody on-site

1 [inaudible?]

2 VOICE: There is nobody on-site at this point.  
3 There is a possibility that we might go back down. We  
4 haven't yet made that determination.

5 VOICE: Okay.

6 VOICE: What's going to end up happening, it looks  
7 to me like we're probably going to have daily conference  
8 calls [inaudible] daily conference call as we continue the  
9 process of being involved with how they're doing the  
10 troubleshooting on the diesel. And this call worked very  
11 well because I need your support from the standpoint of the  
12 operability because that provides some driving force for  
13 these people to continue aggressively working on the  
14 troubleshooting.

15 So I see us working together on this thing as  
16 being very valuable. We have some common interests, but  
17 there are some differences. [Inaudible] not to do an  
18 operability determination.

19 VOICE: I understand.

20 VOICE: Restart determination for the unit.

21 VOICE: [Inaudible] is enroute to the site.  
22 Estimated arrival time [inaudible.]

23 VOICE: Yeah. About 1:00.

24 VOICE: About 1:00.

25 VOICE: [Inaudible] very good.

1           VOICE: We need -- I am particularly interested in  
2 him helping us come to grips with the operability question  
3 and, of course, he's available for whatever you need in your  
4 trouble fact-finding mission as well.

5           VOICE: What we need [inaudible] to do is just  
6 monitor the troubleshooting testing they're doing, which, in  
7 fact, dovetails right in directly with what you're interest  
8 is, which is trying to determine if these diesels are fully  
9 operable or not.

10          VOICE: Are you going to have somebody look at the  
11 air quality results?

12          VOICE: All of the hard copy information we got  
13 from the site is in transit up here. Assuming that what  
14 George tells us is correct, that it was in that package,  
15 that air quality information is there, which we did ask him  
16 for, once we get it, we will look at it.

17          However, my understanding is we won't have all of  
18 our hard copy here until sometime tomorrow. So if you don't  
19 have a problem waiting until we get so we can look at it,  
20 fine, we will look at it. We will look at it anyway to see  
21 if it factors into the root cause of this thing.

22          VOICE: Okay. We'll consider having [inaudible]  
23 taking a look at where the samples were taken and, you know,  
24 in an effort to make [inaudible] of sampling.

25          VOICE: Okay.



200-D-1

## OFFICIAL TRANSCRIPT OF PROCEEDINGS

**Agency:** Nuclear Regulatory Commission

**Title:** Telephone Conference: IIT,  
Licensee, Region II (CLOSED)

**Docket No.**

**LOCATION:** Bethesda, Maryland

**DATE:** Thursday, April 5, 1990

**PAGES:** 1 - 37

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10/21/94

1     there is something -- that there is believed to be something  
2     wrong with them.

3             Some of the quarantined switches I think perhaps  
4     are switches that were taken off and nothing was wrong with  
5     them, but they were just taken off as --

6             MR. BOCKHOLD: That were leaking a little bit but  
7     would have normally been acceptable, but we were very  
8     conservative and wanted to get the best switches we could  
9     out there.

10            MR. CHAFFEE: I understand. There needs to be  
11     another dialogue to talk about what switches are going to be  
12     tested and so on and so forth. We will conduct that  
13     dialogue with Louis Ward. That's going to go on to look  
14     into the sensors. This is ongoing now, in terms of looking  
15     into the impact of temperature variations in the system. Is  
16     there any other rocks that haven't been looked into in terms  
17     of the diesel's operation during the event? I guess not.

18            Region II, do you have any questions or comments?

19            MR. BROCHMAN: No. We are fully onboard and have  
20     been talking with them with respect to diesel generator  
21     operability issues.

22            MR. CHAFFEE: I guess that's all we have. Thank  
23     you very much, George. The transcriber needs to get the  
24     names of the people that were talking.

25            MR. BOCKHOLD: Before we hang up here Al, I want

D/G Starting Air Dewpoints Taken 4/6/90

<u>Diesel</u>	<u>Dryer</u>	<u>GPC Alnor</u>	<u>GPC EG&amp;G</u>	<u>GE Rental Alnor</u>
1A	K01	75°F	75°F	15°F
1A	K02	80°F	78°F	33°F
1B	K01	85°F	80°F	18°F
1B	K02	75°F	82°F	18°F
2A	K01	85°F	82°F	30°F
2A	K02	95°F	85°F	30°F
2B	K01	75°F	85°F	-10°F
2B	K02	80°F	80°F	10°F

Status of D/G Lc L.O. Press Sw. Model #3

1A D/G - All are B 4400 B

1B D/G - All are B 4400

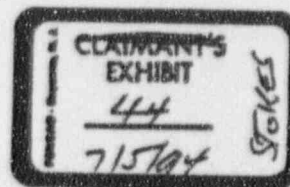
2A D/G - All are B 4400

2B D/G - All are B 4400

Conclusion: Only 1A D/G has the upgraded switches installed.

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8

10-21-94



92 PROJECT  
046072

05-30-90

## DGLA

DATE	TIME	EVENT
5-12-90	1306	STARTED
	1317	TIED TO GRID
	1345	LOADED TO 7500 KW
	1355	UNLOADED TO 4500 KW
	1-25	REMOVED FROM PARALLEL TO GRID NOW SUPPLYING BUS LOAD
	1-4-9	PARALLEL TO GRID
	1155	OUTPUT BREAKER OPENED AT FULL POWER PER T-ENG-90-19
	1137	STOPPED
5-12-90	0009	STARTED
	0017	OUTPUT BREAKER CLOSED
	0038	F. O. PLACED ON RECIRC. FOR CHEMISTRY
	0257	CAME OUT OF DROOP MODE. OPERATOR IN CONTROL ROOM PLACED BACK IN PARALLEL MODE, AND BEGAN INCREASING LOAD TO 7000 KW
	0301	LOAD > 6800 KW
	0310	IT WAS DETERMINED THAT DGLA SWITCHED TO UNIT MODE AS A RESULT OF SPECIAL SEQUENCE TEST PROCEDURE BY ENGINEERING.
	0502	OUTPUT BREAKER OPEN
	0506	STOPPED
	0509	PLACED IN MAINTENANCE MODE
	1320	<del>FROM</del> TAKEN OFF RECIRC. - RESULT SAT.

NOTE: All starts unless  
otherwise noted are  
from the Control Room

F.C

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## DGLA

DATE	TIME	EVENTS
3-30-90	0820	LOSP OCCURRED - LOST "A" RAT - DGLA TRIP AND TRIPPED (SEVERAL ALARM CAME - NOT NOTED IN THE LOG)
	0841	AUTO STARTED AFTER SENSING RESET AND TRIPPED ON LOW JACKET WATER PRESSURE
	0850	EMERGENCY BREAK GLASS START LOCALLY TO RESTORE POWER FROM STATION BREAK OUT. D/G IS SUPPORTING THE 4500 KV TRANS "A" LOAD - 0.2 MW
	1029	(RAT "B" ENERGIZED)
	1040	(BANKS ENERGIZED FROM "B" RAT)
	1155	D/G 1A PLACED BACK IN REMOTE
	1157	(BANKS ALTERNATE CHOOING BREAKER CLOSED IN PARALLELING IN DGLA)
	1211	LOADED TO 6500 KW TO BE RUN FOR 45 MINUTES DUE TO LOW LOAD OPERATION
	1324	THE BREAKER OPEN
	1326	SHUTDOWN
	1405	PLACED IN STANDBY READINESS
	1720	D/G DECLARED INOPERABLE
	1741	(RAT "A" ENERGIZED)
	2031	D/G IN MAINTENANCE MODE FOR MOISTURE CHECK BEFORE RUN

DC1A

DATE	TIME	STATUS
3-21-90	2219	STARTED
	2222	OUTPUT BREAKER SHUT AND TIED TO GRID
	2225	OUTPUT BREAKER OPEN
	2226	INTERRUPT
	2231	STARTED
	2238	SECURED
	2239	STARTED
	2254	SECURED
<hr/>		
3-22-90	2210	JACKET WATER AND LUBE OIL PUMP SYSTEMS SHUTDOWN TO SUPPORT MAINTENANCE
<hr/>		
3-23-90	0227	IN MAINTENANCE MODE FOR MOISTURE CHECK
	0251	MOISTURE CHECK COMPLETE AND PLACED BACK INTO STANDBY
	0254	STARTED FOR MAINTENANCE TROUBLESHOOTING
	0259	OUTPUT BREAKER SHUT AND TIED TO GRID
	0450	PLACED BACK ON STANDBY MODE
	1724	STARTED AND MANUALLY STOPPED FROM C.R.

## DG1B

DATE	TIME	STARTED
3-13-90	1440	TAKEN TO LOCAL FOR MOISTURE CHECK
	1512	IN AUTO STANDBY MOISTURE CHECK COMPLETE
	1518	START FOR MAINT. TEST
	1634	TIED TO GRID - NORM INCOMING BREAKER REMOVED TO 1BA03
	1717	LOAD 6800 KW
	1838	RUNNING
3-14-90	0120	BEGAN UNLOADING D/G 1B
	0142	DISCONNECTED FROM THE GRID
	0146	STOPPED
	0149	TOOK TO LOCAL AND PLACED IN MAINT. WILL BE TAGGED OUT
	0401	OPERABILITY TEST COMPLETE AND SAT FOR D/G 1B
3-21-90	2149	FAILED TO START DUE TO INSUFFICIENT FUEL IN FUEL LINES AFTER MAINTENANCE.
	2156	FAILED TO START AGAIN
	2202	STARTED AND GOVERNO VENTED
	2217	STOPPED

NOTE: All starts unless  
otherwise noted are  
from the Control Room

DG1B

DATE	TIME	STARTED
03-21-90	2259	STARTED D/G 1B FOR OVERSPEED TRIP TEST
	2301	STOPPED MANUALLY DUE TO LOW LUBE OIL PRESSURE AND HIGH OIL FILTER AP
	2314	STARTED
	2318	STOPPED
3-22-90	0017	STARTED
	0023	STOPPED FOR MAINTENANCE
	0350	IN MAINTENANCE MODE FOR MOISTURE CHECK
	0428	OUT OF MAINTENANCE LOCKOUT. MOISTURE CHECK COMPLETED
	0428	STARTED FOR TESTING
	0429	STOPPED
	0714	LOCALLY STARTED FOR MAINTENANCE AND ENGINEERING TESTING
	1030	LOCALLY SHUTDOWN
	1106	STARTED FROM C.R.
	1112	TIE BREAKER CLOSED
	1135	LOAD > 6800 KW
	1243	TRIPPED ON D/G HIGH LUBE OIL TEMP



DC1B

DATE	TIME	STARTED
3-29-90	0645	MOISTURE CHECK STARTED
	0650	MOISTURE CHECK COMPLETED
	0659	STARTED FOR MAINTENANCE RUN AND SYSTEM OPERATOR NOTIFIED
	0814	TIED TO GRID. DIESEL BREAKER OPEN
	0839	FILLY LOADED (7000 KW)
	1145	LOAD INCREASE TO 7500 KW
	1150	LOAD REDUCED TO 6800 KW
	1153	THE BREAKER FOR 100% LOAD REJECTION TEST IS RUNNING
	1202	STOPPED
	1730	STARTED FOR 4 HR. RUN
	1731	TRIPPED ON LOW JACKET WATER PRESSURE/TURBO LUBE OIL PRESSURE LOW
	1744	STARTED FOR 4 HR RUN
	1755	TIED TO GRID
	1819	LOADED TO 6800 KW
	1842	RUNNING FOR MAINTENANCE RUN
	2222	AFTER LOADING IT WAS DISCONNECTED FROM THE GRID AND DIESEL IS STOPPED
	2224	PLACED IN LOCAL MAINTENANCE MODE FOR MAINTENANCE
	2257	MOISTURE CHECK STARTED

**1TSH19153**  
**LUBE OIL HIGH TEMPERATURE SWITCH**  
**DG1B**

Prior calibration was performed on 3/14/90. At that time the switch was found out of tolerance with an as found of 300 °F to trip and 199 °F to reset. It was calibrated and returned to service with a trip of 199 °F and a reset of 191 °F. It was removed from service on 3/23/90 as the suspected cause of DG1B trip. The switch calibration was checked and would not calibrate within tolerance. It was placed in storage on 3/23/90.

**SWITCH TWO**

This switch was placed in service on 3/23/90 with a trip of 203.4 °F and a reset of 198.0 °F. On 3/27/90 it was removed from service and its calibration checked. As found was 203.5 °F to trip and 199.5 degrees to reset. However, it was found to be venting continuously and subsequently replaced. The old switch was placed in storage on 3/27/90.

**1THS19146**  
**LUBE OIL HIGH TEMPERATURE SWITCH**  
**DG1A**

Prior calibration was performed on 3/3/90. At that time it was found out of tolerance with a trip point of 211.0 °F and a reset of 203.1 °F. The switch was calibrated and returned to service with a trip point of 200.2 °F and a reset of 193 degrees.

On 3/30/90 the switch was removed for calibration and found out of tolerance with a trip point of 190.4 °F and a reset of 188.0 °F. The switch also operated sluggishly. It was replaced with a new switch calibrated to trip point of 201.27 °F and a reset of 196.20 °F. The new switch was returned to service. The original switch is in storage.

**1TSH19117**  
**JACKET WATER HEATER OUT HIGH TEMPERATURE SWITCH**  
**DG1B**

Prior calibration on 3/14/90 was within tolerance with a trip point of 201 °F and a reset of 193 °F.

On 3/26/90 switch was found out of tolerance with a trip point of 190.6 and a reset of 182.4. Further investigation determined a small leak. A new switch also failed leak test. A third switch calibrated correctly with a trip point of 200.67 degrees and a reset of 196.93 °F and was returned to service. The old switches are in storage.

**1TSH19119**  
**JACKET HEATER OUT HIGH TEMPERATURE SWITCH**  
**DG1B**

Prior calibration on 3/14/90 was within tolerance with a trip point of 200 °F and a reset of 194 °F.

On 3/26/90 the switch was found out of tolerance with a trip point of 188.2 °F and a reset of 180.6 °F. Further investigation determined a small leak. A new switch was inoperable due to a missing gasket. A third switch was calibrated with a trip point of 198.57 and a reset 191.90 and returned to service. Old switches are in storage.

GPC - Chaffee  
10

10-21-94

## DIESEL TESTING

- NORMAL 36 MONTH OVERHAUL AND INSPECTION
- SPECIAL TESTING

### 1A

3/20 EVENT  
5 STARTS, TROUBLESHOOTING

UV RUN TEST  
SENSOR CALIBRATION  
LOGIC TESTING  
E-RUN BUBBLE TESTING  
MULTIPLE STARTS (5)  
UV RUN TEST  
6 MONTH SURVEILLANCE  
DIESEL OPERABLE  
HI JACKET WATER RUNS (3)  
DCP UV RUN TEST

---

18 SUCCESSFUL STARTS

### 1B

IN OVERHAUL

SENSOR CALIBRATION  
LOGIC TESTING  
E-RUN BUBBLE TESTING  
MULTIPLE STARTS (14)  
UV RUN TEST  
6 MONTH RUN SURVEILLANCE  
DIESEL OPERABLE

LUBE OIL DCP RUN  
DCP UV RUN FUNCTIONAL

---

19 SUCCESSFUL STARTS

## QUARANTINE COMPONENTS

### TEMPERATURE SWITCHES

- 1A PROBABLE TRIP CAUSE
  - JACKET WATER TEMPERATURE (2/3 LOGIC)
  - 1 INTERMITTENT
  - 1 POST CALIBRATION LOW (186°F & VENTING)
- 1A OTHER TEMPERATURE COMPONENTS
  - 1 LUBE OIL TEMPERATURE (SLUGGISH)
- 1B TEMPERATURE COMPONENTS
  - 4 JACKET WATER TEMP (VENTING)
  - 2 LUBE OIL TEMP (VENTING & CALIB.)

### PRESSURE SWITCHES

- 1A
  - 1 LUBE OIL PRESSURE (TRIPPED)
  - 2 LUBE OIL PRESSURE (CONSERVATIVELY REPLACED)
- 1B
  - 2 LOGIC (WOULD NOT TRIP ENGINE)



4-9-90 - PRESENTATION TO REGION II

- CORRECTIVE ACTIONS

- 1ST ITEMS

- DETERMINATION OF OPERABILITY - D.G.

- CAL

-

• HAVE YOU LOOKED AT ALL SENSITIVE AREAS? ~~NO~~

• CAN'T ENTER WITHOUT SS PERMISSION -

• HOW ABOUT STAGING OF MAINTENANCE SQ?

• DOES SS KNOW ALL THE AREAS? (CRITICAL)

(DISCUSS THIS WITH GEB TRAINING TO GET TO ALL BADGED PERSONNEL) MAKE CASE STUDY

• WHAT IS SCHEDULE <sup>FOR AMENDING</sup> ADMIN PROCEDURES (MAY 15, 1990)

• WHO IS LOOKING AT ALL RECOMMENDATIONS?

• PUT TOGETHER THE ERT <sup>FOR AMENDING</sup> RECOMMENDATION AND LET NRL

KNOW WHAT WE ARE DOING (THREE WEEKS) (MAY 15, 1990)

• WHAT ERT FOUND

• HOW YOU ADDRESSED ITEMS

• MORE FORMALIZED

• SENSITIVE & AREAS

• FIVE RECOMMENDATIONS - McRoy LIST SUMMARY LIST

• WHAT CRITERIA DO YOU GIVE SS FOR THIS AREA  
ENV

• 15 MIN IS TIGHT - ED GOES TO CONTROL ROOM

- HARD TO DO THESE THINGS

- NEEDS TO BE DIRECTING NOT IN CONTROL ROOM LOOKING AT INSTRUMENTS

- NEED TO TELL NRL WHAT WE FIND  
IN THIS AREA

92 PROJECT  
000692

GPC - Chaffee 12

10-21-90

4-9-90 CONT.

- ALCER COMMUNICATION IS NOT THE PERSON TO MAKE THE CALL
- OTHER PEOPLE PUT RESPONSIBILITY ON ED BECAUSE WE NORMALLY HAVE THIS DONE A NIGHT
- HAD PROBLEM AT DRILL & SITE EMERGENCY IN THIS AREA
- NRC WILL LOOK AT THIS FROM STAFF REVIEW WE WILL HAVE THREE PLANTS LOOK AT AND GET WITH STAFF
- WHAT DID ERT FIND ON THIS ISSUE
  - .. BEMA & BULKE COUNTY (BACKUP ENN)
  - .. BATTERY BACKUP - IN PROGRESS
  - .. LOOK AT NEW EQ - IN PROGRESS
  - .. PROVIDE ADDITIONAL TRAINING - ON GOING (SS & CLERKS ETC)
  - .. PROVIDE BETTER MEANS TO KEEP LOCAL OFFICIALS INFORMED PRIOR TO HAVING THEIR REPS. AT SITE
  - .. IMPORTANCE OF PROMPT ACTION REPORTS TO AGENCIES.
- SUMMARIZE WHERE WE ARE
  - UNIT 1 PRIMARY UNIT 1 VITAL BUS
  - BACK UP UNIT 2 II
  - 75C POWERED BY DIESEL BACKUP
- LONGER TERM - IS POWER ON INVERTER (LOOKING AT)

### PERSONNEL ACCOUNTABILITY

92 PROJECT  
000693

- WHAT CONTRIBUTED TO THE DECISION NOT TO EVALUATE THE SITE. NOT A PROBLEM WITH CORE THOUGHT HE COULD GET A R.

4-9-90 CONT

- DID ACTIVATE TSC & EDC
- DID ED HAVE INFORMATION ON TIME TO BOILING?
- ERT RECOMMEND
  - <sup>ADD</sup> CONDUCT DRILLS + ACCOUNTABILITY TO EMERGENCY TRAINING
- THERE IS NOT AN ENN IN CORPORATE OFFICE (VOL 120)  
FALLEN HAS ENN - NEED TO LOOK AT
- REVIEW EQ & PROCEDURES - GENERAL OFFICE
  - ERT ITEMS
    - ADOPT MORE NUMERICAL GUIDELINES
    - LOOK AT MONITORS IN TSC & EDC LIKE CR.
    - TRAINING TO GIVE CLEAR INSTRUCTIONS THAT DEVIATE FROM PROCEDURES
    - EVALUATE AND REVISE ED RESPONSIBILITIES.
    -

#### MID LEVEL OPERATIONS

- WHAT TYPES OF CHANGES EOP'S AND LOOK AT SEQUENCING OF DOING BUSINESS - E.G. SCHEDULING WORK FOLLOW ON OWNERS GROUP ADVICE ON EOP'S.
- NEED TO FORMALIZE WAY WE TAKE THINGS OUT OF SERVICE - LOOK AT PRA OR IPE OR LOOK AT SUBJECTIVITY. THIS TIME WE DID IT SUBJECTIVELY  
(NRC WANTS TO KNOW WHAT WE FIND)
- <sup>ARE</sup> THERE ANY DEFICIENCIES IN TECH SPECS TO PREVENT OR MITIGATE THINGS LIKE THIS?
- HAVE WE REVISED PROCEDURES TO PREVENT I RAT AND I OK OUT ON SAME A...?

92 PROJECT  
000694

4-9-10

- NEED A PLAN THAT IS SOMEWHAT RISK BASED TO ALLOW CERTAIN ELECTRICAL LINE UPS. i.e. RISK ANALYSIS

### ERT

- SHOULD REVIEW & EVALUATE SEQUENCE
- REVISE RHR PROC.
- ENHANCE TRAINING ON BOILING ETC FOR MID LOOP
- ESTAB PROC CONTROLS FOR EQ. MATCH TO ENSURE ~~max~~ CLOSURE
- CRANE IS POWERED FROM NON IE SOURCE  
LOOKING AT OTHER MODES
- NEED TO LOOK AT ALL ALTERNATIVES WHEN WE GOT INTO THIS TYPE EVENT AND WE ARE LOOKING AT THIS.
- EBNCTOL WAS CONCERNED ~~ABOUT~~ DURING THE EVENT THAT IT DID NOT MEAN WE WERE EVALUATING OTHER OPTIONS OTHER THAN DIESELS.
- IF WE TAKE A RAT AND DIESEL OUT WE WILL TAKE STEPS ON FRONT END PLANNING.

### DIESEL GENERATORS

- WHY ARE WE ROTATING HIGH JACKET WATER TEMP TRIP AN ESSENTIAL TRIP?
- DID LOOK AT AIR QUALITY? - HAD BAD INSTRUMENT QUALITY IS GOOD. HAD SOME CONFUSION DUE TO COMMUNICATIONS WITH <sup>THE</sup> AIST ABOUT QUALITY.



4-6-98 -

AIR

- GOT 1 INSTRUMENT FROM V.C. SUMNER AND LEARNED HOW TO USE THE BACKUP INSTRUMENT - WE NEVER HAD ANY AIR QUALITY PROBLEMS.
- AL CHAPMAN - USING SUMNER A (60.9°F) <sup>INSTRUMENT</sup> IT WAS OUT OF SPEC RUNNING ON UNIT 2 (2A)
- REPLACED 111 AND 112 SWITCHES 110 IS STILL THE SAME SWITCH. (1A)
- WILL FIND AND TEST THOSE COMPONENTS AT WYLE LABS. THIS TEST PROGRAM WILL BE REVIEWED BY THE IIT.
- M. CHAPMAN DOES NOT KNOW FULLY BECAUSE ENGINE FAILED (WILL SURVEILLANCES CATCH THIS?) BOTH PROBLEMS MIGHT BE INTERMITTENT TEST.
- FOR A PLANT RUN IT IS ALWAYS MONITORED AT THE DISBUR
- WHAT DO YOU EXPECT TO GET OUT OF WYLE LAB TEST? (A FOUND CONDITION AND TEST TO DETERMINE WHAT IS PROBLEM)
- MILIT WANTS TO LOOK AT VITON MATERIAL TO DETERMINE IF IT HAS DEGRADDED.
- WHEN WE FINALIZE THIS TEST WE WILL EXPEDITE THOSE TEST - WE WILL COME BACK TO NLL WHEN TIME IS FINALIZED. IIT WILL GET BACK TO STV ON WYLE TEST
- IN LETTER (1) ADMINISTRATIVE TEST MAY 5 -  
(2) ERT MAY 15 -  
(3) REVISE, C.A. DATA AFTER WYLE TEST

4-9-80.

' LOOK AT CAL PROCEDURE AND MAKE CHANGES  
AS NECESSARY AFTER WYLE TEST

• STOVE JARCA - WHAT WE DO IS OK BUT WHAT  
DOES IT TELL US CONCEPTUALLY ?

• SOME PROCEDURES NEED TO LOOK AT LONG TERM  
ISSUES AND WILL WORK WITH OWNERS GROUP.

| HAVE ADP'S THAT WE CAN USE TO HELP THE  
OPERATORS - MAY BE LETTER -

• SCHEDULE ( OURS ) TO START UP ON FRIDAY  
LETTER OUT THIS AFTERNOON OR EARLY TOMORROW

• AL CHAPPE - ~~TO~~ HAVE YOU GIVEN THE HISTORY  
ON THE SWITCHES - ?

TEMP ON DIFFERENT FORMAT

• WHEN DOES NPL HAVE DECISION

---

4-10-80

TIM REED - SAID THE PRESSURIZER SURGE LINE  
SUBMITTAL WOULD BE APPROVED. THE  
LBB HAS BEEN APPROVED BY S. LEE -  
S. MOE IS WAITING FOR HIS MANAGEMENT  
APPROVAL OF THE SUR.

LV - 10:45 4-23(402) (498.00)

## OFFICIAL TRANSCRIPT OF PROCEEDINGS

Agency: Nuclear Regulatory Commission

Title: Teleconference Between IIT,  
Licensee, and Region II

Docket No.

LOCATION: Bethesda, Maryland

DATE: Tuesday, April 10, 1990

PAGES: 1 - 31

ANN RILEY & ASSOCIATES, LTD.

1612 K St. N.W., Suite 300  
Washington, D.C. 20006  
(202) 293-3950

GPC - Chaffee  
13

10.21.44

1 MR. AUFDENKAMPE: Al, again, this is John  
2 Aufdenkampe. What I will have Herb do is, we will get with  
3 Kenny Stokes and make sure that the diesel log is totally up  
4 to date. That is how we keep track of our starts and stops.  
5 and we will fax you the latest copy of the diesel log.

6 MR. KENDALL: John, this is Rick Kendall. Maybe a  
7 good thing also would be to have Ken give me a call. He has  
8 my number. And I can better explain what it is we are  
9 trying to get.

10 MR. AUFDENKAMPE: Okay, Rick, we can do that.

11 MR. CHAFFEE: Because I think what Rick wants is,  
12 you know, when the diesel started and stopped, how was it  
13 started, did you ever have any problems, that sort of stuff.

14 MR. KENDALL: One of the problems we were having  
15 was that we were listening on yesterday's call where we  
16 understand there has been something like 16 successful  
17 starts in a row of the 1-A diesel generator. And we go  
18 back, and we try to count them up, and we don't get that  
19 many. So somewhere along the line we are missing a few and  
20 we want to complete the picture.

21 MR. CHAFFEE: So it sounds like what would be good  
22 is, when you have the product, probably call Rick and go  
23 over it with him, so that we can make sure we have an  
24 agreement.

25 MR. WARD: Al, this is Lewis Ward. Just so we are



1 all thinking of the same request, is this since March 20th,  
2 since day one?

3 MR. KENDALL: The best thing to do is to have Ken  
4 Stokes call me, I think. Paul Kochery prepared a table that  
5 discussed the starts between starting with the 20th,  
6 starting on March 20th, and going through, I guess, the  
7 first phase of troubleshooting. But it does not go beyond  
8 that point.

9 MR. WARD: Okay. So it is 3-20 up through today.

10 MR. CHAFFEE: I am going to say something here,  
11 and Rick, you can correct me. We want to know all the  
12 diesel starts and stops since the time the diesel went into  
13 this outage because we want to understand what your testing  
14 is as well. Now, as far as the stuff prior to the outage, I  
15 guess what is true there is that is a secondary priority.  
16 First, let's get the stuff that takes the outage up to a  
17 current day and then once we've got that and we've digested  
18 that, then the secondary priority, we can go back and look  
19 at the stuff prior to that; is that what you want, Rick?

20 MR. KENDALL: I had not asked for starts prior to  
21 the outage.

22 MR. CHAFFEE: So then let's get the stuff that  
23 goes from the outage on so we can get a clear picture of  
24 what has happened to that diesel since all the outage work  
25 was done to it.

FROM TELECOPY NUMBER (404) (404) 826-3811 or 8-695-3811  
VERIFICATION NUMBER (404) 826-3811 or 8-695-3811  
EQUIPMENT: CASON FAXPHONE 20

TELECOPY OPERATOR: DONNA HOLMES

DATE: April 12, 1990 TIME: 8:00 am

TELECOPY TO: Mr. Ken Brockman  
USNRC Region II Director Reactor Projects  
Atlanta Ga. Fax # 1-404-331-4449  
verification # (404) 331-6299

NUMBER OF PAGES ATTACHED: 3 (NOT INCLUDING COVER SHEET)

THIS TELECOPY SENT FROM: George Backhold / Herb Beacher  
DEPARTMENT: NSAC/TECHNICAL SUPPORT EXT. NO. 3769/138

VOULTE ELECTRIC GENERATING PLANT  
NUCLEAR OPERATIONS  
ROUTE 2, BOX 1000  
WATKINSVILLE, GEORGIA 30639

SPECIAL INSTRUCTIONS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

GPC-Chattee  
14

10/21/94

16-12-94  
10-21-94  
10-21-94

# FAILURES OF CALCON TEMPERATURE AND PRESSURE SENSORS AT VOTILE UNITS 1 & 2

SERIAL	TYPE AND SETPOINT	D/V	FAILURE DISCOVERY DATE	DESCRIPTION OF FAILURE MODE	HOW FAILURE WAS DISCOVERED	ROOT CAUSE OF FAILURE	DATE SENSOR WAS INSTALLED	CAL. HISTORY (INCL. DATE OF LAST SUCCESSFUL CAL.)	TESTS SENSOR HAS FAILED SINCE LAST SUCCESSFUL CAL.	CORRECTIVE ACTION	COMMENTS
1TSM19111 A3500-W3	TEMP JACKET WATER SP = 200°F ± 4°F	1A	3/30/90	IDENTIFIED SWITCH TRIPPED	WHILE DIESEL TEST ON 3/30/90 A TEST IDENTIFIED SWITCH ON 1A DIESEL WAS IN PROGRESS WHEN NOTIFIED THAT 2 JACKET WATER TEMP SWITCHES WERE TRIPPING (1TSM19111 AND 1TSM19112)	SWITCH IS PRESENTLY ON HOLD PENDING INVESTIGATION	ORIGINAL EQUIP 3/30/90 BY MAG #19001629	AF = 190.54°F AL = 190.54°F PREVIOUS CAL ON 3/2/90 AF = 206.2°F AL = 199.1°F	TESTS SENSOR HAS FAILED SINCE LAST SUCCESSFUL CAL.	NEW SWITCH OBTAINED FROM WISE, CALIBRATED AND INSTALLED AS LEFT: 201.63°F *OLD SWITCH ON HOLD IN IBC "B" STORAGE (OPERATED SLUGGISHLY)	NEW SWITCH OBTAINED FROM WISE, CALIBRATED AND INSTALLED
1TSM19112 A3500-W3	TEMP JACKET WATER SP = 200°F ± 4°F	1A	3/30/90	WHILE DIESEL TEST SEE ABOVE IDENTIFIED SWITCH VENTING AIR	WHILE DIESEL TEST SEE ABOVE	SWITCH IS PRESENTLY ON HOLD PENDING INVESTIGATION	INSTALLED BY MAG #18005401 10/18/88	LAST CAL PERFORMED ON 3/30/90 BY MAG #19001629 AF = 196.2°F AL = 199.9°F PREVIOUS CAL ON 2/1/90 AF = 210.4°F AL = 203.1°F	TESTS SENSOR HAS FAILED SINCE LAST SUCCESSFUL CAL.	NEW SWITCH OBTAINED FROM WISE, CALIBRATED AND INSTALLED	NEW SWITCH OBTAINED FROM WISE, CALIBRATED AND INSTALLED
1TSM19146 A3500-W3 CALCON	TEMP ENGINE LUBE OIL SP = 200°F ± 4°F	1A	3/30/90	SWITCH FOUND OUT OF TOLERANCE AND SLUGGISH	WHILE PERFORMANCE OF CALIBRATION BY MAG #19001629	SWITCH IS PRESENTLY ON HOLD PENDING INVESTIGATION	ORIGINAL EQUIP 3/30/90	LAST CAL CHECK 3/30/90 AF = 190.4°F AND SLUGGISH PREVIOUS CAL 3/3/90 AF = 211.0°F AL = 200.2°F	TESTS SENSOR HAS FAILED SINCE LAST SUCCESSFUL CAL.	NEW SWITCH OBTAINED FROM WISE, CALIBRATED AND INSTALLED	NEW SWITCH OBTAINED FROM WISE, CALIBRATED AND INSTALLED
1TSM19152 A3500-W3	HI TEMP LUBE OIL SP = 200°F ± 4°F	1B	3/23/90	SWITCH TRIPPED ON HI TEMP LUBE OIL- THIS SWITCH WAS SUSPECTED CAL IN TOLERANCE	SWITCH TRIPPED ON HI TEMP LUBE OIL- THIS SWITCH WAS SUSPECTED CAL IN TOLERANCE	SWITCH IS PRESENTLY ON HOLD PENDING INVESTIGATION	ORIGINAL EQUIP 3/23/90	LAST CAL CHECK 3/14/90 BY MAG #19000440 AF 205°F AL 199°F	TESTS SENSOR HAS FAILED SINCE LAST SUCCESSFUL CAL.	SENSOR WAS REPLACED WITH NEW SENSOR ON 3/23/90 VIA MAG #19001402/REPAIR-5465 3/23/90	SENSOR WAS REPLACED WITH NEW SENSOR ON 3/23/90 VIA MAG #19001402/REPAIR-5465 3/23/90
1TSM19153 A3500-W3	HI TEMP LUBE OIL SP = 200°F ± 4°F	1B	3/27/90	VENTS CONTINUOUSLY TRIPPING DIESEL TRIP INVESTIGATION	VENTS CONTINUOUSLY TRIPPING DIESEL TRIP INVESTIGATION	SWITCH IS PRESENTLY ON HOLD PENDING INVESTIGATION	3/25/90 VIA MAG #19001402	LAST CAL CHECK 3/27/90 AF = 203.5°F PREVIOUS CAL 3/23/90 VIA MAG #19001402 AF 203.4°F AL 203.4°F	TESTS SENSOR HAS FAILED SINCE LAST SUCCESSFUL CAL.	NEW SWITCH FOR ITS-19117 THAT WAS GASKET MISSING WAS REMOVED WITH GASKET FROM NEW SWITCH FOR ITS-19117 THAT WAS FOUND LEAKING. THIS REMOVED SWITCH WAS CAL'D AND INSTALLED AS ITS-19153 UNDER MAG #19001513 3/27/90	NEW SWITCH FOR ITS-19117 THAT WAS GASKET MISSING WAS REMOVED WITH GASKET FROM NEW SWITCH FOR ITS-19117 THAT WAS FOUND LEAKING. THIS REMOVED SWITCH WAS CAL'D AND INSTALLED AS ITS-19153 UNDER MAG #19001513 3/27/90

SENSOR	TYPE AND SETPOINT	D/S	FAILURE DISCOVERY DATE	DESCRIPTION OF FAILURE MODE	HOW FAILURE WAS DISCOVERED	ROOT CAUSE OF FAILURE	DATE SENSOR WAS INSTALLED	CAL. HISTORY (INCL. DATE OF LAST SUCCESSFUL CAL.)	TESTS SENSOR HAS FAILED SINCE LAST SUCCESSFUL CAL.	CORRECTIVE ACTION	COMMENTS
1TSM19117 A3500-W3	H1 TEMP JACKET WATER IB SP = 200°F ± 4°F		3/26/90	VERTS CONTINUOUSLY BURNING IB	DIESEL TRIP INVESTIGATION	SWITCH IS PRESENTLY ON HOLD PENDING INVESTIGATION	10/31/88 VIA PNO #19007793 MER 016094	LAST CAL 3/26/90 AF = 190.6°F PREVIOUS CAL 3/14/90 VIA PNO #19000440 AF 201°F AL 201°F	TESTS SENSOR HAS FAILED SINCE LAST SUCCESSFUL CAL.	CAL'D NEW SWITCH WHICH HAD A LEAK. OBTAINED SECOND NEW SWITCH AND CAL'D. AL 200.67°F REPLACED VIA PNO #19001511 3/27/90	MER 90-5564 PDC 90-062 MER 90-5780 BOTH THE OLD SWITCH AND THE NEW SWITCH THAT HAD A LEAK ARE IN STORAGE.
1TSM19119 A3500-W3	H1 TEMP JACKET WATER IB SP = 200°F ± 4°F		3/26/90	VERTS CONTINUOUSLY BURNING IB	DIESEL TRIP INVESTIGATION	SWITCH IS PRESENTLY ON HOLD PENDING INVESTIGATION	10/27/88 VIA PNO #19007637 MER 015785	LAST CAL 3/26/90 AF = 198.2°F PREVIOUS CAL 3/14/90 VIA PNO #19000440 AF 200°F AL 200°F	TESTS SENSOR HAS FAILED SINCE LAST SUCCESSFUL CAL.	NEW SWITCH OBTAINED BUT FOUND GASKET MISSING PDC 90-062 WAS INITIATED. 2nd NEW SWITCH OBTAINED AND CAL'D VIA PNO #19001511 3/27/90 THAT WAS AL = 199.57°F MISSING A GASKET ARE IN STORAGE.	MER 90-5564 PDC 90-062 MER 90-5780 BOTH THE OLD SWITCH AND THE NEW SWITCH THAT WAS MISSING A GASKET ARE IN STORAGE.
1PS4749A A3600-W3	LOW L.O. PRESS SP = 30PSIG	1A	3/20/90	WOULD NOT RESET	BURNING 1A DIESEL TRIP INVESTIGATION	SWITCH IS PRESENTLY ON HOLD PENDING INVESTIGATION	ORIGINAL EQUIP	LAST CAL - SWITCH WOULD NOT RESET PREVIOUS CAL 3/2/90 VIA PNO #19000132 AF = 29.8PSIG AL = 29.8PSIG	TESTS SENSOR HAS FAILED SINCE LAST SUCCESSFUL CAL.	SENSOR REPLACED WITH NEW SENSOR 3/23/90 VIA PNO #19001433 AL 30.2 PSIG	PLACED IN STORAGE
1PS4749B A3600-W3	LOW L.O. PRESS SP = 30PSIG	1A	3/20/90	NONE	N/A	SWITCH IS PRESENTLY ON HOLD PENDING INVESTIGATION	ORIGINAL EQUIP	LAST CAL 3/23/90 VIA PNO #19001433 AF = 30.1PSIG AL = 30.1 PSIG PREVIOUS CAL 3/2/90 VIA PNO #19000132 AF = 30.3PSIG AL = 30.3PSIG	TESTS SENSOR HAS FAILED SINCE LAST SUCCESSFUL CAL.	SENSOR REPLACED WITH THIS INSTRUMENT NEW SENSOR 3/23/90 HAD NO MALFUNCTION. POLLED 3 FROM WISE TO HAVE READY TO REPLACE 3 IN FIELD. THIS SWITCH WAS FOUND IN TOLERANCE. PLACED IN STORAGE.	PLACED IN STORAGE



SENSOR	TYPE AND SETPOINT	D/G	FAILURE DISCOVERY DATE	DESCRIPTION OF FAILURE	HOW FAILURE WAS DISCOVERED	ROOT CAUSE OF FAILURE	DATE SENSOR WAS INSTALLED	CAL. HISTORY (INCL. DATE OF LAST SUCCESSFUL CAL.)	TESTS SENSOR HAS FAILED SINCE LAST SUCCESSFUL CAL.	CORRECTIVE ACTION	COMMENTS
IPS4749C A3500-W3	LOW L.O. PRESS SP = 30PSIG	1A	3/20/90	NONE	N/A	SWITCH IS PRESENTLY OFF HOLD PENDING INVESTIGATION	ORIGINAL EQUIP LAST CAL 3/23/90 VIA MNO #19001433 AF = 30.2PSIG AL = 30.2PSIG PREVIOUS CAL 3/2/90 VIA MNO #19000154 AF = 30.3PSIG AL = 30.3PSIG		SENSOR REPLACED WITH THIS INSTRUMENT NEW SENSOR 3/23/90 VIA MNO #19001433 AL = 30.2PSIG	NOV 19001542 OLD SWITCH PLACED IN STORAGE.	
IPS4749C CALCON B4400B	PRESS NORMAL TRIP SENSOR (P-3) SP = 45PSIG ± 2	1B	3/25/90	SWITCH WOULD NOT VENT EXHAUST AIR TO CAUSE AN ENG. TRIP.	WHILE PERFORMING PROC 27563-C IN COORDINATION WITH 1B DIESEL TRIP INVESTIGATION	SWITCH IS PRESENTLY ON HOLD PENDING INVESTIGATION	BY MNO #1807465 LAST CAL PERFORMED BY 10/25/88 MNO #19001511 3/24/90 AS FOUND = 44.2PSIG AS LEFT = 44.2PSIG PREVIOUS CAL 1/3/90 VIA MNO #19000016 AF = 44PSIG AL = 44PSIG		OBTAINED NEW PRESS SENSOR P3, CAL'D AND INSTALLED UNDER MNO #19001542. NEW SWITCH AS LEFT WAS 44.8PSIG.		

April 19, 1990

ELV-01545  
0342

Docket No. 50-424

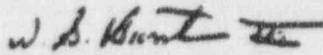
U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D. C. 20555

Gentlemen:

VOGTLE ELECTRIC GENERATING PLANT  
LICENSEE EVENT REPORT  
LOSS OF OFFSITE POWER LEADS TO SITE AREA EMERGENCY

In accordance with 10 CFR 50.73, Georgia Power Company hereby submits the enclosed report related to an event which occurred on March 20, 1990.

Sincerely,

  
W. G. Hairston, III

WGH, III/NJS/gm

Enclosure: LER 50-424/1990-006

xc: Georgia Power Company

Mr. C. K. McCoy  
Mr. G. Bockhold, Jr.  
Mr. R. M. Odom  
Mr. P. D. Rushton  
NORMS

U. S. Nuclear Regulatory Commission

Mr. S. D. Ebnetter, Regional Administrator  
Mr. T. A. Reed, Licensing Project Manager, MRR  
Mr. R. F. Aiello, Senior Resident Inspector, Vogtle

GPC - Chaffee  
15

10-21-94

**LICENSEE EVENT REPORT (LER)**

FACILITY NAME (1)										DOCKET NUMBER (2)										FACILITY															
VOGTLE ELECTRIC GENERATING PLANT - UNIT 1										0 6 0 0 0 4 2 6										1 0 0 8															
TITLE (4)																																			
LOSS OF OFFSITE POWER LEADS TO SITE AREA EMERGENCY																																			
EVENT DATE (5)						LER NUMBER (6)						REPORT DATE (7)						OTHER FACILITIES INVOLVED (8)																	
MONTH		DAY		YEAR		YEAR		SEQUENTIAL NUMBER		REVISION NUMBER		MONTH		DAY		YEAR		FACILITY NAMES						DOCKET NUMBER (1)											
																		VEGP - UNIT 2						0 6 0 0 0 4 2 5											
0 3		2 0		9 0		9 0		-		0 0 6		-		0 0		0 4 1 9 9 0								0 6 0 0 0 1 1											
OPERATING MODE (9)						THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 191.12 (Check one or more of the following) (11)																													
6						20 402 (a)						20 405 (a)						X 60 73 (a) (2) (w)						72 71 (b)											
POWER LEVEL (10)						0						20 405 (a) (1) (i)						60 20 (a) (1) (i)						60 73 (a) (2) (w)						72 71 (a)					
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						20 405 (a) (1) (iii)						60 73 (a) (2) (w)						60 73 (a) (2) (w) (1A)						TS 4.8.1.1.3											
						20 405 (a) (1) (iv)						60 73 (a) (2) (w)						60 73 (a) (2) (w) (1B)																	
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LICENSEE CONTACT FOR THIS LER (12)																																			
NAME															TELEPHONE NUMBER																				
R. M. ODOM, NUCLEAR SAFETY AND COMPLIANCE															AREA CODE 4 0 4 8 2 6 - 3 2 0 1																				
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																																			
CAUSE		SYSTEM		COMPONENT		MANUFACTURER		REPORTABLE TO NRC				CAUSE		SYSTEM		COMPONENT		MANUFACTURER		REPORTABLE TO NRC															
K		LB		TISC		023		Y																											
SUPPLEMENTAL REPORT EXPECTED (14)																																			
X YES (If yes, complete EXPECTED SUBMISSION DATE)															NO																				
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ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single space typewritten lines) (16)																																			
<p>On 3-20-90, Unit 1 was in a refueling outage and Unit 2 was operating at 100% power. At 0820 CST, the driver of a fuel truck in the switchyard backed into a support for the phase "C" insulator for the Unit 1 Reserve Auxiliary Transformer (RAT) 1A. The insulator and line fell causing a phase to ground fault. Both Unit 1 RAT 1A and Unit 2 RAT 2B High Side and Low Side breakers tripped, causing a loss of offsite power condition (LOSP). Unit 1 Diesel Generator (DG) 1A and Unit 2 DG2B started, but DG1A tripped, causing a loss of residual heat removal (RHR) to the reactor core since the Unit 1 Train B RAT and DG were out of service for maintenance. A Site Area Emergency (SAE) was declared and the site Emergency Plan was implemented. The Reactor Coolant System heated up to 136 degrees F from 90 degree F before the DG was emergency started at 0856 CST and RHR was restored. The initial notifications were not made within the required 15 minutes due to the loss of power to the Emergency Notification Network (ENN). At 0915 CST, the SAE was downgraded to an Alert after onsite power was restored.</p> <p>The direct cause of this series of events was a cognitive personnel error. The truck driver failed to use proper backing procedures and hit a support, causing the phase to ground fault and LOSP. The most probable cause of the DG1A trip was the intermittent actuation of the DG jacket water temperature switches.</p> <p>Corrective actions include strengthening policies for control of vehicles, extensive testing of the DG, replacement of suspect DG temperature switches, and improvements in the ENN system.</p>																																			

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THE INFORMATION COLLECTION REQUEST 60.8 HRS FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH, P 4201, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20546, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503

FACILITY NAME (1)

DOCKET NUMBER (2)

LER NUMBER (3)

PAGE (3)

VEGP - UNIT 1

YEAR SEQUENTIAL NUMBER REVISION NUMBER

0 6 0 0 0 4 2 4 9 0 - 0 0 6 - 0 0 0 2 of 0 8

TEXT of event report is required, see additional NRC Form 285A-1/ (17)

## A. REQUIREMENT FOR REPORT

This event is reportable per: a) 10 CFR 50.73 (a)(2)(iv), because an unplanned Engineered Safety Feature (ESF) actuation occurred when the ESF Actuation System Sequencer started, and b) Technical Specification 4.8.1.1.3, because a valid diesel generator failure occurred. Additionally, this report serves as a summary of the Site Area Emergency event.

## B. UNIT STATUS AT TIME OF EVENT

Unit 1 was in Mode 6 (Refueling) at 0% rated thermal power. The reactor had been shut down since 2-23-90 for a 45 day scheduled refueling outage. The reactor core reload had been completed, the initial tensioning of the reactor vessel head studs was complete, and the outage team was awaiting permission from the control room to begin the final tensioning. Reactor Coolant System (RCS) level was being maintained at mid-loop with the Train A Residual Heat Removal (RHR) pump in service for decay heat removal. The temperature of the RCS was being maintained at approximately 90 degrees F.

Due to the refueling outage maintenance activities in progress, some equipment was out of service and several systems were in abnormal configurations. The Train B Diesel Generator (DGLB) was out of service for a required 36 month maintenance inspection. The Train B Reserve Auxiliary Transformer (RAT 1B) had been removed from service for an oil change. The Train B Class 1E 4160 Volt switchgear, 1BA03, was being powered from the Train A RAT 1A through its alternate supply breaker. All non-1E switchgear was being powered from the Unit Auxiliary Transformers (UAT) by backfeeding from the switchyard. All Steam Generator (S/G) nozzle dams had been removed, but only S/G's 1 and 4 had their primary manways secured. Maintenance personnel were in the process of restoring the primary manways on S/G's 2 and 3. RCS level was being maintained at mid-loop for valve repairs and the S/G manway restorations. In addition, the pressurizer manway was removed to provide an RCS vent path.

## C. DESCRIPTION OF EVENT

On March 20, 1990, at approximately 0817 CST, a truck driver with a security escort entered the protected area in a fuel truck. Although not a member of the plant operating staff, the driver was a Georgia Power Company employee belonging to a service group used to perform various plant services. The driver checked the welding machine that was in the area and found that it did not need fuel. He returned to the fuel truck and was in the process of backing out of the area when he hit a support holding the phase "C" insulator for RAT 1A. The insulator and line fell causing a phase to ground fault, and the transformer breakers tripped.



LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST 800 HRS FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (F&D), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20546 AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104) OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503

FACILITY NAME (1)

VEGP - UNIT 1

DOCKET NUMBER (2)

0 5 0 0 6 4 2 4

LER NUMBER (3)

YEAR SEQUENTIAL NUMBER REVISION NUMBER

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PAGE (3)

0 3 OF 0 8

TEXT OF REPORT APPEARS ON SEPARATE, AND ADDITIONAL NRC Form 2064 (1) (17)

At 0820 CST, both Unit 1 RAT 1A and the Unit 2 RAT 2B High Side and Low Side breakers tripped causing a loss of offsite power condition (LOSP) to the Unit 1 Train A Class 1E 4160 volt Bus 1AA02, the Unit 2 Train B Class 1E Bus 2BA03, and the 480 volt busses supplied by 1AA02 and 2BA03. The Unit 1 Train B Class 1E 4160 volt bus 1BA03 also lost power since RAT 1A was feeding both Trains of Class 1E 4160 volt busses. The loss of power caused the associated ESF Actuation System Sequencers to send a start signal to one Unit 1 and one Unit 2 Diesel Generators. DG1A and DG2B started and sequenced the loads to their respective busses. Further description of the Unit 2 response to this event is provided in LER 50-425/1990-002.

One minute and twenty seconds after DG1A started and sequenced the loads to the Class 1E bus, the engine tripped. This again caused an undervoltage (UV) condition to class 1E bus 1AA02. The UV signal is a maintained signal at the sequencer. However, since DG1A was coasting down from the trip, the shutdown logic did not allow the DG fuel racks or starting air solenoids to open and start the engine. This properly caused the engine starting logic to lock up, a condition that existed until the UV signal was reset. For this reason, DG1A did not automatically re-start after it tripped.

After the trip, operators were dispatched to the engine control panel to investigate the cause of the trip. According to the operator, several annunciators were lit. The operator briefly reviewed several instrument read-outs and detected no immediate problem. In order to restore emergency power, the operator reset the annunciators without delaying to evaluate or record the annunciators that were present. During this time, a Shift Supervisor (SS) and a Plant Equipment Operator (PEO) went to the sequencer panel to determine if any problems were present on the 1A sequencer. The SS pushed the UV reset button, then reset the sequencer by deenergizing and energizing the power supply to the sequencer. This caused the DG air start solenoid to energize for another 5 seconds which caused the engine to start. This happened 19 minutes after the DG tripped the first time. The engine started and the sequencer sequenced the available loads as designed. After 1 minute and 10 seconds, the breaker and the engine tripped a second time. It did not automatically re-start due to the starting logic being blocked as described above. By this time, operators, a maintenance foreman and the diesel generator vendor representative were in the DG room. The initial report was that the jacket water pressure trip was the cause of the trip. This report was discounted because the maintenance foreman and vendor representative observed that the jacket water pressure at the gauge was about 12-13 PSIG. The trip setpoint is 6 PSIG and the alarm setpoint is 8 PSIG. Also, the control room observed a lube oil sensor malfunction alarm.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST 662 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATES TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-330) U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20548 AND TO THE PAPERWORK REDUCTION PROJECT (2160-0104) OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503

FACILITY NAME (1)

VEGP - UNIT 1

DOCKET NUMBER (2)

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LER NUMBER (3)

YEAR SEQUENTIAL NUMBER REVISION NUMBER

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Fifteen minutes after the second DG1A trip, DG1A was started from the engine control panel using the emergency start breakglass button. The engine started and loads were manually loaded. When the DG is started in the emergency mode, all the trips except four are bypassed. However, all alarms will be annunciated. During the emergency run, no trip alarms were noticed by the personnel either at the control room or at the engine control panel. The only alarms noted by the control room operator assigned for DG operation were lube oil pressure sensor malfunction and fuel oil level high/low alarm, neither of which would have tripped the diesel.

At 1040 CST, RAT 1B was energized to supply power to 4160 volt bus 1BA03. DG1A supplied power to 4160 volt bus 1AA02 until 1157 CST, at which time bus 1AA02 was tied to RAT 1B.

A Site Area Emergency was declared at 0840 CST, due to a loss of all offsite and onsite AC power for more than 15 minutes. The Emergency Director signed the notification form used to inform offsite government agencies of the emergency at 0848 CST. The shift clerk attempted to initiate offsite notification utilizing the primary ENN in the control room but found it inoperable due to loss of power. The shift clerk then went to the back-up ENN and initiated notification after roll call on this system at 0857 CST. Due to the loss of power, which rendered the primary Emergency Notification Network (ENN) inoperable, and some mis-communication, the initial notification was not received by all agencies until 0935 CST.

The Emergency Director instructed personnel to complete various tasks for restoring containment and RCS integrity. All work was accomplished and maintenance personnel exited containment by 1050 CST.

The SAE was downgraded to an Alert Emergency at 0915 CST after restoration of core cooling and one train of electrical power. By 1200 CST, plant conditions had stabilized with both trains of electrical power being supplied from an offsite source (RAT 1B). After discussions with the NRC and local government agencies, the emergency was terminated at 1247 CST and all agencies were notified by 1256 CST.

## D. CAUSE OF EVENT

## Direct Cause:

1. The direct cause of the loss of offsite Class 1E AC power was the fuel truck hitting a pole supporting a 230kV line for RAT 1A. This was a cognitive personnel error on the part of the truck driver. There were no unusual characteristics of the work location that directly contributed to this personnel error.
2. The direct cause of the loss of onsite Class 1E AC power was the failure of the operable DG, DG1A, to start and load the LOSEP loads on buss 1AA02.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST IS 8 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-630), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20543, AND TO THE PAPERWORK REDUCTION PROJECT (2150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

VEGP - UNIT 1

DOCKET NUMBER (2)

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LER NUMBER (3)

YEAR SEQUENTIAL NUMBER REVISION NUMBER

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PAGE (4)

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3. The direct cause of the failure of the primary ENN system in the control room was the loss of electrical power to Unit 1. The primary ENN in the control room is powered from Unit 1 Class 1E AC power. Therefore, when Unit 1 lost Class 1E AC electrical power, the primary ENN in the control room did not work.

## Root Cause:

1. The truck driver met all current site training and qualification requirements, including holding a Class 2 Georgia driver's license. However, site safety rules, which require a flagman for backing vehicles when viewing is impaired, were violated.
2. The root cause for the failure of DG1A has not been conclusively determined. There is no record of the trips that were annunciated after the first trip because the annunciators were reset before the condition was fully evaluated. Therefore, the cause of the first trip can only be postulated, but it was most likely the same as that which caused the second trip. The second trip occurred at the end of the timed sequence of the group 2 block logic. This logic allows the DG to achieve operating conditions before the trips become active. The block logic timed out and the trip occurred at about 70 seconds. The annunciators observed at the second trip included jacket water high temperature along with other trips. In conducting an investigation, the trip conditions that were observed on the second DG trip on 3-20-90 could be duplicated by venting 2 out of 3 jacket water temperature sensors, simulating a tripped condition. The simulation duplicated both the annunciators and the 70 sec. trip time. The most likely cause of the DG trips was intermittent actuation of the jacket water temperature switches.

Following the 3-20-90 event, all three jacket water temperature switches, which all have a design setpoint of 200°F, were bench tested. Switch TS-19110 was found to have a setpoint of 197 degrees F, which was approximately 6 degrees below its previous setting. Switch TS-19111 was found to have a setpoint of 199 degrees F, which was approximately the same as the original setting. Switch TS-19112 was found to have a setpoint of 186 degrees F, which was approximately 17 degrees F below the previous setting and was re-adjusted. Switch TS-19112 also had a small leak which was judged to be acceptable to support diagnostic engine tests and was reinstalled. The switches were recalibrated with the manufacturer's assistance to ensure a consistent calibration technique.



LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST 80.5 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-430) U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20546 AND TO THE PAPERWORK REDUCTION PROJECT (2180-0104) OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503

ACTIVITY NAME (1)

DOCKET NUMBER (2)

LER NUMBER (3)

PAGE (3)

VEGP - UNIT 1

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TEXT OF event report is required, use additional NRC Form 202A's (17)

During the subsequent test run of the DG on 3-30-90, one of the switches (TS-19111) tripped and would not reset. This appeared to be an intermittent failure because it subsequently mechanically reset. This switch and the leaking switch (TS-19112) were replaced with new switches. All subsequent testing was conducted with no additional problems.

A test of the jacket water system temperature transient during engine starts was conducted. The purpose of this test was to determine the actual jacket water temperature at the switch locations with the engine in a normal standby lineup, and then followed by a series of starts without air rolling the engine to replicate the starts of 3-20-90. The test showed that jacket water temperature at the switch location decreased from a standby temperature of 163 degrees F to approximately 156 degrees F and remained steady.

Numerous sensor calibrations (including jacket water temperatures), special pneumatic leak testing, and multiple engine starts and runs were performed under various conditions. After the 3-20-90 event, the control systems of both engines have been subjected to a comprehensive test program. Subsequent to this test program, DG1A and DG1B have been started at least 18 times each and no failures or problems have occurred during any of these starts. In addition, an undervoltage start test without air roll was conducted on 4-6-90 and DG1A started and loaded properly.

Based on the above facts, it is concluded that the jacket water high temperature switches were the most probable cause of both trips on 3-20-90.

## E. ANALYSIS OF EVENT

The loss of offsite power to Class 1E bus 1BA03 and the failure of DG1A to start and operate successfully, coupled with DG1B and RAT 1B being out of service for maintenance, resulted in Unit 1 being without AC power to both Class 1E busses. With both Class 1E busses deenergized, the RHR System could not perform its required safety function. Based on a noted rate of rise in the RCS temperature of 46 degrees F in 36 minutes, the RCS water would not have been expected to begin boiling until approximately 1 hour and 36 minutes after the beginning of the event.

Restoration of RHR and closure of the containment equipment hatch were completed well within the estimated 1 hour and 36 minutes for the projected onset of boiling in the RCS. A review of information obtained from the Process and Effluent Radiation Monitoring System (PERMS) and grab sample analysis indicated all normal values. As a result of this event, no increase in radioactive releases to either the containment or the environment occurred.



LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 600 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-430), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20546, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

VEGP - BNIT 1

DOCKET NUMBER (2)

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LER NUMBER (3)

YEAR

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NUMBER

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REVISION

NUMBER

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PAGE (3)

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Additional systems were either available or could have been made available to ensure the continued safe operation of the plant:

1. The maintenance on RAT 1B was completed and the RAT was returned to service approximately 2 hours into the event.
2. Offsite power was available to non-1E equipment through the generator step-up transformers which were being used to "back-feed" the Unit Auxiliary Transformers (UAT) and supply the non-1E busses. Provided that the phase to ground fault was cleared, Class 1E busses 1AA02 and 1BA03 could have been powered by feeding through non-1E bus 1NA01.
3. The Refueling Water Storage Tank could have been used to manually establish gravity feed to the RCS to maintain a supply of cooling water to the reactor.

Consequently, neither plant safety nor the health and safety of the public was adversely affected by this event. A more detailed assessment of this event and an assessment of the event had it occurred under more severe circumstances will be performed and included in a supplemental LER.

## F. CORRECTIVE ACTIONS

1. A management policy on control and operation of vehicles has been established.
2. Temporary barricades have been erected with signs which direct authorization for control of switchyard traffic to the SS.
3. The Loss of Offsite Power (LOSP) diesel start and trip logic has been modified on Unit 1 so that an automatic "emergency" start will occur upon LOSP. Therefore, non-essential diesel engine trips are blocked upon LOSP. The Unit 2 DG's will be modified by 4-30-90.
4. The DG1A test frequency was increased to three times per week until 4-20-90 when the test frequency will be changed to once every 7 days in accordance with Technical Specification Table 4.8-1. This frequency will be continued until 7 consecutive valid tests are completed with no more than one valid failure in the last 20 valid tests. Including the two valid failures of this event, there have been a total of four valid failures in 69 valid tests of DG1A as of 1157 CST on 3-20-90.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST. SEE WRS FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-330), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20543, AND TO THE PAPERWORK REDUCTION PROJECT (3180-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

BUCKET NUMBER (2)

LER NUMBER (3)

PAGE (3)

VEGP - UNIT 1

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5. The defective DG temperature switches have been replaced. In addition, a test program will be conducted at Wyle Laboratories to investigate the reliability of this type of temperature switch under various conditions. This program is designed to aid in determining the failure mode of the suspect switches.
6. A back-up ENN system powered from the AT&T system, which previously existed and was operational for South Carolina agencies, has been extended to include Georgia local and state agencies. Instructions have been given to Emergency Directors and Communicators concerning use of the emergency communication systems.
7. Further corrective actions will be addressed in a supplemental LER.

## 6. ADDITIONAL INFORMATION

## 1. Failed Components:

Jacket Water High Temperature Switches manufactured by California Controls Company.  
Model #A-3500-W3

## 2. Previous Similar Events:

None

## 3. Energy Industry Identification System Code:

Reactor Coolant System - AB  
Residual Heat Removal System - B  
Diesel Generator Lube Oil System - LA  
Diesel Generator Starting Air System - LC  
Diesel Generator Cooling Water System - LB  
Diesel Generator Power Supply System - EK  
Safety Injection System - BQ  
13.8 kV Power System - EA  
1460 volt non-1E power system - EA  
1460 volt Class 1E power system - EB  
Chemical and Volume Control System - CB  
Containment Building - NH  
480 volt Class 1E Power System - ED  
Engineered Safety Features Actuation System - JE  
Radiation Monitoring System - IL

REPORT OF INTERVIEW  
WITH  
ALFRED E. CHAFFEE

On August 28, 1991, Alfred E. CHAFFEE, Branch Chief, Events Assessment Branch, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission (NRC), was interviewed in his office by Office of Investigations Investigator Larry L. Robinson. The nature of the interview pertained to alleged material false statements made to NRC by managers of Georgia Power Company (GPC) regarding the reliability of the Emergency Diesel Generators (EDGs) at Vogtle Electric Generating Plant (VEGP).

CHAFFEE stated that he was the team leader of an NRC Incident Investigation Team (IIT) that conducted an investigation into the circumstances and causes of a Site Area Emergency (SAE) that had occurred at VEGP on March 20, 1990. He advised that he arrived on site, VEGP, on March 24, 1990, and the team left the site on April 2, 1990. He advised that the major portion of the IIT's time was spent at the Maryland National Bank Building, NRC, Bethesda, MD, analyzing the data obtained and writing the report, but that he returned to the VEGP site for a couple days on April 16, 1990.

CHAFFEE advised that about 60 percent of his time on this IIT was focused on the EDGs, and he spent a lot of time with Rick KENDALL, the IIT member primarily responsible for the diesel generator portion of the investigation. He advised that KENDALL was a member of the Augmented Inspection Team (AIT) that was already on site when he (CHAFFEE) arrived, and that KENDALL remained as an IIT member. CHAFFEE added that Ken BROCKMAN was the AIT leader, and turned the investigation over to the IIT, but that BROCKMAN remained the liaison between the IIT and Region II.

CHAFFEE stated that he had such a keen interest in finding the root cause of the EDG's failure to perform when off-site power was lost during the SAE that he inserted himself into the process of the EDG troubleshooting. He advised that he was somewhat forced to do this because the IIT could not isolate the diesels and pull them out of the system. CHAFFEE advised that VEGP personnel did not have much in the way of written records that would possibly show indicators of causes of EDG failures. He advised that, while at the VEGP site, he had to rely heavily on verbal verification of such indicators, and that he did not receive the written documentation he needed until he had left the site. CHAFFEE stated, for example, that he asked for a "machinery history" of Calcon sensor failures while on site, and that the licensee was unable to provide this documentation until after the IIT left the site. CHAFFEE added that the VEGP General Manager, George BOCKHOLD, made himself very much involved with the IIT, and would personally try to answer as many of the IIT questions as he could without consulting with his staff. CHAFFEE stated that when BOCKHOLD could not answer a diesel generator question, for example, he would say that his system engineer would know the answer. CHAFFEE stated that, more often than not, the system engineer could not answer the question. CHAFFEE noted that this licensee (GPC) did not want to "count" certain types of EDG failures as failures. CHAFFEE stated that BOCKHOLD had a tendency to "put blinders on" with regard to the past performance of the EDGs, and wanted to concentrate on the recent successful performances.

INTERVIEWOR - Chaffee  
1

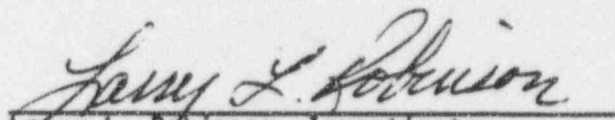


CHAFFEE advised that the IIT function was not to make an assessment of EDG operability or reliability, and that he had not gathered data to make such an assessment directly. He stated, however, that, in theory, you cannot declare a given component operable until you are confident it will perform its safety function, and he thought that VEGP was doing EDG surveillances more frequently than monthly, which indicates that they were having failures. He also stated that firm evidence of the root cause of the Calcon sensor failures, namely loose foreign material in the sensors, was not obtained until the sensors were sent to Wylie Labs, which was some time after April 18, 1990. He stated that it was probably mid-May 1990 when Wylie Labs found the loose material in a condition in which it would cause a failure in the Calcon sensors.

CHAFFEE stated that he did not recall any unusual sense of urgency on the part of VEGP personnel to maintain their outage schedule in spite of the SAE. He stated that there did not seem to be any significant degree of initiative, or basic engineering inquisitiveness, on the part of BOCKHOLD or his engineering staff to determine the cause of the EDG failure on their own. CHAFFEE stated that he was the one that had to keep the root cause investigation moving along.

CHAFFEE stated that he was not certain, but that he thought he recalled being included on a conference call regarding VEGP restart. He stated that he did not have any notes indicating that he was on a conference call with Region II on April 9, 1990. He stated that he could not recall being asked if he had any objections to VEGP restart, but if he had been asked, he would not have known of any reason to delay restart. He stated that it was Region II's call on restart, and he would have honored the Region's responsibility on the restart call.

This report of interview was prepared on September 3, 1991.

  
Larry L. Robinson, Investigator  
Office of Investigations  
Field Office, Region II



December 17, 1993

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	Docket Nos. 90-424-OLA-3
GEORGIA POWER COMPANY, <i>et al.</i>	)	90-425-OLA-3
	)	
(Vogtle Electric Generating Plant,	)	Re: License Amendment
Units 1 and 2)	)	(Transfer to Southern Nuclear)
	)	

INTERROGATORY RESPONSE OF ALFRED E. CHAFFEE  
TO THE OCTOBER 8, 1993, GEORGIA POWER COMPANY'S  
FIRST SET OF INTERROGATORIES AND SECOND REQUEST  
FOR PRODUCTION OF DOCUMENTS TO THE NRC STAFF

STATE of MARYLAND	)
COUNTY of MONTGOMERY	)

Alfred E. Chaffee, having first been duly sworn, hereby states as follows:

I am employed by the U.S. Nuclear Regulatory Commission as Chief, Events Assessment Branch, Division of Operating Reactor Support, Office of Nuclear Reactor Regulation.

In the spring of 1990, I was appointed Team Leader for the Incident Investigation Team (IIT) that reviewed the site emergency which occurred on March 20, 1990, at the Vogtle site. The IIT also reviewed the licensee's trouble shooting and event investigation actions of the March 20, 1990 event which occurred subsequent to the site emergency. On October 7, 1993, Georgia Power Company (GPC) served interrogatories upon the NRC which called for information I possessed between March 20, 1990, and April 1990. I have been informed in general terms by Staff counsel that the interrogatories result from

Intervenor - Chaffee  
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10/21/94

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an administrative proceeding in which the intervenor has alleged that GPC knowingly submitted incorrect information to the NRC regarding diesel starts following the March 20, 1990, site incident (LER-90-06 and at a meeting in NRC's Atlanta, Georgia office on April 9, 1990). Having been so informed as to the background of the interrogatories, I respond here to those interrogatories which refer to me.

#### INTERROGATORY 1

Describe in detail the information or knowledge obtained by the following persons on or before April 9, 1990, regarding Plant Vogtle Unit 1 emergency diesel generator problems associated with diesel generator sensors/switches after March 20, 1990:

#### RESPONSE

Almost all of what I, and I believe my team members know, is set forth in NUREG-1410, entitled "Loss of Vital AC Power and the Residual Heat Removal System During Mid-LOOP Operations at Vogtle Unit 1 on March 20, 1990." I was connected by telephone from Bethesda, Maryland for most if not all of the meeting held in Atlanta, Georgia on April 9, 1990, between GPC and NRC. By April 9, 1990, I was aware that the 1A diesel generator did not always start and operate as expected as evidenced by the two failures on March 20, 1990. See Appendices I and J to NUREG-1410. Based on a review of NUREG-1410 in preparation for preparing this document it appears to me that at some point in the IIT investigation we were aware that a large number of starts had occurred on the 1A diesel after the two failures on March 20, 1990 and all of these starts occurred without a repeat of the failures which occurred on March 20, 1990. As to the total number of starts and their bearing on the declaration of the 1A diesel generator as being operable, I do not believe the IIT focused on this issue as it was not

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a part of the IIT charter. As to the presentation by the licensee on April 9, 1990, regarding diesel generator starts, I was unaware that the numbers presented were incorrect as I had no reason at that time to challenge the accuracy or veracity of those numbers. In addition based on a recent review of the slides used in the licensee's presentation on April 9, 1990, it appears to me that the slides correctly represent what the IIT understood in general terms at that time (i.e., a large amount of testing on the 1A diesel had been completed with no reproduction of a failure) thus providing no obvious basis for challenging the number of starts alluded to in the licensee's presentation. As of April 9, 1993, I was unaware of any count of starts or attempted starts done by the IIT of any Vogtle diesel generator. I was aware that the licensee, in association with the vendor, was investigating why diesel generator 1A tripped twice on March 20, 1990. I was also aware that the high jacket water temperature switches were being carefully analyzed.

#### INTERROGATORY 2

Describe in detail the additional information or knowledge obtained by the following persons on or before April 19, 1990, regarding Plant Vogtle Unit 1 emergency diesel generator problems associated with diesel generator sensors/switches after March 20, 1990:

#### RESPONSE

This interrogatory seeks what additional information I acquired between April 9, 1990, and April 19, 1990. I reviewed NUREG-1410; bibliography item number 205, Transcript: Telephone Conference with IIT, Licensee, M-II (April 7, 1993) and bibliography item number 206 Transcript: Telephone Conference with IIT, Licensee (April 9, 1990). Based on this review, it appears to me that the licensee had completed

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all 1A diesel generator starts prior to April 9, 1990, which were associated with the determination of the root cause for the failure of the 1A diesel generator on March 20, 1990. It also appears and I recall that licensee personnel continued to work on why the Calcon sensors failed after completion of the diesel start testing. However, by April 19, 1990, I do not remember making a tabulation of starts or attempted starts from any particular date.

NUREG-1410, Appendix J Page J-20 paragraph four states: "At this point, the licensee had started emergency diesel generator 1A approximately 21 times since the incident with no abnormal operating conditions or trip or trip alarms."

"At this point" refers to the completion of the Operability Test which I believe occurred prior to April 9, 1990. I do not remember when this information was developed by, I believe Rick Kendall, or when it came to my attention. However since we were not focusing on post event diesel start numbers, I probably was not either aware or conscious of this data until after April 19, 1990.

### INTERROGATORY 3

Did NRC procedure in March 1990 including any procedures utilized by the Augmented Inspection team (AIT) or the Incident Investigation Team (IIT), sent to Plant Vogtle in March 1990, require the AIT or IIT to make records of telephone calls or communications with Georgia Power personnel? If so, describe in detail and identify the procedure.

A. Did AIT and IIT personnel keep such records?

### RESPONSE

The only procedures I am aware of that existed while this event was being investigated by the IIT during March 1990 were NUREG-1303 "Incident Investigation Manual" dated February 1988 and NRC Manual Chapter NRC-0513 "NRC Incident



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Investigation Program" dated August 5, 1987. Manual Chapter 0513 dated August 5, 1987, states that AEOD will develop a variety of procedures including a procedure for interviewing and a procedure for collecting and maintaining documents, records, data and other information into an investigation manual. The referred to manual is NUREG-1303. NUREG-1303 gives guidance in the area of keeping records such as transcripts or notes for interviews conducted by IIT personnel. This guidance indicates that interviews should be documented and discussions about administrative activities will not be documented. The IIT did keep such records in the form of transcripts of, I believe, all significant interactions (interviews) between the team and those personnel interviewed. All these records are to the best of my knowledge in the Public Document Room. The guidance did not directly address phone calls. It should also be noted that the IIT did not transcribe all followup interactions (interviews) but we did attempt to get all significant information transcribed when possible.

These responses are true and correct to the best of my knowledge and belief.

Respectfully submitted,

*Alfred E. Chaffee*

Alfred E. Chaffee, Chief  
Events Assessment Branch  
Division of Operating Reactor Support  
Office of Nuclear Reactor Regulation

Subscribed and sworn to before me  
this 17th day of December 1993

*Carol L. Augustino*

CAROL L. AUGUSTINO  
NOTARY PUBLIC STATE OF MARYLAND  
My Commission Expires January 17, 1994

**DATA SHEET 1**  
**DIESEL GENERATOR START LOG - TRAIN UNIT**

START NO.	DATE	VALID TEST	INVALID TEST	S	F	VP/20VT	VP/100VT	CURRENT TEST /REQ	RUN TIME	30 DAY RUNTIME	TIME UNAVAIL	NAME DATE
(4.1)	(4.2)	(4.3)	(4.3)	(4.3)	(4.3)	(4.4)	(4.5)	(4.6)	(4.7)	(4.8)	(4.9)	(4.10)
1-90-212	10-17-90	(102)	Suav. 7000V	X		1	5	7	2hrs 7min	10.01 hrs	0	Ken Stokes 11-6-90
1-90-213	10-24-90	(103)	Suav. 7000V	X		1	5	7	1.47 hr	9.51 hrs	0	
1-90-214	10-26-90	(104)	Loaded 7000V	X		1	5	7	1hr 17min	9.33 hrs	18 hrs 15 min	
216 1-90-215	10-26-90	(104)	Suav. 7000V	X		1	4	31	1.93 hrs	11.26 hrs	0	Ken Stokes
217 1-90-216	11-23-90	(105)	Suav. 7000V	X		1	4	31	1.93 hrs	7.05 hrs	0	12-4-90 Ken Stokes
218 1-90-217	12-19-90	(106)	Suav. 7000V	X		1	4	31	2.1 hrs	4.03 hrs	11 hrs 57 min	1-9-91 Ken Stokes
219 1-91-218	1-16-91	(107)	Suav. 7000V	X		1	4	31	1hr 50min	3.93 hrs	0	Ken Stokes
220 1-91-219		OK	MTS	X		1	4	31	1.83 hrs	3.93 hrs	43 hrs 22 min	2-5-91 Ken Stokes
1-90-219	2-13-91		X	X		1	4	31	15 min	2.08 hrs	LCO 191054	3-6-91
1-90-215	10-26-90		X	X		1	5	7	2 min	9.33 hrs	0	Ken Stokes 5-5-92

- 1) S - Successful (MTS OK)  
 2) F - Failure  
 3) VP - Valid Failures  
 4) VT - Valid Tests

NRC NO 1

10-21-94