

OFFICIAL TRANSCRIPT OF PROCEEDINGS

Agency: U.S. NUCLEAR REGULATORY COMMISSION

Title: INTERVIEW OF: GEORGE BOCKHOLD

Docket No.

LOCATION: WAYNESBORO, GEORGIA

DATE: TUESDAY, MARCH 27, 1990

PAGES: 1-51

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ADDENDUM TO INTERVIEW OF G. BOCKHOLD
 (Print Identity of Interviewee)

Page	Line	Correction and Reason for Correction
2	11	"Bockhold" to "Bockhold"
3	10	"Current" delete
3	10	"IT was" delete
		add after "lab out" was supplied.
4	4	"through" to "to"
4	15	"high" to "tid"
8	6	"of the" to "back up"
11	8	"1" delete
8	14, 15, 16	Delete sentence "This is the 000 to do this."
9	22	Delete "we will -- We will --"
9	23	Add after "will" probably
11	9	Delete "the end of"
11	13	Change "them and" to themselves
		Change "essentially" to essential and
11	14	Delete "and inlet"
11	14	After "containment" add . and delete and
11	15	Capitalizes "Miscellaneous"
14	4	Add after "Typically", we
14	11	Change "PSC" to ISC
14	11	Change "ELF" to EOF
14	24	Change "are" to "y our"

<u>Page</u>	<u>Line</u>	<u>Correction and Reason for Correction</u>
14	24	Change "planned" to "plan"
16	3	Change "fed" to "defeat"
16	4	Change "UF" to "UAT"
16	8	Delete "more"
16	16 ⁸ 9	Delete "ready though"
16	12	Change "UF" to "UAT"
17	12	Change "having to refuse a" to "opening refusing"
17	13	Change "cholored" to "berated"
18	6	Delete "SO's"
18	23	Change "integrate" to "integrated"

Page _____ Date _____ Signature _____

NOTE: INTERVIEWEE CHOSE NOT TO COMPLETE REVIEW

U. S. NUCLEAR REGULATORY COMMISSION

INTERVIEW OF:

GEORGE BOCKHOLD

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Main Conference Room
Administration Building
Vogtle Electric Generating Plant
Waynesboro, Georgia

Tuesday, March 27, 1990

The interview commenced at 11:25 a.m.

APPEARANCES:

On behalf of the Nuclear Regulatory Commission:

WILLIAM LAZARUS
WARREN LYON
AL CHAFFEE
GENE TRAGER

On behalf of INPO:

PAUL DIETZ

On behalf of CP&L:

MIKE JONES

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PROCEEDINGS

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2 MR. LAZARUS: Today is March 27, 1990, Vogtle
3 Station. The time is 11:25. We are interviewing Mr. George
4 Bockhold, General Manager.

5 Whereupon,

6 GEORGE BOCKHOLD

7 appeared as a witness herein and was examined and testified
8 as follows:

9 EXAMINATION

10 BY MR. LAZARUS:

11 Q Mr. Bockhold, for the record, will you state your
12 name, title, and then give us a description on where you
13 were on Tuesday, March 20, and what your involvement was?

14 A I'm George Bockhold, the General Manager, nuclear
15 plant here, Plant Vogtle, and on Tuesday, the 20th, I was in
16 a grievance hearing when my secretary heard a reactor trip.
17 At that particular time I completed the grievance hearing
18 and before I left my office my boss had called me from
19 Birmingham wanting to know why Unit II tripped, and I told
20 him I was going to the control room to find out why Unit II
21 tripped. I proceeded to the control room and got there at
22 approximately -- I guess we want everything in Eastern time,
23 right? So approximately 9:40 Eastern Time, plus or minus a
24 minute or two, either way. At that point I wanted to
25 determine plant status, okay, and was concerned, of course,

1 with Unit II. I was not aware immediately of the problem on
2 Unit I. Went ahead and looked at Unit II and what I
3 observed is we were handling a reactor trip. We had lost
4 one of the emergency bus. A diesel had started in tie-in
5 and we picked up that bus up and we had lost two reactor
6 coolant pumps. We had a broken vacuum, basically because of
7 loss of circular water and because of the OS's, shift
8 superintendent's concern about the availability of AC lub
9 oil pumps for the main turbine, and that DC was supplying
10 current, and he wanted to make sure that it was lub oil. So
11 he wanted to stop the turbine more quickly than a normal
12 roll down. At the same time, I looked into Unit I's status
13 and people had indicated that we were in a loss of off-site
14 and on-site power to our emergency bus condition. I
15 observed the -- At this point, I know it's the second start
16 because of everything that's gone on before, I observed the
17 second tie-in of the 1-A diesel generator and its subsequent
18 trip. Had a discussion with Bill Burmeister, had been
19 assigned as the person to prepare the forms for John Hopkins
20 who was the emergency director at that point -- to prepare
21 the forms to declare the emergency. Had a discussion with
22 Bill about the need for a site area emergency. Initially my
23 feelings, because of core status and because of cooling the
24 core was -- Gee, we really don't need to go to that high a
25 level of an emergency given plant conditions. Reviewed with

1 him the requirements of our procedures and emergency plan
2 and because we did not immediately emergency start the
3 diesel, I agreed with that, and the message, I believe at
4 that time went through the communicator and I thought she
5 was doing that.

6 Then I called my boss back in Birmingham to give him
7 a plant status to tell him we were initiating a site area
8 emergency, and I discussed the, you know, Unit II status,
9 and Unit I status, at that point. After completion of that,
10 I went to look back at Unit I, and had discussions with Jim
11 *Swartzwelder, who is the Operations Manager, specifically
12 about the need to start the diesel in an emergency mode as
13 quickly as possible. He said they were working on that,
14 had to dispatch people, and were doing that. At 9:56 that
15 diesel was started in an emergency mode and remained high
16 into the bus and we were able to start -- manually start
17 loads onto that diesel to restore core coolant.

18 The -- At that point I went to the communicator and
19 basically she had not gotten to the point of declaring
20 whether the conditions were degrading or improving or
21 stable. I changed those to improving and added the one
22 sentence -- I don't have the exact sheet. You probably have
23 the sheet.

24 Q Yeah, I got it.

25 A You know, the words about the fact that the diesel

1 was carrying the load. Because I wanted, particularly, Burke
2 County to understanding conditions were improving and maybe
3 evacuation of people was not necessary by that message.

4 Went back and continued to assess the conditions.
5 Then really started a discussion with John Hopkins on and
6 off while he was concerned with the plant so I could relieve
7 him. Further, in the meantime, I guess, I did receive the
8 word that the RHR pump was started, by Gloria, my clerk, ED
9 Clerk wrote down at 9:00. She came there after I was there.
10 I proceeded directly to the control room and she wrote down
11 some of this based upon her understanding by talking to
12 people and looking at logs. So the early part of this log,
13 its times are not as accurate as the later part of this log
14 where she was kind of reconstructing that.

15 Q Do you normally have a secretary who follows the key
16 managers around in emergency response organization to take a
17 record?

18 A Yes. Yes. Yeah. And she keeps the log, but she
19 didn't really arrive until really after the page
20 announcement associated with the site area emergency. She
21 then came to the control room. You know, this has it at
22 really 10:01, which is, again, I've got to keep worrying
23 about Eastern and Central time, but 10:01 Eastern time. So
24 she would have arrived after that. I had -- She logged it
25 at really ten hundred Eastern that we had reached a maximum

1 of 136 degrees in the core. Okay. So I started the turn
2 over process with John Hopkins, and I went ahead and
3 relieved John Hopkins at 10:15, as the emergency director,
4 and basically, simultaneously with that, evaluating status
5 of the plant, I downgraded the emergency to an alert
6 condition and asked the communicators to start that message.

7 From that point on it kind of went similar to the
8 drills that we've been practicing and having. You know, I
9 stashed both TSC and the general office and kept assessing
10 the conditions and then made basically a transition to the
11 technical support center, and you know, I could go through
12 the log just reading it page by page, but you already have
13 the log and you've got the sequence of events, so I'm not
14 sure if you want me to read that for the record or what.

15 Q No, I don't think that's necessary.

16 A But I think the significant things were what first
17 happened and my recollections of the significant things are
18 maybe different than -- you know, the log is kind of sketchy
19 on the first few minutes of the event, and, of course, you
20 might be interested in that and that's why I talked about
21 that. Otherwise, we could just read through the log and any
22 recollections you might want me to recall.

23 Q You can use that, if you want. There are a couple
24 of things I wanted to delve into to see what your
25 understanding of things were at the time.

1 A Sure.

2 Q As we know now, there is a problem with the ENN for
3 notification of GEMA and Burke County. Were you aware of
4 that at the time they were having --

5 A I was not aware of that until later -- the extent of
6 what that was.

7 Q Sometime after the dust had settled you became
8 aware?

9 A Basically after the dust had settled, I had become
10 aware that it was a problem, and we hadn't notified GEMA and
11 really Burke County in a timely fashion.

12 Q It appears that if ENN had worked properly you'd
13 only been a couple of minutes off the 15 minutes
14 notification goal --

15 A I believe that to be correct. In fact, I had
16 thought that the -- you know, I had a discussion with Bill
17 Burmeister about should we really make this an alert or a
18 site area emergency, and in my mind that only appeared to be
19 a couple or three minutes from the time that the diesel
20 tried to tie into the bus and what we've got logged in the
21 logs is 9:41. So let's say 9:45. He already had the
22 message filled out. So after I -- We agreed that, yeah, "we
23 really need to do that, and of course, the procedure --
24 even though the consequences to the public and the plant
25 people are not that significant, we are just going to follow

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1 the procedures and that's appropriate." You know, we
2 released the message. I thought she was, you know, just
3 walk over and pick up and start reading the message. So I
4 thought, you know, we were making timely notifications and I
5 was a little surprised that, you know, when I found her on
6 the back of the ENN, and at that time I wasn't aware that
7 the back up ENN only talked to South Carolina. I didn't know
8 that that was part of --

9 Q They knew yours.

10 A Okay. You know, I was surprised she -- it appeared
11 that she was kind of like on line 1 when I got there at
12 basically 9:56 and that kind of surprised me a little bit,
13 but you know, with everybody picking up and answering roll
14 calls, I said, "Well, maybe that's normal. This is the first
15 time they hadn't really maybe been prepped in advance to do
16 this." So I thought things were going fine on the back up
17 ENN, and later on I heard that we had a problem, and I
18 said, "Gee, we need to communicate with those people. Let's
19 call them on a local line." And I thought that was often
20 being done also, but that took a little longer than I would
21 have recalled it did.

22 Q That answers pretty much of my concerns about the
23 notification process. If you'd been aware of the policy,
24 you could have probably also -- There are a lot of things in
25 hindsight --

1 A Absolutely.

2 Q ENN and the TSC was on a different power supply and
3 it worked. Apparently they were talking to them.

4 A That's right. You know, I mean, one of our
5 corrective actions that I believe we are going to implement
6 very quickly here is we are going to direct the
7 communicators to go primary ENN. If that doesn't work in
8 the control room, take your message and go to primary ENN
9 and to TSC. If that doesn't work, first call Burke County,
10 then GEMA, and then pick up the back up ENN and call South
11 Carolina. With the Savannah River Plant being right over
12 there, I think timeliness is more important on the Georgia
13 side with people living in this area and where Savannah
14 River is really equipped to handle in an emergency. We may
15 use extra people, of course, when we try to make the 15
16 minutes, but a lead person, I think, that's the appropriate
17 corrective action.

18 Q Is there been any re-evaluation of adding GEMA and
19 Burke County to the backup ENN?

20 A We are looking at that. We were initially surprised
21 on preparing for license how long it took to establish ENN
22 circuits, but we will -- We will -- We are looking at that.
23 I believe we will pursue that.

24 Q On the announcements that were made from the control
25 room involving -- to notify people of the site area

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1 emergency, were you aware of those announcements and aware
2 of the contents of the announcements?

3 A I was aware of the -- basically the two
4 announcements, I was aware of that -- I didn't listen to the
5 page. I didn't hear what they were saying over the page,
6 but I was aware of the discussion that John Hopkins did not
7 want to, as emergency director, evacuate the site, and
8 basically I didn't disagree with that, concurred with that
9 because of the nature of the event and because in my mind we
10 needed to comply with the guidance associated with buttoning
11 up containment and buttoning up some of the penetrations
12 that we had open so that we could flow water into
13 containment, into RCS from a different source.

14 Q Yeah, I think we all agree with that
15 philosophically. I guess it's, again, one of the problems
16 that the emergency plant is not really designed around
17 shutdown events anymore than a lot of the EOPs and some of
18 the other things are.

19 A Right.

20 Q But in hindsight, there are all sorts of
21 considerations you can make for shutdown events in, you
22 know, preparing different messages for people.

23 A Yeah, and that's one of the things we've already
24 talked about. An emergency director needs to personally get
25 involved with telling the general plant population where he

1 wants them to go, and we are looking at that as part of our
2 critique.

3 Q I guess the one thing that concerned me most in that
4 area was the fact that security interposed themselves and
5 took some responsibilities on telling people that they
6 should be moving to their assembly areas? Were you --

7 A Well, the second message, when it went out, which I
8 signed, it was a normal message. Okay. A normal message
9 has the end of all non-essential people report to their
10 assembly areas. I guess what -- What I had felt at that
11 time of the second message going out was that the essential
12 activities were well enough along in containment that those
13 people would have felt them and essentially would have
14 completed their activity in an inlet containment and
15 miscellaneous work that we had going on since we hadn't
16 immediately restored off-site power, it's best to just
17 discontinue the miscellaneous work and have the people go
18 ahead and comply with the normal procedures in emergency.

19 Q Who made that plan -- Who made that second
20 announcement? Was that made from the control room or
21 security?

22 A I believe the second announcement was made from the
23 control room, is what I remember at this time. Let's see if
24 that's in the log. (Pause)

25 Q Let's try to clarify that because the technical

1 support center was talking to security and Jimmy Cash was
2 saying that he was talking to security and he had agreed
3 upon a message for them to announce.

4 A I'm not sure who made -- I believe the message --I
5 think if you look at the control room logs --

6 Q Okay.

7 A -- you'll find that the message was made from the
8 control room, and that is my recollection, but, you know,
9 with everything happening, I can't swear to that.

10 Q In any event, you had approved the content for non-
11 essential personnel to report to their assembly area --

12 A Right. Right. That's what I approved, and that's
13 what I intended to go out at that time and --

14 Q And apparently there was a third announcement.

15 A There was additional announcements made over the
16 page because security was having trouble with accountability
17 based upon, in my mind, the second announcement that was
18 made.

19 Q I think the third announcement was changed to tell
20 people to report to the Administrative Building parking lot?

21 A Right. Which, given the numbers of people, they
22 couldn't all fit in the auditorium. It was a nice day. The
23 parking lot was an appropriate place.

24 Q And that there was some concern, apparently in Jimmy
25 Cash's mind, that all the contractors may not know what

1 their assembly areas were and this would be a more clear
2 area for people to assemble.

3 A Yes.

4 Q Okay. Were you aware of the loss of the affluent
5 radiation monitor function through the ERF computer?

6 A I was not aware of that loss. When I arrived in the
7 TSC I was aware that some radiation monitors had been
8 restored because Don Hallman indicated that. I believe he
9 said two and three were restored. You might have to talk to
10 him about what time that was. When I was aware of the loss,
11 it was -- the fact that it was restored.

12 Q Similarly, was there any discussion of the
13 meteorological tower and the loss of the communications link
14 with the meteorological tower?

15 A I really didn't get involved in that discussion.
16 That was really handled I think in the TSC.

17 Q I think we've already talked about some of the
18 things that you're looking at as far as lessons learned. Is
19 there anything you'd add to what you've already indicated?
20 Things that we haven't talked about or other things you're
21 considering changing?

22 A Well, I filled out a critique sheet on the
23 emergency, and I think I had seven or eight things I wanted
24 people to look at, and I thought of some other things, and I
25 passed those on to Ken Holmes and daily I think of some

1 other good ideas. So, you know, I have to sit here and
2 think and go through my long list. I have a longer list of
3 things that I think we can approve upon in response, and
4 some of the things we probably should practice. Typically
5 practice going from an NUE or an alert and later on to a
6 site area then to a general and then you kind of end with
7 maybe some practice on recovery. We probably need to
8 practice and put us right in the higher classification
9 immediately because that adds some additional confusion.
10 Without all the resources to the emergency director of being
11 in the PSC or being in the ELF, the picture is not as clear
12 in the control room as it is in those other facilities
13 because you have a lot of resources, extra resources.
14 Control room resources, of course, have to go ahead and
15 address the plant status.

16 Q I think the NRC is finding that out too, that
17 unusual events are not necessarily pre-cursors to a site
18 area emergency.

19 A Right.

20 Q It's a significant probability that you will start
21 out on a higher level.

22 A Some of the things I've talked to my staff and to
23 cooperate about is, again, you know, our procedures are
24 defined, put us in a site area emergency. I think a better
25 thing would be served for both us and the NRC and the local

1 public if we had been in the lower level of emergency
2 because, you know, the core situation didn't really warrant
3 a site area emergency.

4 Q Have you had any subsequent contact or someone from
5 corporation that's had contact with Georgia and Burke County
6 to explain the situation and to make sure they understand
7 what the problems were?

8 A Yes. That was mostly handled by corporate in that
9 communication.

10 Q Any feedback from that?

11 A I haven't received any feedback.

12 MR. DIETZ: George, prior to the event, I guess is
13 of a little interest, can you talk about the things that
14 were in place to manage the plant condition status of
15 systems and, I guess, how we end up in a condition with
16 midloop, a diesel generator out, a RAT out and maybe also
17 talk about some of the lessons learned in that area?

18 THE WITNESS: Prior to the event we had an outage
19 scheduled, and the electrical line-up had to do a safety
20 evaluation on a line-up that we were going to be in. And
21 that evaluation, you know, indicated that it would be safe
22 to be in that particular line up. The one RAT providing
23 power to both emergency busses -- it's designed to do that.
24 I think the thing that I would do in the future, one of the
25 lessons learned is that we could have backfeed through NAO1

1 back to one of the busses. I think we probably should have
2 looked at that in advance and probably gone ahead and
3 prepared, if not installed, the jumpers to feed the
4 interlocks that would have tied the UF to one of the safety
5 busses. I don't think that we necessarily should have been
6 feeding that way, okay, but we could have then besides
7 having the diesel start to pick up the safety bus, the other
8 safety bus could have probably been picked up if we had more
9 ready thought, pre-thought out the jumpers, and done
10 appropriate safety evaluations. We probably could have just
11 closed one breaker in the control room and picked up the
12 other emergency bus from the UF, maybe, by sequencing the
13 outage differently.

14 MR. CHAFFEE: Is this SCR you are talking about a
15 written safety evaluation?

16 THE WITNESS: Yes, I believe it was written. Mike
17 Lackey talked about that basically after the fact, that was
18 done, and Robert Moye, Fred Thompson, those people may be
19 able to talk more about it, or Mike Lackey may be able to
20 talk more about it.

21 MR. DIETZ: In previous outages when you've gone to
22 midloop, have you also had, you know, different line of
23 electrical with -- I guess I'm looking at, had you
24 considered any the risk. You know, midloop is probably the
25 least amount of water over the core. Containment open,

1 things like that. Have you looked at all the risks
2 involved as you are taking on some new barriers?

3 THE WITNESS: Well, yes and no. Meaning to say
4 although midloop is risky as far as the minimum amount of
5 water, depending upon the time after shutdown here or there
6 gives you a longer period of time, okay, before boiling, and
7 if you look at the ability to flood, okay, either the core
8 area or if you had the head off, flood the pool. You've got
9 a lot of water here, anyhow, sitting at an elevation that
10 you can manually, you know, it's normally a motor operated
11 valve, but you can manually get water into the core by
12 simply having to refuel a water storage tank, which is fully
13 chlorated, go ahead and flow water into the core, and by
14 this critique thing here, I think somebody's calculated,
15 gee, we had eight days worth of cooling if we did nothing by
16 going ahead that way, so, you know -- If you had the ability
17 to close the equipment hatch quickly, you got basically an
18 ability to go ahead and gravity feed. That gives you a long
19 period of time where you can restore power, and I think that
20 really puts you in a very safe configuration.

21 MR. DIETZ: Closing up of the equipment hatch does
22 require power available, non-safety power, to be able to get
23 that closed. Yes?

24 THE WITNESS: I believe that's correct. We could
25 probably figure a way around that since again it's gravity

1 to lower it. Really, you need a break on the speed in which
2 you lower so it doesn't cock.

3 MR. DIETZ: Would you have to lift it a little
4 first to unlatch it?

5 THE WITNESS: I don't know those details. I'd have
6 to go look at SO's closed details. You know, I assume that
7 we could -- if there is a latch, and there probably is since
8 you asked the question, okay, you could probably pry the
9 latch off with, you know, some sort of pry bar and that kind
10 of stuff in an emergency.

11 MR. CHAFFEE: Did you need to have all the following
12 conditions existing at the same time being in midloop --
13 having the equipment hatch off, having work being done on
14 the diesel generator, have all those activities as well as,
15 I guess, the steam manways and pressurized -- Did all that
16 stuff have to occur at the same time, or could they have
17 been spread out over the others for all occurring at once?

18 THE WITNESS: Well, the normal recovery from
19 refueling is you go to midloop to take out the manways, the
20 nozzle dams, okay, and put the manways on. You've got to be
21 at midloop there to put the head on. Okay. Really you're
22 trying to come out of a refueling mode. In our case, we're
23 going to intergrade leak rate test so you've got to get all
24 the extra stuff that was in containment to support those
25 activities out of containment. So, you know, you'd have the

1 hatch open.

2 MR. CHAFFEE: Is there a lot of -- Can you give me a
3 feeling of how much stuff -- how many days of work it takes
4 to get all that stuff done? Is it a big effort or --

5 THE WITNESS: It's a big effort. You know, I would
6 guess, you know, a full day type effort. Again, it depends
7 upon your resources and using of the people, but a day or
8 two type effort to get that stuff out. So, that's yes, that
9 is a normal refueling triple path approach to managing an
10 outage.

11 MR. CHAFFEE: Did you need to have all that
12 electrical work being done right now? Could that have been
13 done somehow before or after?

14 THE WITNESS: Well, the text specs kind of constrain
15 you for various modes, so, you know, you really put together
16 a jigsaw puzzle to go through the text specs to make sure
17 that you are complying with everything there. You've got
18 to have one diesel out and it's got to be out for a long
19 period of time, you know. We have I think there were like
20 11 days per diesel on a schedule to have it out of service.
21 I think each one took that period of time. You know, I
22 can't swear to that. I have to go look at the schedule. The
23 B Diesel, which we are still working to get back I think
24 took longer than that. So you look at a normal refueling
25 outage window and we're constrained basically by

1 requirements that go ahead and do 18 months work on diesels
2 and they take 22 days, you're going to have one diesel out
3 while you are at midloop. Now, the backfeed, normally we
4 would have the RATs available. It turns out that changing
5 oil should be like a once every ten year type evolution, but
6 our oil change for some reason after we filled them, and we
7 inspected it, the oil was not of the quality that we wanted,
8 and we needed to push that up. So we have pushed that up in
9 the schedule. So normally you have both RATs available, and
10 hindsight's 20/20. If we had thought about this previously,
11 we could have probably had the non-safety grade bus because
12 the UFs are just as reliable as RATs. We could have had the
13 UFs available to feed the other safety grade bus.

14 MR. CHAFFEE: It would be helpful to us if you could
15 have somebody on your staff put together for us, you know --
16 I understand all these restraints, but just as you don't
17 have all those on the top of your head, I'm hoping that your
18 outage people do the textbook constraints that, you know,
19 sort of have the set requirements of when you can do this
20 electrical work and some of these other things. I
21 understand that the midloop, having those steam generators
22 and putting the head on, but if they could put together for
23 us sort of all these different things that impact how you do
24 this that kind of pushes you into some of what you have
25 here, that would be helpful for us to be able to get a

1 perspective on that and to be able to recognize where the
2 agency's requirements maybe is a forcing function for some
3 of this or not, and I think it would be better if your
4 people took a cut at that and let us work from there as
5 opposed to us trying to figure it out on our own.

6 THE WITNESS: We'll go ahead and take a cut at that.
7 We work a long time on getting the critical path to, you
8 know, a minimum type timeframe and get -- meet all the
9 requirements, and further, really, do it safely. As I say,
10 we did a safety evaluation on the feeding -- the arrangement
11 electrical busses that we were going to have for this
12 particular outage type configuration. You know, hindsight's
13 20/20, and maybe we should have added something else to it,
14 but, you know, in a refueling outage, you're going to have a
15 diesel out of service at one point.

16 MR. WAFFEE: I'll be honest with you, at this
17 point, we are just trying to understand -- We're not sure if
18 you can do any better than you did, but that's why I'm
19 asking. We're better off having the people that did it that
20 are more familiar with it tell us what their limitations are
21 and we can go from there and try to figure out --

22 THE WITNESS: Well, Joe D'Amico is on the critique
23 team and he was the chief scheduler. He is in our
24 organization, basically, the chief scheduler, and he has
25 somebody work and put a lot of these considerations together

1 for him, and we'll ask him to give you a rundown on that and
2 maybe somehow annotated a critical path with some of the
3 more highlighted text specs. Really, when you take the
4 plant in a cold shutdown and you try to restart it, you use
5 the whole book.

6 (Laughter)

7 THE WITNESS: You may go cover to cover, you know.
8 So it's not a simple type thing, but we'll focus on
9 electrical on some of those items. Hopefully, we will give
10 you what you want and maybe working with him --

11 MR. CHAFFEE: The idea is to be able to get an
12 impression for what limitations there are, and I guess how
13 complex it is. If it's really that --

14 THE WITNESS: Oh, it's that complex.

15 MR. CHAFFEE: That would be valuable too for us to
16 understand that.

17 MR. DIETZ: One of the things, when you first came
18 down, you came down to midloop, put the dams in --

19 THE WITNESS: Right.

20 MR. DIETZ: -- in generators, went back, flooded all
21 the way out --

22 THE WITNESS: Right.

23 MR. DIETZ: -- and you had steam generator work
24 going on while you were moving fuel?

25 THE WITNESS: Yes.

1 MR. DIETZ: Any risk involved there?

2 THE WITNESS: You know, that's the way everybody
3 does it. I don't see any undue risk there. I mean, you
4 know, if a nozzle dam fell out, you would then have either a
5 partially loaded core or whatever, okay --

6 MR. DIETZ: How about a bundle hanging on the --

7 THE WITNESS: You would have a bundle hanging on it
8 and the goal would be to put the bundle down real quickly,
9 either in the fuel transfer area, or back in the core, and,
10 you know, that would create a problem.

11 MR. DIETZ: Have you looked at the size of the leak?
12 You know, we've had a couple of events in the industry that
13 have lead to draining of the cavity very rapidly. Have you
14 looked at whether you can even get a bundle down, you know,
15 if you blow out a nozzle dam?

16 THE WITNESS: I haven't done a calculation. I would
17 estimate that you probably could, but that's just an
18 estimate. I've not done a calculation. You know, it
19 depends how big and how quick and where you are with the
20 bundle hanging in the air.

21 MR. DIETZ: Are you aware of the SOER that IMPO has
22 on -- came out after the first cavity seal failure? There
23 were some recommendations in there that dealt with maybe not
24 moving fuel oil and having a steam generator open at the
25 same time. Maybe putting the cover back on the generator

1 at least during the time you were moving the fuel oil?

2 THE WITNESS: I'm not aware of anybody that does it
3 in the industry.

4 MR. CHAFFEE: Could you possibly have some of your
5 staff provide that-- a written safety evaluation on the
6 electrical line up?

7 THE WITNESS: Okay.

8 MR. CHAFFEE: Any other questions.

9 MR. LAZARUS: One.

10 MR. LYON: I'm trying to develop a little bit of a
11 picture in two areas. Is there a standard protocol or
12 procedure that management follows when they enter the
13 control room? Like, for example, someone at your level,
14 would you just walk in?

15 THE WITNESS: When I enter the control room I say,
16 "General Manager in the control." And Skip Kitchens does
17 the same thing and Jim Swartzwelder is supposed to do the
18 same thing.

19 MR. LYON: Yes, I've heard him do that. How many
20 people would enter under those conditions?

21 THE WITNESS: Well, I mean, we typically all don't
22 arrive at the same point. Okay? But we could, and that is
23 permissible. The only other people that's allowed to enter
24 the control room here are the NRC residents without
25 permission.

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1 MR. LYON: So all the lower management stops and
2 asks permission?

3 THE WITNESS: That's correct. They are supposed to
4 stop and ask permission. You know, the direct line
5 management, or the senior person, can enter the control room
6 by announcing himself. Everybody else has to ask permission.

7 MR. LYON: I'm trying to get a little bit better
8 picture of your bases and criteria. You indicated that, at
9 least what I heard was, the consequences to the public you
10 didn't feel were that significant during your event and
11 perhaps it really didn't warrant going to an area emergency.
12 At that time, what was your basis for that conclusion?

13 THE WITNESS: The basis for the conclusion at the
14 time was that I believe that we could emergency start that
15 diesel, given the reason that I heard that it tripped. And
16 also given the reason that most of the trips are by-passed
17 when you go to emergency start.

18 MR. LYON: What was your perception of the state of
19 core and the amount of time that you had to take action if
20 that did not occur?

21 THE WITNESS: I guess I believed that I had at least
22 an hour to take action, and I believe that we could flood by
23 either somehow opening or refueling water storage tank
24 valve, probably manually.

25 MR. LYON: The last question I had --

1 MR. CHAFFEE: That was your understanding of the
2 time you had?

3 THE WITNESS: Yes.

4 MR. LYON: The last question that I have --

5 THE WITNESS: That's --- Actually, Stu -- I've never
6 asked that. That was his first question, "What happens if
7 the diesel stops," and I responded that we would open
8 refueling on the storage tank valve and flood to give us
9 more time.

10 MR. LYON: Is there a basic criterion that you apply
11 when you are doing all of these scheduling and trying to lay
12 things out. I heard text specs mentioned a number of times.
13 Clearly that is a criterion that you apply.

14 THE WITNESS: That's an absolute criterion. We try
15 not to violate text specs.

16 MR. LYON: All right. Do text --

17 THE WITNESS: We get a lot of attention if we do
18 inadvertently. Those type things.

19 MR. LYON: Do text specs allow you to get your plant
20 into a condition that you would rather not be in and, if so,
21 how do you factor that kind of thing into laying out all
22 this planning?

23 THE WITNESS: We do not do anything that would
24 damage equipment or that we would consider unsafe for the
25 individuals on the plant property or unsafe for the public

1 at large. So, you know, I mean --

2 MR. LYON: Do you have a specific example that might
3 give me an indication of something where, yes, text specs
4 say I can do this, but I'm not going to because I don't
5 think that's a good idea?

6 THE WITNESS: I'll have to think for a while.

7 MR. LYON: If you don't, that's okay.

8 THE WITNESS: Yeah, you know, one just doesn't pop
9 right into my head. I'd have to think for a while to come
10 up with a specific case.

11 MR. CHAFFEE: Are you asking the question on the
12 lines of if you were in an emergency or --

13 MR. LYON: No, no, not at all. I know that -- I
14 have no doubts that these folks would respond in an
15 emergency to take care of it and violate text specs as
16 permitted by regulation if they needed to. What I was more
17 after was the planning process where clearly we're trying to
18 identify meeting all the text specs, and is there another
19 thing that is factored in here, and if so, how and do people
20 clearly understand that?

21 MR. CHAFFEE: Well, let's ask this. I understand it
22 was a waiver of compliance associated with --

23 THE WITNESS: Well, I can answer your question
24 another way. For example, you know, you could run reactor
25 coolant pumps at, say, a hundred pounds in the RCS. Okay.

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1 Well, that's clearly very bad. Text specs allow you to do
2 that, but it's very bad for reactor coolant pump seal
3 packages, and you only run them for a short period of time,
4 and when you stop them, you know, you probably won't be able
5 to restart them. Text specs says nothing about protect the
6 reactor coolant pump seal package, which in turn is really
7 protecting a part of an RCS type battery. If you had
8 serious damage there, you could have a potential path for a
9 logan text spec, doesn't really address that. Okay. And we
10 obviously -- I thought if I thought long enough, I'd come up
11 with an example.

12 MR. LYON: Let me try a different one, just for
13 perspective. You -- Most plants, and probably you do also,
14 have a text spec that says that you can take RHR out for an
15 hour provided you do not exceed 200 fahrenheit. Would you
16 in the process of this consider taking RHR out, as allowed
17 by text spec, say, a day and a half after shutdown?

18 THE WITNESS: We need to look at the KE removal in
19 relationship to our specific system. Typically the design
20 is like 100 hours, the minimum for the KE removal, so we
21 would look at that as part of -- If we needed to do RHR
22 work, and if it needed to come early in the outage because
23 of every other consideration, we'd go look at the
24 engineering aspects and we'd meet the compliance of text
25 specs and then we would -- if we could get there within that

1 timeframe, we'd go look at the engineering aspect of it. I
2 think I answered your question.

3 MR. LYON: Close enough.

4 MR. DIETZ: George, what do you think some of the
5 lessons for the industry are from this event? Looking at
6 it, not only yourselves, but looking out?

7 THE WITNESS: I think the industry should come up
8 with a consistent better application of emergency planning
9 criteria for declaring various types of emergencies. I
10 believe the industry is working on that somewhat, but I
11 think we should progress and move that ahead.

12 MR. DIETZ: Especially looking at shutdown type
13 conditions?

14 THE WITNESS: I think shutdown and other conditions.
15 You know, I think, for example, I believe on a tube rupture
16 we might declare a site area here, and somebody else might
17 declare an alert. Okay. For the same type of event
18 happening at a PWR based upon the age of their emergency
19 plan, okay. What they were required to commit to. So you
20 get different responses out of different utilities and in
21 compliance with their programs, but yet, I'm sure it would
22 give everybody heartburn at having different responses on
23 basically the same accident. I think we, as an industry,
24 need to come up with a consistent approach to accidents,
25 and I think in relationship to the general public or the

1 site population. I think that's one of the lessons learned
2 for the industry. Another lesson learned for the industry
3 is that you should look at all sources of power. For
4 example, I indicated -- and it's hindsight on my part -- we
5 did have a non-vital bus of available that we could have
6 fed -- one of the vital busses -- we had to jump around some
7 airlocks and that kind of stuff. We should have pre-thought
8 that in advance.

9 MR. DIETZ: How about in the area of the emergency
10 procedures? Do we need to look at shut down emergency
11 procedures versus what we have now, which are primarily out
12 of the operating realm starting --

13 THE WITNESS: That becomes very, very difficult. I
14 think we can, but that's a longer term thing. That's a very
15 difficult task because you've got -- you've got to take the
16 equipment down to maintain it so you're going to have all
17 different types of plant configurations. The emergency
18 procedures are based upon a standard plant configuration.
19 Okay, and you go from there when you are refueling and you
20 don't have a standard plant configuration. You've got to
21 really rely on the expertise of other people in a lot of
22 cases. You may be able to make some broad procedural type
23 guidance and help the industry there, but the specifics of
24 the new EOPs, which I think are very good, much better than
25 the old EOPs, would be I think essentially impossible, or if

1 you came up with them, they'd be so hard to learn that they
2 would not help you.

3 MR. CHAFFEE: Do you think the agencies should
4 consider developing a text spec for midloop operation?

5 THE WITNESS: I don't think -- I think the agency
6 and the industry should work on improving the existing set
7 of text specs and not end up with more text spec rules
8 because text specs are -- They are not as flexible as basic
9 commitments. "We intend to do this, and we're going to do
10 it, and you come and look to make sure that we did it."
11 Text specs are very constraining and I get concerned that
12 they keep getting interpreted different ways by different
13 people.

14 MR. LYON: Is there an alternate in your judgment of
15 covering this kind of an area other than text specs?

16 THE WITNESS: Yeah. I think for example the generic
17 letter that was put out or some of the info documents that
18 were put out, we have the ability to quickly close the
19 equipment hatch. We did that. You know, things like that.
20 Recommendations to the plants in the form of generic
21 letters, or if need be, bulletins is a means to respond and
22 really achieve the same thing.

23 MR. LYON: Well, generic letters and information
24 notices had gone out several times on some of the so-called
25 midloop difficulties before the eight-eight seventeen

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1 generic letter you are referring to came out and they were
2 ineffective. Eighty-eight seventeen I guess was a little
3 different in that it asked people to commit to what they
4 were going to do in response to it. Is what you are saying
5 that that process, in your judgment, is a good process? The
6 previous ones did not ask for that kind of commitment.

7 THE WITNESS: Yeah, I think the process of the
8 utility looking at and committing or IMPO sending out a SOER
9 and coming and reviewing and the recommendations are
10 followed, I think that's the process that is most effective
11 in our industry at this time.

12 MR. LYON: Okay. We have a generic letter referring
13 to eighty-eight seventeen and replies from you people as to
14 what you are doing with those recommendations. How do you
15 implement that at Vogtle so that you have reasonable
16 confidence that you are continuing to do the things that you
17 indicated you would do?

18 THE WITNESS: We have a commitment tracking system.
19 We incorporate things and procedures and sign-off that the
20 FSAR and any other commitments that we make are implemented
21 and continued.

22 MR. CHAFFEE: Do you happen to know where you were
23 in implementing the stuff relative to the generic letter
24 eighty-eight seventeen?

25 THE WITNESS: I believe that we had implemented

1 pretty much most of it. You know, we were doing some
2 additional midloop modifications to make our instrumentation
3 better. Okay. During this outage, and it took a refueling
4 outage to get there, but I think we had pretty much all of
5 it. For example, we believe we could put the hatch down
6 fairly quickly. That was one of them. Before going into
7 the outage and in a previous outage we had installed
8 temporary instrumentation associated with midloop level and
9 this particular refueling outage, we went ahead and we
10 installed instrumentation. We made a change to the RHR pump
11 current such that if we ended up with cavitation avoiding
12 the ERF computer would have seen that. So we were, you know,
13 implementing --

14 MR. CHAFFEE: Was that an alarm or something --

15 THE WITNESS: It was an alarm that would come in a
16 computer -- a computer alarm of, "Hey, we've got indication
17 of voiding." So we took those actions.

18 MR. CHAFFEE: Do you think in retrospect it would
19 have been helpful if the generic letter had said something
20 about having enhanced reliability of on-site -- Let me say
21 it a different way. Do you believe that -- I guess what I'm
22 asking is, do you believe that you probably should have not
23 had one of your midloop operations as many of your sources
24 of power removed would have been -- if there'd been some
25 guidance, perhaps you wouldn't have found yourself in the

1 condition you were in?

2 THE WITNESS: I think if there had been a specific
3 recommendation to maximize the number of off-site sources to
4 vital equipment, including look at, backfeed, you know, if
5 the words are correct that it keys people to, "Gee, yeah, we
6 could take these interlocks out and backfeed this way," we
7 would have probably had those interlocks removed, capable of
8 backfeeding to one of those emergency busses.

9 MR. LYON: It was kind of general in the generic
10 letter. I think what I'm hearing, as I recall, we stated it
11 something to the effect, "Look into and make provision for
12 providing reliable support systems to support being able to
13 pool the RCS," but it did not specifically go into the kinds
14 of things you are talking about. So I think what I'm
15 hearing is, we didn't trigger the kind of thinking that
16 needed to be triggered to cover this event.

17 THE WITNESS: Yes, I agree with that, and I think we
18 have seen, vividly seen here one other example of that. The
19 one other example was a premature criticality type event
20 here. We -- and IMPO, you know, had talked about this a
21 lot, and they specifically did not require a one over
22 implot. Okay. And we thought we were training our people
23 good on a simulator and that kind of stuff, and we didn't
24 specifically require an one over implot in the plant until we
25 basically ended up with the reactor critical prior to when

1 the people expected it and re-evaluated that and by God a one
2 over implot is needed. It took IMPO, for example, who had
3 called these things out. You need to make good specific
4 recommendations. They've got to be somewhat general, but as
5 specific as you can call out the types of things you want
6 people to do because that triggers them to comply and really
7 to think about it, say, "Yeah, that's a damn good idea. I
8 wish I'd thought of that." That's, to me, the human
9 factor part of preparing good letters, good generic letters,
10 a good SOERs or good regulation, you know. It's really
11 conveying, not in such general terms that people don't fully
12 understand. It's really conveying the lessons learned in
13 the industry to everybody so they can take reasonable action
14 on it.

15 MR. LYON: That's similar to what we are here for
16 too because --

17 THE WITNESS: Sure.

18 MR. LYON: -- as you pointed out in the last one,
19 the lesson really wasn't learned until you recognized one
20 over the implots had to be done. Now they're required.

21 THE WITNESS: That's right. Now they required. No
22 if, ands or buts about it.

23 MR. DIETZ: In the industry this event gives us an
24 opportunity to do the same kind of looking at it and being
25 probably a little more specific in what needs to be done and

1 still trying to give some room for the plants to deal with
2 their own designs and capabilities.

3 MR. CHAFFEE: So is the lesson we're saying that
4 it's beginning to become clear there is the need for trying
5 to do more to provide reliable electrical power in our
6 operation? That's sort of a general term of what were
7 leading to?

8 MR. LYON: That's not my perception. My perception
9 is much broader than that. Clearly this event has flagged
10 an electrical situation, but I believe it is also giving us
11 an indication that we should broaden our thinking into the
12 whole realm of non-power operation. Now, you may just --

13 MR. CHAFFEE: But as far as the specifics on this
14 one, what George is talking about, which is something that
15 you go out to industry -- what I'm interested in is if
16 George agrees that being more careful in what you're doing
17 with your electrical distribution is something that would be
18 a good lesson, a specific lesson to much of the industry.

19 THE WITNESS: Yeah, yeah. The way I would word it
20 is something to the effect that, you know, one of the plants
21 emergency diesels -- a normal feed to that bus and an
22 alternate for the other vital bus should be considered
23 backfeed and even use the backfeed from other transformers
24 that are available.

25 MR. DIETZ: Develop the procedures that are needed

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1 to accomplish that?

2 THE WITNESS: That's right. Develop the procedures
3 that are needed to accomplish that, and, you know, you put
4 it as a generic letter, and your request that we respond to
5 it within a period of time, and we'd say, "Yes, sir, we'll
6 do that."

7 MR. LYON: And would the information notice which
8 could go out very quickly be in order here in your judgment
9 and would it be effective in the industry or do we need to
10 be more strong in providing generic letters covering this
11 item?

12 THE WITNESS: Well, I think if you put out an
13 information notice and probably IMPO would put out an SOER
14 on this -- or if just IMPO puts out an SOER, it will go out
15 very quickly. So, --

16 MR. LYON: Would that be an effective way of
17 providing the message, do you think?

18 THE WITNESS: Yes. I think that's an effective way
19 to provide the message.

20 MR. DIETZ: George, any idea how long during the
21 events that the diesel had failed it would have taken you to
22 have backed that from the auxiliary transformers?

23 THE WITNESS: I would guess a couple of hours.

24 MR. DIETZ: Looking at the diagrams, it's not just
25 as simple as putting in some jumpers because you end up with

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1 one of the RAT actually energized on the secondary side.
2 One of your RATs had a shutdown in it.

3 THE WITNESS: You can open the breaker to the RAT,
4 can't you?

5 MR. DIETZ: No, there are no breakers on the
6 secondary side. It had a RAT. So the pre-thinking is part
7 of what the --

8 THE WITNESS: That's right.

9 MR. DIETZ: -- the advantage and the lesson learned
10 here --

11 THE WITNESS: That's right.

12 MR. DIETZ: -- has to do with if you don't pre-think
13 it, you are also setting yourself up for --

14 THE WITNESS: That's right. You are setting
15 yourself up and you'd have to review that. You've got on the
16 board there --

17 MR. DIETZ: No, there's no breakers at the RATs.

18 THE WITNESS: Well, --

19 MR. DIETZ: See you end up with the lines to the
20 RATs actually energized, and in this case, you add one RAT
21 with a short on it and the other one you had all back in,
22 but there was the potential of having it there with no oil
23 in it.

24 THE WITNESS: This goes back this way --

25 MR. DIETZ: But look at where the line goes when you

1 energize that. You end up with this one. What you need is
2 something here.

3 THE WITNESS: Yeah, and maybe, you know, in
4 maintenance here what we should have done, okay, is gone
5 ahead and lifted this leak for a period of time, but in the
6 condition we were in at that point, that wouldn't have
7 helped. Okay. Because you would have had to restore that
8 leak --

9 MR. DIETZ: No, having that lifted would have gotten
10 you from the other end.

11 THE WITNESS: Yeah, that would have gotten us, and
12 maybe what we should have done is after midloop then gone
13 ahead and restored, you know -- lifted that, you know, and
14 go ahead.

15 MR. DIETZ: That's probably the best, yes.

16 THE WITNESS: That's right. You've thought about
17 the hindsight more than I have.

18 MR. DIETZ: Well, it's interesting, Ocone some time
19 ago set themselves up doing a test where they ended up with
20 a single breaker carrying all emergency power and as you
21 would expect, if an error is going to happen, somehow they
22 dropped that breaker, and they ended up with no power. Now,
23 Ocone doesn't have diesels so they actually literally for a
24 period of time had no AC power on the emergency busses in
25 this station for much of the same kind of line up you ended

1 up with, type of thing -- where they reduced themselves down
2 to where a single error was going to take them out. They
3 actually -- The single error was farther than you were
4 because it took an error and an equipment failure --

5 THE WITNESS: The diesel.

6 MR. DIETZ: You can do some things shutdown t.at
7 you some times forget where you're at and they were at
8 midloop.

9 MR. CHAFFEE: So it sounds like we were saying that
10 you get to the point where you are relying on one component
11 to be able to maintain power to the busses, kind of what you
12 got to in this case, and you ended up when you had your
13 offset loss of power, the only thing you were depending
14 upon was that one diesel generator that didn't work. As
15 you're saying, if people were told that, recognizing that
16 you had something else in the wings, then if they provided
17 for that in some form, then you'd have another alternate
18 method of being able to draw power to it and perhaps that's
19 one lesson we learned from this.

20 THE WITNESS: Right.

21 MR. CHAFFEE: Does anybody have any other questions?

22 MR. JONES: You had mentioned a waiver of
23 compliance. That's something we should -- Do you want to
24 pursue that?

25 MR. CHAFFEE: I understood that there was -- I think

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1 I got this right -- There was some sort of waiver of
2 compliance that was issued from the region to enable you
3 people to -- I guess it was to come out on midloop
4 operation.

5 THE WITNESS: That's correct.

6 MR. CHAFFEE: You had examples of cases -- That
7 might have been an example of where they were.

8 MR. LYON: Can you give me just a little --

9 MR. CHAFFEE: I'll let George explain it, to
10 understand it.

11 MR. LYON: Give me a sentence or two more. I'm not
12 sure what this --

13 THE WITNESS: Okay.

14 MR. LYON: To let you come out of midloop is what I
15 mean.

16 THE WITNESS: Right. We had the event. We had the
17 head on and one pass of tension incomplete. Okay. So it was
18 basically. So they basically was on, bolted on. We did not
19 have the Connosels in place. So that was an available path
20 from the head. Okay. Now, how do you get out of midloop.
21 Well, the only way you really get out of midloop is with
22 run reactor coolant pumps because you can pressurize the
23 primary system 400 pounds, but when you've got dry steam
24 generators, you press some water up and you've got a lot of
25 bubbles left in the U tubes. So the way you get out of the

1 midloop operation is you've got to run reactor coolant
2 pumps. Okay. Otherwise you are in this condition where
3 you'd have really a whole lot less inventory because when
4 the U tubes are full of water, they are basically connected
5 to the steam generators, okay. So you've got an enormous
6 amount more mass to absorb any heat up that you might have.

7 MR. LYON: In other words, you are now connected
8 thermally to the steam generators and in midloop you are
9 not?

10 THE WITNESS: That's right. Okay. But to get there
11 you've got to run reactor coolant pumps. To run reactor
12 coolant pumps you've got to put the Connosels in. We
13 proceeded ahead with that because that wasn't in violation
14 of text specs, but in text specs, to make the last pass
15 intention of studs, you are making a mode change. Okay. To
16 make a mode change, we had -- we basically decided -- you
17 know, we thought the A diesel, and we still think the A
18 diesel, if called upon would start and do its thing
19 automatically, and we knew we had a back-up emergency
20 method. But we had basically declared it inoperable because
21 on the time when it was called to do, okay, it didn't do it,
22 and we hadn't figured out why. Okay. So now we are in an
23 immediate action statement of text specs that says, "Restore
24 your diesels." And we are out working on B and we're doing
25 without the power, and we had a lot of testing to do on B,

1 and we knew we were going to find some problems because we
2 had torn B down. Okay. But we want to get out of this
3 midloop situation as fast as we can. Text specs won't allow
4 you to get out of midloop because you're in action statement
5 and you can't make a mode change, okay, unless you are in
6 full compliance with the LCO. So text specs was
7 constraining us not to do the best thing for the plant. So
8 I asked the regional administrator of the region to grant us
9 a waiver of compliance so we could fully tension ahead and
10 start the reactor coolant pumps and get out of midloop and
11 that's what we did.

12 MR. LYON: And now you are in mode 5?

13 THE WITNESS: Now we are in mode 5. It turned out
14 that text specs for mode 5 and 6 are the same, okay, until
15 the loops were filled, and when the loops are filled, you've
16 still got to restore the diesel, but you are no longer in
17 the immediate action statement that says to restore the
18 diesel. It says you can't move a radiated fuel and you've
19 got to do other things if you are in this configuration.

20 MR. LYON: So your definition of midloop for
21 purposes of text specs includes -- If you've got voids in
22 the generator tube, you are in --

23 THE WITNESS: Midloop.

24 MR. LYON: So that's a very different definition
25 that we used in the generic letter eighty-eight seventeen.

1 THE WITNESS: It may be, but --

2 MR. LYON: I understand.

3 THE WITNESS: -- we ended up with a lot of second
4 guessing about what midloop really meant.

5 MR. LYON: We defined it in eighty-eight seventeen.
6 It's very different than what is applicable to your text
7 specs.

8 THE WITNESS: Well, to me, nobody knew exactly
9 what's applicable to the text specs when you go back to the
10 accident analysis that's applied and then you try to come
11 out with what is the intent of the text specs. Okay.
12 Originally when the NRC created the text specs there was
13 specific accident analysis that applied to text specs one to
14 one. Okay. So when you went to the basis it was easy. It
15 applied to that accident and the text specs applied to that.
16 The NRC subsequently has went ahead and applied a slew more
17 text specs to lower modes or higher mode considerations, 3,
18 4, 5 and 6. Okay. Not necessarily logically based upon any
19 accident. See, accident analysis was never done in that
20 particular mode. So, you know, we have a bunch of cats and
21 dogs, all with good intent. Okay. But a lot of time the
22 cats and dogs get reinterpreted on what they mean and don't
23 mean and cause my staff a lot of work. Okay. And sometimes
24 appropriately so and sometimes not appropriately so,
25 associated with -- What is really the intent and it's a lot

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1 of times hard to figure out. And what does the term
2 "immediately" mean? For example, we've had an OI
3 investigation on the term immediately, associated with
4 adding chemicals at midloop. Okay. And in that
5 investigation I asked those people to please have the NRC to
6 give us interpretation on that. You know, that has not yet
7 been forthcoming. So text specs is kind of like a mine
8 field for the licensee. There is a lot of interpretation
9 and we feel that we understand the intent, but there is a
10 lot of gray areas and you are quite subjected to being
11 second guessed.

12 MR. CHAFFEE: Is the second guessing of this
13 midloop, is that something that occurred as part of the
14 event, or after the event?

15 THE WITNESS: No, actually that occurred associated
16 with the addition of chemicals at midloop.

17 MR. CHAFFEE: On the subject of midloop operation?

18 THE WITNESS: Operation came up at this plant on the
19 addition -- on what is midloop, okay, and then we went to
20 analysis and the on^{ly} analysis that's there is the dilution
21 of that, and what does Westinghouse assume when the dilution
22 of that -- when you are not in a dilution event, and what
23 they assume is, they assume that the U tubes are full of
24 water, okay. Once we fully figured that out and we took the
25 most conservative position, we set a position for ourself

1 was, "Gee, we're going to have the U tube full of water, and
2 we are going to have a visible level and a pressurized, and
3 we're not going to be, basically, second guessed on this
4 anymore."

5 MR. CHAFFEE: I understand. That's probably why your
6 site classes go as high as they do in the midloop for the
7 reactor vessel indications of containment. They look to me
8 like they go very high. I'm guessing that might be part of
9 it.

10 THE WITNESS: I'm not that familiar with other
11 plants so I couldn't say whether -- I'm not sure if others
12 are interpreting midloop different than us. I believe we
13 probably have a very conservative definition of midloop
14 because of some controversy we had here associated with
15 adding chemicals at midloop, or not adding chemicals, and
16 again, an interpretation of an immediate action statement in
17 the text specs. So, you know, my problem with text specs
18 that do not relate to accidents is that they are reviewed
19 and re-reviewed and re-viewed as time goes on, and I would
20 prefer things like SOERs and generic letters that you can
21 comply with the intent and not get into every "i" and every
22 "t" and a relook at every "i" and every "t" every time you
23 go through that.

24 MR. LYON: Let me go just a step further with that.
25 Aa we all know, in the last two or three years there has

1 been a lot of work done on understanding the behavior of --
2 I will use your definition of midloop. And many of these
3 text specs pre-date that understanding. Do you believe that
4 this -- all this, let me call it, new information render
5 some of the text specs obsolete or perhaps incorrect?

6 THE WITNESS: Well, yes and no, meaning to say, for
7 example, text specs that we had to ask for a waiver of
8 compliance on, we should not have had to ask for a waiver of
9 compliance.

10 MR. LYON: Did you ever close your interlock, by the
11 way?

12 THE WITNESS: On our HR valves?

13 MR. LYON: Yes.

14 THE WITNESS: Yes, we do have that.

15 MR. LYON: That's a case in point if you want to use
16 that as --

17 THE WITNESS: You know, that's a case in point, but,
18 you know, we were taking the plant to a safer condition, and
19 yet, we had to ask the NRC for a waiver of compliance.
20 Obviously there is something wrong with text specs in that
21 particular case. Okay.

22 MR. CHAFFEE: I'm guessing, you would also agree
23 that it's not very plausible that text specs can be written
24 to cover every potential abnormal situation we may get into?

25 THE WITNESS: I agree with that. The goal should

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1 be, and it's got to work between the industry and the NRC,
2 the goal should be to make text specs a simpler document
3 where the intent is real clear and the licensee has to
4 comply with the intent. And that's what it should be, and
5 text specs have evolved to more compliance with the literal
6 works, you know. And that's where we're at, but I think the
7 goal should be the other, and I think we are working on it,
8 but it's slow and it requires a lot of work. You know, it's
9 the fundamental licensing document of the plant right there.

10 MR. DIETZ: George, let me ask you a couple more
11 questions towards the electrical area. Plant people,
12 operators and everybody really study the piping systems real
13 hard. How about the electric? Is there --

14 THE WITNESS: I believe they study the electrical
15 system real hard too. You know, and that's just a gut
16 reaction. Our electrical system is everywhere also. As a
17 licensed operator here you've got to know an awful lot about
18 where all the busses are.

19 MR. DIETZ: Are they aware of all the kinds of
20 features? I'll give you an example. Right now on your
21 current condition, you've got the main generator links
22 removed so that you are backfeeding to your UAPs, right? I
23 mean, you're coming through the -- Those links are --

24 THE WITNESS: That's the way we were. We're in a
25 mode of restoring.

1 MR. DIETZ: That's where you were at the time.

2 THE WITNESS: That's where we were.

3 MR. DIETZ: This is a high resistance grounding
4 system for ground detection and fault limiting. And I
5 believe that that circuitry is right at the generator and
6 when you remove the links, you remove your ground fault
7 detection. Are you aware?

8 THE WITNESS: I'm not aware of the protective
9 relaying scheme for that.

10 MR. DIETZ: And I'm not quite sure if it happened
11 here, if that's what occurred, but at another station, they
12 did end up doing that, and over a period of time, they
13 developed some hefty grounds and started a fire in their ISO
14 phase bus, you know, which was energized up to the links
15 because the ground detection was gone and the operators were
16 not aware and nobody was checking those kinds of things.
17 I'm just -- I was more curious if you knew what your system
18 was like.

19 THE WITNESS: No, I don't. I know somebody who can
20 work on it and found out.

21 MR. CHAFFEE: Are we about done? Anybody else have
22 anything else they want to ask?

23 (No response)

24 MR. CHAFFEE: Thank you, George. You have been very
25 helpful, and I appreciate it.

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(Whereupon, the interview was concluded at 12:41

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C E R T I F I C A T E

This is to certify that the attached proceedings before the U.S. Nuclear Regulatory Commission in the matter of :

Name: Interview of GEORGE BOCKHOLD

Date: March 27, 1990

Place: Vogtle Nuclear Generating Plant, Waynesboro, Georgia, were held as herein appears, and that this is the original transcript thereof for the file of the United State Regulatory Commission taken stenographically by me, and thereafter reduced to typewriting by me or under my direction, and that the transcript is a true and accurate record of the foregoing proceedings.

WILLIAM L. WARREN
Official Reporter

ANN RILEY & ASSOCIATES

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