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# OFFICIAL TRANSCRIPT OF PROCEEDINGS

Agency: U.S. NUCLEAR REGULATORY COMMISSION

Title: INTERVIEW OF: KEITH POPE

Docket No.

LOCATION: WAYNESBORO, GEORGIA

DATE: TUESDAY, MARCH 27, 1990

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U. S. NUCLEAR REGULATORY COMMISSION

INTERVIEW OF: )  
 )  
 KEITH POPE )  
 )

Site General Manager's  
Conference Room  
Administrative Building  
Vogtle Electric Generating Plant  
Waynesboro, Georgia

Tuesday, March 27, 1990

The interview commenced at 9:05 a.m.

APPEARANCES:

On behalf of the U. S. Nuclear Regulatory Commission:

GARMON WEST, JR.

On behalf of Carolina Power & Light:

William Jones

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ADDENDUM TO INTERVIEW OF KEITH POPP  
 (Print Identity of Interviewee)

<u>Page</u>	<u>Line</u>	<u>Correction and Reason for Correction</u>
3	17	Change UB to UV
5	1	Change 1A 02 to 1AA02
45	4	Remove "it"
5	899	Line 899 should read so by that time we had dispatched operators to the dialogen
5	22	change "spot" to course
6	13	change sen to soon
9	24	Change "balance plan operators" to Balance of Plant Operator
12	9	Change "then it" to then I
12	11	Should read & is when it started timing and the diesel output breaker
14	15	Change "mode" to remote
18	23	Change "it bolted" to voltage
24	1	Change "Kyle or John" to Kyle Johns
24	20	Change "slide" to slave
26	8	Change "ES BES" to ESFAS
26	11	Change "red" to <sup>exciters</sup> Red Red
26	16	Change "will" to did
28	1	Change "They thru the panel" to They go through the panel
35	7	Should read jacks, so you have one to plug into under the protoms computer there
35	10	Change "into the box" to "under the box desk"

ADDENDUM TO INTERVIEW OF KEITH POPE  
(Print Identity of Interviewee)

Page      Line      Correction and Reason for Correction

35      21      Change "fo" to "or"

Page 2 Date 7/27/80 Signature Keith Pope

PROCEEDINGS

1  
2 MR. JONES: It is 3/27/90. It is about 0905 and we  
3 are at the Vogtle IIT, and we are here to interview Mr.  
4 Pope.

5 Whereupon,

6 KEITH POPE

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

9 EXAMINATION

10 BY MR. JONES:

11 Q Keith, maybe if you would give your name and what  
12 your position is here and maybe just a little of your  
13 background?

14 A My name is Keith Pope. I am a Shift Supervisor at  
15 Vogtle. My background, I started at Vogtle in 1982 as a  
16 Plant Equipment Operator, became Licensed Assistant Plant  
17 Operator in 1986, was promoted to Shift Supervisor in  
18 January of 1988 and just received my SRO March 1 of this  
19 year.

20 Q Okay, maybe you could go through your involvement  
21 and thoughts about what was going on and what you did in the  
22 event on the 20th of March down here at Vogtle?

23 MR. WEST: And if you would prelude that  
24 description with what your position was on the shift?

25 MR. WEST: Okay, at the--during the outage, I am

1 more or less outage support. I was not involved. I was not  
2 on shift per se, but more or less outage support.

3 At the time of the incident, I was in the control  
4 room reviewing some surveillance procedures and outlining  
5 some switch gear outages we had upcoming, and at the time of  
6 the event, I was in Unit 1 control room.

7 When the event started, the first--I saw the lights  
8 dim and I heard over the page announcement, I heard Unit 2  
9 had actually tripped.

10 At that time, I looked over at Unit 1 and all of  
11 the enunciators and looked at the 1E bus potential lights  
12 and saw we had no voltage on either Class 1E bus.

13 At that time, I looked at the diesel generator  
14 controls and saw the diesel had started. The diesel  
15 generator output breaker was closed and the sequencer was  
16 going through its under-voltage sequence loading on normal  
17 UB loads.

18 So, I turned back around to look at NSCW pumps,  
19 which were cooling--which provide cooling water to the  
20 diesel generator and they were started coming up and then  
21 the lights dimmed again and I looked back at the electrical  
22 board and saw the diesel generator tripped.

23 So, I looked and waited--I was waiting for the  
24 diesel to start back up because of the under-voltage signal,  
25 but the diesel had not started, and so at that time, we

1 gathered around and tried to find the reason that the diesel  
2 didn't start, so we dispatched operators out to the diesel  
3 generator building to see if they had a locked out relay or  
4 something and they would not let the diesel start.

5           So time passed and the operators got to the diesel  
6 and all they found was the 160 relay which is a voltage  
7 balance relay.

8           We knew that this shouldn't have precluded the  
9 diesel from starting and so I thought then that we may have  
10 a sequencing problem.

11           So at that time, I went back to clearance and  
12 tagging to get keys to the sequencer. After getting the  
13 keys, I went down and when I arrived at the sequencer, it  
14 appeared that the sequencer was locked up, at the time it  
15 was not running, and so I went back outside the room to call  
16 the control room on the paging system and told them I was  
17 about to reset the sequencer to insure everybody was clear  
18 at the diesel generator building because hopefully it was  
19 going to start back up.

20           So I waited for them to say it was okay. I went  
21 back in. Phill Humphrey and myself went back in and I hit  
22 the under-voltage toggle switch to clear the under-voltage  
23 signals and nothing happened, so then I decided just to  
24 down-power the sequencer and power it back up, resetting it  
25 that way, and so as soon as I brought the power back up on

1 the sequencer, the 1A 02, our 4160 switch gear, it was just  
2 to my right at this time, I heard the diesel generator  
3 output breaker close, so I knew--and I saw the sequencer  
4 running through it at the time, and so I knew that the  
5 sequencer and diesel were operating normally.

6 So I went back to the control room and by the time  
7 I had gotten back to the control room, the diesel had  
8 tripped the second time, so by that time we had diesel  
9 operators. We had operators at the diesel, excuse me, and  
10 they stated they saw a low jacket water pressure trip on the  
11 diesel.

12 The low jacket water pressure trip is a normal  
13 trip. We have two types of starts on our diesels, a normal  
14 and an emergency trip -- start. A normal start has a  
15 number of normal trips activated. An emergency start only  
16 has four trips active, and so we gathered around in the  
17 control room and came up with a game plan to emergency start  
18 the diesel, to bypass the jacket water trip, but we were  
19 going to have an operator monitor jacket water pressure and  
20 temperature to insure that adequate cooling was to the  
21 diesel. We were concerned about not burning up the diesel  
22 at the time. That was our only power spot at the time and  
23 we didn't want to lose that also.

24 So, we also requested engineering to come up with a  
25 minimal jacket water pressure that we could run the diesel.



1 at safely and after a few minutes, they came back and said  
2 that pressure wasn't really a concern, monitor jacket water  
3 temperatures. If the temperatures were normal, then you had  
4 adequate pressure on the diesel, and so we never got a real  
5 hard number back.

6 So, at that time, John Acree, Shift Supervisor,  
7 went out through the diesel building and we asked him to  
8 emergency start the diesel by unscrewing the emergency  
9 start. We have a break-glass emergency start which actually  
10 you unscrew the cap and the button pops out and gives it a  
11 safety injection start signal.

12 So he did that and we observed the diesel come up.  
13 As soon as the diesel got to speed and voltage, the diesel  
14 generator output breaker closed and the sequencer started  
15 loading on its loads normally at that time.

16 So we restored our NSCW pumps, CCW pumps, and then  
17 got RHR. RHR is not sequenced on our normal under-voltage  
18 signal and so we had to manually start RHR and we insured  
19 all diesel parameters were normal, which they stated they  
20 were. So, at that time, we had the diesel up and running.  
21 RHR was back and so now, I started looking into getting the  
22 clearance removed from RAT B and getting the breakers  
23 swapped back around so we could power up our buses from the  
24 B RAT at that time. That is where--my next step was to go  
25 through that.

1           While we were getting the clearance released, we  
2 had lost our phone system, so I took a couple of operators  
3 and went down with some extension cords and rerouted the  
4 phone power supplies to get our Merlin system back.

5           By the time I got back up, the clearance was almost  
6 released on the B RAT, and so we went about using our  
7 procedures to restore the B RAT to operable, energizing our  
8 1E buses from the normal, from its normal power supply at  
9 that time.

10 BY MR. WEST:

11           Q     You mentioned that you--when you first went to the  
12 sequencer room, you had to get the keys?

13           A     Uh-huh.

14           Q     What is involved in that?

15           A     When I went back to the clearance and tagging  
16 office, it was dark, all the lights were out, because of  
17 loss of power and I was searching for our--we use--we have a  
18 master key ring. Well, we keep all our key boxes locked,  
19 and so I was looking for the keys to the key box and  
20 couldn't find them, and so I was going to get a key out of  
21 the key box one way or the other and so I was going to tear  
22 the box open if I had to, so that was my next step, to go  
23 tear the box open and get a key.

24           But when I got to the key box, the keys were in the  
25 door of the key box itself and so I didn't have to tear it

1 open. I just used the keys and went through and got the key  
2 for the switch gear room itself. I had to get a key to  
3 the sequencer panel to get inside the sequencer panels.

4 Q The key was in the lock?

5 A Uh-huh, it was in the lock.

6 Q Is there any expected way as to where you would  
7 expect the key to be located?

8 A Normally the Support Shift Supervisor has them,  
9 keeps them with him at all times, in the pocket. I don't  
10 know where if he was in the middle of something during the  
11 emergency when he came through the control room and left  
12 them in the door. That is total speculation, but normally,  
13 there is always somebody back in clearance and tagging with  
14 the keys.

15 Q The keys were in the door?

16 A The door to the key box itself.

17 Q If the person--I guess you are saying the person  
18 would normally have that set of keys with him or her?

19 A Right.

20 Q If that person had not been there and had the keys  
21 on them, how would you have gotten -- you would still have  
22 needed to have gotten the key box to get the key to the  
23 sequencer room?

24 A Uh-huh.

25 Q The sequencer room door, is that right?

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1           A     Right, the door, well, I could have gotten the key  
2 for the door but the sequencer itself, the keys were inside  
3 the panel. I would have used any means I could have to have  
4 got--

5           Q     To get into the box?

6           A     To get into the box.

7           Q     And in the box are the keys to the sequencer door  
8 room or to the sequencer itself?

9           A     Well, you have three boxes. One box has our door  
10 keys in it. The other has like safety-related panels in it,  
11 so I would have had to go into the panel box to get the key  
12 for the actual sequencer itself, two doors on the front of  
13 the sequencer.

14          Q     Those boxes that you are referring to are in the  
15 sequencer room? Or in the--

16          A     They are in clearance and tagging also.

17               MR. WEST: Okay, I understand.

18 BY MR. JONES:

19          Q     So you needed two keys, one for the sequencer and  
20 for the 4160--

21          A     That's correct.

22          Q     --Switch gear.

23          A     Normally to get into the rooms, we keep a key ring,  
24 a balance plan operator has a remote shutdown key ring, our  
25 reactor operator has one, the shift supervisor has one and

1 the OS has one. Each have a master key and so I could have  
2 gotten either one of those keys to get into the room but the  
3 sequencer key, I would have had to get into the panel to the  
4 box itself to get keys to the panel.

5 BY MR. WEST:

6 Q Is there anything that is established as to how you  
7 access those keys or does it go pretty much the way you have  
8 to deal with it, you just go there and you--

9 A Normally, like I say, the--of course, the support  
10 shift supervisor keeps the key, or whoever is assisting him  
11 at the time usually keeps the keys and if you need a key,  
12 you go back, tell him what key number you need, you go  
13 through the list to see what key number you need and it is  
14 usually signed out on a key log. It is always signed out on  
15 a key log and then when you get through, you just bring them  
16 back and they log you out on the key log for having the key.

17 Q Do you have any sense of how long it took you from,  
18 you were in the control room initially to get eventually to  
19 the sequencer room?

20 A From the time that I decided to go to the sequencer  
21 probably four or five minutes maybe.

22 Q Any problems accessing the sequencer room?

23 A No.

24 Q You got the key by then an--

25 A No problem.

1 BY MR. JONES:

2 Q Would you explain the steps one more time to me,  
3 how you reset the sequencer that day?

4 A Okay, when I--

5 Q Start with the key because I am still a little  
6 confused about something there, and start, you know, you  
7 don't have to unlock the doors.

8 A Okay, the sequencer is in our switch gear room, and  
9 so to get into the switch gear room, you have got one key to  
10 unlock the door to get in. When you get around to the panel  
11 sequencer, it has two panel doors on it that swing out, and  
12 so I had to get the key to open those panel doors.

13 Okay, so when I got there, it appeared that the  
14 sequencer was locked up, was not running, and so I attempted  
15 to--

16 Q I am sorry to interrupt, how could you tell it  
17 wasn't running? What was the evidence or symptom to you?

18 A You are sitting there. You have a timer on the  
19 front of the left-hand panel. When it is running, that  
20 timer is going through its count, like every .5 seconds it  
21 is doing a load.

22 Q Okay.

23 A But it was not running at the time and it has  
24 various alarms on it like diesel failed to start, diesel  
25 generator breaker not closed, and like I say normally we see

1 the lights lighting up on it when the sequencer is running.  
2 You have lights for each output relay and they blink when it  
3 is running and those relays are energized. So I tried  
4 resetting the under-voltage and nothing happened.

5 Q And that is a toggle switch, right?

6 A That is a toggle switch, correct. So I then  
7 decided to down power--you have a main power supply coming  
8 in to the sequencer itself, the molded case breaker. I cut  
9 the molded case breaker off and powered it back up. Then it  
10 went through the resetting of the sequencer again, and that  
11 is when I started timing and the diesel output sequencer  
12 closed.

13 BY MR. WEST:

14 Q What was the lighting like?

15 A The only bad place that I saw was clearance and  
16 tagging which had no lights on it. The switch gear room had  
17 emergency lights in it, battery back up emergency lights.  
18 It was well lighted in the switch gear room.

19 Q It was just the emergency lights?

20 A I can't swear to that at this time.

21 Q That's fine, did you have to use--you were  
22 communicating while you were there in the sequencer room,  
23 you were communicating with the control room?

24 A What I had to do was go outside the switch gear  
25 room to a page system, right outside, on the outside wall.

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1 I would go out--before I did anything, I called the control  
2 room and told them that I was about to reset the sequencer  
3 and to be sure that they were ready and to insure everybody  
4 was clear of the diesel because I was hoping it was going to  
5 start back up at that time.

6 Q Did you communicate throughout with the control  
7 room by way of the paging system?

8 A Uh-huh.

9 Q Rather than some other system, did you have other  
10 means of communication?

11 A We could have taken our sound power head phones and  
12 plugged them into the wall at that time.

13 Q And where would the wall be located?

14 A There was one inside the switch gear room. I  
15 believe it is on the back side of the panel itself, the main  
16 switch gear. I would have to go down there and look, but--

17 Q How many feet is it from the sequencer panel?

18 A To be honest, I can't really remember.

19 Q Is it on the -- directional-wise, is it on the  
20 opposite side of the sequencer panel that you were dealing  
21 with?

22 A Without going back and looking at it again. I  
23 can't remember exactly where it is inside the switch gear  
24 room, but I know there is one there.

25 Q I see. Both forms of communication were available



1 to you, using the sound power phone or using the page  
2 system?

3 A The paging system.

4 Q Why did you decide to use the page system?

5 A Because I didn't really think about the sound power  
6 phones when I was going down at the time.

7 Q I see.

8 A When I got near, the page system was working and so  
9 I decided to use the page system.

10 Q If you had wanted to and you had thought of using  
11 the sound power phones, where would you have gone to get the  
12 head sets?

13 A We had head sets in the control room or I could  
14 have gone to the shutdown panel room. We have a box we keep  
15 sound power phones in for a mode shutdown. I could have  
16 gone next door and gotten those out if I had wanted to.

17 Q Do you know where the jack is for using the sound  
18 power phones?

19 A Uh-huh.

20 Q In the sequencer room?

21 A Exactly its location, I can't remember exactly  
22 where it is now, but I know there is one in there.

23 Q I see. Now, how much time did you spend there, in  
24 the sequencer room, it took you about five minutes to get  
25 there from the control room, and eventually you left, and

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1 went back to the control room, is that correct?

2 A That is correct.

3 Q And so you were there. It took you five minutes to  
4 get there, how much time did you spend in the sequencer room  
5 performing the activities that you mentioned?

6 A I am going to guess another five minutes for the  
7 whole duration. Again, my sense of time during the event  
8 was--

9 Q I understand. What was the thing that made the  
10 sequencer go back into service and that act that started the  
11 diesel generator, what was that? Was that powering up the  
12 sequencer?

13 A When you down power and come back up, you  
14 essentially reset the sequencer back to zero again.

15 Q So the last thing you have to do after the control  
16 room told you, okay, start it, was just to turn it back on?

17 A Down power and turn it back on.

18 Q Okay, so you were ready except for that last  
19 action--activity, right?

20 A That's correct.

21 Q And then you went and called the control room?

22 A Right.

23 Q And what did they say?

24 A They said everybody is clear of the diesel and we  
25 are ready in the control, go ahead and down power and power

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1 back up.

2 Q So as soon as you called them, they were ready, is  
3 that right?

4 A I told them what I was going to do. I said I am  
5 going down and check the sequencer. I needed to tell them  
6 what actions I was going to take, because I really didn't  
7 know until I got there what I was going to do, but after I  
8 saw what was going on, that is when I went back outside to  
9 the page system and told them I was about to down power,  
10 reset the sequencer, to insure everybody was clear of the  
11 diesel and they were ready in the control room.

12 Q Once you had performed your activities regarding  
13 the sequencer and I recall that you mentioned earlier how  
14 you knew what state the sequencer was at when you first got  
15 there, and you mentioned what gave you that indication; what  
16 gave you the indication that after you performed your  
17 activities that the sequencer had done what you had intended  
18 it do?

19 A I saw the timer, the clock running, and I saw the  
20 bi-stables start flashing, and the main thing I heard was  
21 the breaker cycling right to my right. The diesel generator  
22 output breaker was almost right there beside me, I could  
23 hear those breakers cycle, and so when I heard that, I knew  
24 the sequencer was running like it was supposed to, because  
25 the sequencer gives the diesel its start signal and the

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1 breakers--the sequencer will not run through its cycle or  
2 loading loads unless it gets permission from the diesel,  
3 when the diesel comes up to speed and voltage, it then gets  
4 a permissive to close the diesel generator output breaker.

5           The sequencer is sitting there in hold until it  
6 sees that diesel generator output breaker close and the  
7 diesel is ready to load, so once the diesel breaker closes,  
8 then the sequencer starts loading its loads on at that time.

9           Q     You just made one trip to the sequencer room?

10          A     Just one.

11 BY MR. JONES:

12          Q     Who was with you, do you remember?

13          A     Phill Humphrey.

14 BY MR. WEST:

15          Q     What was his role?

16          A     Phill was, I believe he was an extra RO on the  
17 shift that day.

18          Q     Did he have to do anything while you were there?

19          A     He just accompanied me at that time. After the  
20 diesel came--finally loaded up, we did the emergency start,  
21 I then sent Phill back down to the sequencer to make sure it  
22 looked okay, and he went through the reset sequence,  
23 resetting all the under voltage bi-stables, putting the  
24 sequencer back in its normal alignment.

25          Q     Once again, I want to ask you some questions about

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1 the--

2 MR. JONES: Could I just pursue that one issue for  
3 a minute and then I am done?

4 MR. WEST: Sure.

5 BY MR. JONES:

6 Q Okay, let me understand this, because I was a  
7 little confused about something. So Phill went to that room  
8 twice?

9 A Phill was down twice, correct.

10 Q Okay, and you went once when the diesel generator  
11 tripped the very first time?

12 A That is correct.

13 Q And your action made it start the second time and  
14 then it subsequently tripped again?

15 A That's correct.

16 Q So the sequencer was then let alone and the  
17 activities went on, and they opened--they unscrewed the  
18 glass and the diesel generator started.

19 A Uh-huh.

20 Q So then Phill's activity then his second time into  
21 that room was to do what?

22 A Just to go down and look and make sure the  
23 sequencer was operating normally and after you get it bolted  
24 back on the bus, the sequencer is sitting there, it's bi-  
25 stable are in a trip state, the under voltage bi-stables.

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1 Q Uh-huh.

2 A And basically what you do is there are red lights  
3 on each bi-stable card and you just go through and hit the  
4 reset buttons and it takes all the lights out and you go  
5 through and reset the automatic testing circuitry and it  
6 starts it automatic testing clock again, starts cycling.

7 BY MR. WEST:

8 Q Phill is in the sequencer room, you are in the  
9 control room at this point.

10 A That's correct.

11 Q Were you communicating with Phill?

12 A He talked--when he came back up, I asked him what  
13 he saw and he told me, and based on what he told me, I knew  
14 the sequencer was--

15 Q Phill didn't communicate with anyone while he was  
16 in the--

17 A No, not with me.

18 Q I wanted to ask you some questions about the  
19 emergency start and what when on when you come to that  
20 decision, but before moving on to those questions, I want to  
21 ask a follow up question on the phones.

22 The sound power phones are located in a box near  
23 the shut down?

24 A In the shut down panel itself.

25 Q In the shut down panel, is there -- I realize you

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1 weren't crystal clear on where the plugs are for your jack  
2 and the sound power phones, are you familiar enough with the  
3 type of phone headset that is in there such that you know  
4 whether you find in that box extension cords, do you have to  
5 use an extension cord? That is what I am trying to get a  
6 sense of.

7 A In the shutdown panel room itself--

8 Q I mean back at the sequencer panel, if you were  
9 going to use the sound power phones rather than using the  
10 paging system, what is involved there, do you have to go  
11 away from the panel and use the phone or do you have an  
12 extension cord that allows you to be on the panel and use  
13 the sound power phone at the same time?

14 A Sound power phones in the box in the shutdown panel  
15 room have a 50-foot extension cord which is sufficient to  
16 reach -- you plug into the phones and go around to the front  
17 of the panel so you never have to leave, the 50-feet should  
18 be sufficient so you can stand right in front of the panel  
19 and do your work and still communicate at the same time.

20 Q I recognize that you said earlier you didn't  
21 necessarily think of using the sound power phones, would you  
22 have a preferred way of either using the sound power or  
23 using the page system?

24 A If the duration of the job, if that was going to be  
25 a long duration, preferably sound power phones at the time.

1 That way it frees up your hands and you don't have to, say,  
2 be holding a phone to your ear all the time.

3 Q Roughly speaking, what is the distance between the  
4 sequencer panel and the area where you would actually get  
5 the sound powered phone and the extension?

6 A Twenty-five to thirty feet maybe.

7 Q Okay, now I want to shift to some questions on  
8 the--or at least one on the emergency start.

9 A Okay.

10 Q At this point you are back in the control room and  
11 the -- I guess, and correct me if I am wrong, the diesel  
12 generator has tripped for the second time.

13 A Correct.

14 Q And you mentioned that there was some consideration  
15 of an emergency restart, could you give me some details on  
16 how that discussion took place, who was involved, how the  
17 decision was made, what the rationale was and so on?

18 A When the operators reported back that they had seen  
19 a jacket water low pressure trip coming on the diesel when  
20 it tripped the second time, John Hopkins, the Shift  
21 Superintendent at the time, myself, John Acree, and I  
22 believe the SS, Bruce Snider, were gathered around the ERF  
23 computer there and we discussed, we talked about we can  
24 bypass that trip by emergency starting the diesel.

25 We didn't know at the time the jacket water

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1 pressure was a valid trip signal or spurious trip, but we  
2 knew we had to get some power back and we had the diesel  
3 available to do that by going to emergency start, so prior  
4 to John going out to the diesel to emergency start, we made  
5 sure that he was going to monitor jacket water pressure and  
6 jacket water temperatures on the diesel panel itself and he  
7 understood those directions and while all of this was  
8 happening, we were waiting on engineering to get back with a  
9 hard number which later they said just very temperatures, so  
10 John was looking at the jacket water temperatures and  
11 emergency started it, and we watched and he reported back, I  
12 believe 15 pounds jacket water pressure, which is normal  
13 jacket water pressure when the diesel is running and the  
14 temperatures were fine.

15 Q I followed what you were saying the individuals  
16 that you mentioned were discussing the issue and eventually  
17 John Acree goes to the diesel generator.

18 A That's correct.

19 Q But I didn't follow clearly how the decision was  
20 actually made, the dynamics of the decision to do the  
21 emergency start.

22 A We knew the diesel had tripped on low jacket water  
23 pressure. Like I say, it was a normal active trip under  
24 normal start conditions, so we didn't want to do another  
25 normal start on it and have it come back up and trip again,

1 whether it is a spurious trip signal or what.

2 Q I guess what I wasn't clear on was that from the  
3 discussion about an emergency start, was that John's  
4 expectation that once he got there, that is what he was  
5 going to do, or did someone call him from the control room  
6 and ask him to do it? That was the part of it I wasn't  
7 clear on.

8 A Oh, no. Our plan was to monitor temperatures and  
9 pressures and John knew on his way out there he was going  
10 out to emergency start the diesel, by giving it a break-  
11 glass start signal. He knew he was going to do that at the  
12 time.

13 Q How do you know that? I mean, did the individuals  
14 have a discussion that you mentioned? Was there some  
15 indication from someone in the group that, John, you go out  
16 there and you monitor temperature and pressure and you  
17 emergency start the diesel?

18 A That direction was given by John Hopkins, the Shift  
19 Superintendent at the time and everybody knew what the plan  
20 was, so John went out to the diesel, called us and said,  
21 hey, I am ready, and we said, go ahead, give the break-glass  
22 start.

23 Q And how was--were you directly communicating with  
24 John Acree or someone else?

25 A We had--I don't remember if I had the headset on

1 or Kyle or John had the headsets on. I believe Kyle--we had  
2 sound powered phones at the diesel, and direct communication  
3 with the control room at that time. I don't believe at the  
4 time I was on the headsets.

5 Later on, I got on the headsets during the --  
6 bringing the B RAT back up, that is when I got on.

7 Q Would they also have the option at the diesel room  
8 of either using the page system or the sound power phones?

9 A Yes, they do.

10 Q Any sense of why they would have gone with the  
11 sound power phones rather than the page system?

12 A Because whenever we went to diesel, we maintained  
13 direct communication with someone at the diesel panel and  
14 the control room at all times. That is normal procedure, to  
15 maintain direct communication with the control room.

16 Q It is not necessarily the expectation that you have  
17 to do that with the person that is at the sequencer panel?

18 A Normally, like I say, if it is a long duration job,  
19 the only time we really use the sequencer is during our  
20 slide relay testing, at that time, we do have direct  
21 communication from the sequencer to the control room,  
22 because we are actually starting the equipment from the  
23 sequencer, but in the emergency situation we were in, direct  
24 communications weren't necessary as long as we made sure  
25 everybody was clear at the diesel.

1 Q I see. Yeah, I haven't been to the sequencer room,  
2 but I have been to the diesel generator room.

3 On the panel of the--the opposite panel to the one  
4 that has the enunciator system.

5 A Uh-huh, the generator control panel itself behind  
6 you.

7 Q There is a book, and there is a magnet on one side  
8 of the book and that is attached to the panel I am referring  
9 to with the procedures for the diesel generator panel.

10 A Uh-huh.

11 Q Is there a set of procedures for the sequencer room  
12 or the sequencer panel?

13 A No, sir, there is not.

14 Q The actions that you had to take once you got to  
15 that room, how would you know what actions to take?

16 A How would I know? There is a procedure on the  
17 sequencer, re-energizing the sequencer, de-energizing the  
18 sequencer and it is one of our standard operating procedures  
19 and so it is covered by procedure and as far as the under  
20 voltage reset.

21 Q But those particular procedures that you mentioned  
22 and the ones that were applicable to what you had to do once  
23 you got to the sequencer panel, they were not in fact there  
24 at the sequencer panel?

25 A No, they were in the control room.

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1 Q So, again, how would you know the details of what  
2 you would have to do, or anyone else for that matter once  
3 they get to the sequencer?

4 A If you didn't know the procedure, you would have to  
5 have the procedure to do it, to go through the resets and  
6 down power the sequencer, but I had worked with the  
7 sequencer during the pre-op phase and, we had de-energized  
8 it and re-energized it several times because of ES BES  
9 testing. We had to swap buses and down power the sequencer,  
10 block red monitors, like the sequencer said, and I had done  
11 that two or three times the day before and I am pretty  
12 knowledgeable with that procedure on how to do it and the  
13 sequencer itself.

14 Q When Phill Humphrey went back to the sequencer room  
15 for the second time, did he take any procedures with him?

16 A Huh-uh. No. I don't think he will. I didn't  
17 observe Phill with procedures.

18 Q I see, could you give us just a thumbnail sketch  
19 regarding training that you get on areas related to what you  
20 had to do with respect to the event? I am speaking  
21 specifically of the actions that you had to take with regard  
22 to the sequencer, what you had to do there, and would you  
23 tell us what you have got in training with respect to both  
24 training that speaks specifically to being at that  
25 particular panel, if the question is relevant?

1           A     We go through and re-qual training. At least once  
2 a year, they go through the sequencer operation and, let me  
3 see who teaches that one? Greg Kilpatrick, I believe, is  
4 usually the instructor on the sequencer and he does a very  
5 good detailed, I will say, one lines of how the sequencer  
6 works, the flow path, the logic for the sequencer, and in  
7 re-qual training, we go through a very detailed operation of  
8 the sequencer and if no one knew anything about the  
9 sequencer and they sat through it, in that class, they would  
10 be knowledgeable enough to go down to the sequencer, I  
11 believe, to operate it.

12           Q     Is it all classroom?

13           A     All classroom, yes.

14           Q     Do you get any training at the sequencer itself  
15 that is a part of your re-qual or something unrelated to  
16 that?

17           A     As I remember, most of my training, when I was  
18 getting ready for my license or they have, in certain  
19 segments of the training program, re-qual training, you have  
20 got in-plant time, where you go through with an instructor.

21           Q     Uh-huh.

22           A     And a lot of the instructors will take you down to  
23 the sequencer and start testing your knowledge of how the  
24 sequencer works, what are all these buttons on the  
25 sequencer, how you reset the sequencer, so you get some in-

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1 plant time. They throw the panel--well, you can open the  
2 panel doors up and look at the sequencer, what are all of  
3 these testing circuitries, what does this button do if I  
4 were to push it, and so you get good training, hands-on  
5 training on the sequencer. At least, I have personally.

6 Q What about procedures, if you would just give us  
7 some insights there, specific procedures that were relevant  
8 to your actions during the event, classroom or otherwise?

9 A I haven't been in re-qual in so long. I can't  
10 remember whether we go through the sequencer procedure  
11 itself or it's incorporated--the procedure itself is  
12 incorporated in the hand out. We have a big hand out on  
13 sequencer operations.

14 Q During the classroom instruction?

15 A During the classroom, and I cannot remember  
16 offhand, without pulling back and looking at my material  
17 whether the procedure is in that handout or just an outline  
18 of the procedure, a summarization of the procedures in that  
19 handout.

20 Q Now, that you have had the experience from what you  
21 had to do related to the event, is there anything that you  
22 would have done differently?

23 A I can't think of anything that I would have done  
24 differently at the time, no.

25 Q Any thoughts on any operator aids that you would

1 have liked to have had available to you or even if your  
2 actions would have been the same, if there is anything that  
3 you would, any insight you might have on what might have  
4 been more beneficial as you went through these same actions?

5 I guess the only thing that really comes to mind to  
6 me would be like in the area of the keys, anything that  
7 might have been better in that respect; if there is anything  
8 that would have been more useful as you were actually there  
9 at the panel itself?

10 A It might have helped if maybe the key rings, the  
11 emergency key rings that we have had panel keys on them to  
12 get into the room, or maybe even have a sequencer key on the  
13 key rings themselves.

14 Q This key ring that you are referring to, is this a  
15 key ring that you would have?

16 A The RO would have one, the BOP, the shift  
17 supervisor.

18 Q During the event, you would have that set of keys  
19 or the individual would have that set of keys?

20 A If I needed it, I would just grab one set of key  
21 rings and I could get into any door or any panel I needed  
22 to.

23 Q Without having to go through that extra step .

24 A Right. I think that would be very beneficial.

25 Q Any other insights along that line? Any beneficial

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1 things that would be helpful at the panel itself?

2 A At the panel itself, I am not sure how familiar the  
3 other operators are with the sequencer procedure, but if  
4 someone didn't know how to do it, it might be helpful to  
5 have a procedure on the side of the sequencer itself.

6 BY MR. JONES:

7 Q You wouldn't want to make a judgment about how many  
8 SROs could go down and do what you did, would you?

9 A No, I can't speak for others.

10 MR. JONES: That's fine.

11 BY MR. WEST:

12 Q The action that you had to perform, is that  
13 something only an SRO would be expected to do, would you  
14 expect, I believe, would you expect at what level going down  
15 from an SRO to be able to do that?

16 A ROs should definitely be able to do it. Plant  
17 Equipment Operators, they know how to turn the sequencer  
18 off and turn it back on, but as far as going through  
19 resetting of the sequencer and all of the buttons on the  
20 sequencer, I don't believe that they are trained to  
21 physically know what they are doing when they are hitting  
22 all of these buttons.

23 Q So ROs, you would expect them to know how to do it?

24 A Yes, if they don't, they need to know how to do it.

25 BY MR. JONES:

1 Q You got involved in these telephones?

2 A Uh-huh.

3 Q Do you know if the telephones were only out in the  
4 control room or if they were out in the rest of the control  
5 building, or do you know?

6 A I know the Merlin system was off, and I believe--I  
7 don't know whether that portion of the system just goes to  
8 the control room.

9 Q I know a Merlin telephone because it is one of  
10 these black telephones that is sort of up on a pedestal. It  
11 is a nice looking AT&T piece of equipment and that is the  
12 Merlin phone.

13 A That's correct.

14 Q And they were all out, as far as you know?

15 A In the control room definitely I know they were  
16 out.

17 Q So where did you have to go to do that and were you  
18 by yourself?

19 A I had, again, Phill Humphrey was with me and he had  
20 two or three PEOs rounding up extension cords and jacks,  
21 plugging in adaptors, because I had inside the computer  
22 room, on A level of the control building is where the Merlin  
23 system is plugged into an outlet and that outlet was down  
24 powered and I knew there was a--

25 Q You mean like just a regular wall outlet?

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1           A     Just like a wall outlet, and I knew other, inside  
2 the computer room itself, other outlets were coming off  
3 non -- whatever you call them, and so I had to run an  
4 extension cord from inside the computer room out to the main  
5 body of the computer room and plug into another wall outlet.

6           Q     Now, was there anything else, the sort of stages or  
7 steps required where you said you changed the power source?  
8 In other words, you ran a power cord out of one room into a  
9 room which really--a bigger room that encloses the room, the  
10 little room?

11          A     The main body of the computer room itself where all  
12 of the computers are at.

13          Q     And you plugged it in?

14          A     Yes. Other than rounding up extension cords or  
15 adaptors.

16          Q     Uh-huh.

17          A     That's all.

18          Q     There is no kind of sequence, there is no box that  
19 you have to flip switches on or stuff like that?

20          A     No.

21 BY MR. WEST:

22          Q     I recall your distinction between perhaps when you  
23 would opt to use a sound powered phone if you were going to  
24 be there at the panel for an extended period of time versus  
25 the rationale for using a paging system if it was a

1 relatively short time at the panel. In either case, would  
2 you find it beneficial to have the sound power phones there  
3 at the panel if you needed them rather than having to go get  
4 them or is it not a real big difference whether they are  
5 there or at the location that you would have to go if you  
6 wanted it?

7 A As far as time wise locating, if I had thought  
8 about it at the time or wanted to use the sound power phone,  
9 in the control room itself, we have a drawer with cords and  
10 phones, and so all you have to do when you get ready to go  
11 down is reach up and grab a cord and a headset and go down  
12 with it. As far as having one stationed there all the time,  
13 I don't believe it is necessary to have one there all the  
14 time.

15 Q And your reason for believing that?

16 A Because they are readily available in the control  
17 room and next door, if need be, you could get one out of the  
18 shutdown panel room and like I say, normally, when you go  
19 down to the sequencers during the procedure, you take the--  
20 you have the time to grab the head phone and go down to have  
21 communication.

22 Q I have one last question, would you be able to  
23 communicate--I know you can communicate obviously with the  
24 control room, would you also have the capability to  
25 communicate with the person that is in the diesel generator

1 room, either, I guess, the paging system, you could do that,  
2 and also sound powered phone?

3 A The sound powered phones have six connections on one  
4 box, you just insure that you are plugged into the same,  
5 say, channel one, if the diesel is plugged into channel one,  
6 then anywhere in the plant, you plug into channel one.

7 Q I see.

8 A And you can communicate with each other.

9 Q Does that happen that you have that kind of  
10 communication going on, not simply whoever is in the  
11 sequencer room communicating with the control room, but  
12 maybe also at the same time communicating with the diesel  
13 generator room person?

14 A Uh-huh, it happens.

15 BY MR. JONES:

16 Q Since the same system--is that the same system, the  
17 box with the six or so plug-ins, is that the same system  
18 that the person would tie into who is talking in the control  
19 room?

20 A That's the same system.

21 Q Is there some distinction between those six and  
22 then what is called the emergency or plant shut down?

23 A We have, basically, three different sets of plug  
24 ins. You have your normal plug ins which are channels one  
25 through four on the boxes that have six on them, one through

1 four are your normal jacks. The top two on a lot of boxes  
2 are labeled zero. Those are shutdown jacks, safety related,  
3 just like--I don't know if you have seen our red safety  
4 related shutdown boxes, in every--just about every one of,  
5 either a piece of equipment or an equipment shutdown room,  
6 there is a box that is red which has two plug-ins on it.  
7 Those two plug-ins on the red box are the same as the zeroes  
8 on the normal box and we also have what we call refueling  
9 jacks, you have one into the plug-in computer heads there  
10 and we have one into the BOP and one in containment, used  
11 for refueling communications.

12 Q Okay, so you said there were three different kinds,  
13 there is the normal, there is the shutdown, and there is the  
14 refueling?

15 A Right, and we have capability, if we do a remote,  
16 say, a remote shutdown procedure, when you exit the control  
17 room, you have the capability of isolating the emergency  
18 jacks from the normal jacks to prevent a fault from going  
19 through the normal jacks and taking out your emergency  
20 jacks, on those switches it says isolate for normal.

21 Q I know when you were in the sequence room the first  
22 time.

23 A Uh-huh.

24 Q You had a need to communicate with the control room  
25 and you went to the paging system to do that, did you have--

1 not necessarily have at the time, but would a person that  
2 is performing the function you were performing at the  
3 sequencer panel have a need to either be aware of what  
4 someone else is doing, let's say in the diesel room or some  
5 other place or to have communication with that person  
6 outside the control room or not?

7 A I wanted to insure that nobody was around the  
8 diesel at the time, that is why I called the control room to  
9 have them--because they had communications with the diesel  
10 at the time, to insure that everybody was clear of the  
11 diesel when it started up.

12 As far as me having direct communication, as far as  
13 the time saving aspect, I could have saved a little time  
14 probably, not more than a minute, 30 seconds or a minute of  
15 time. I didn't feel I had the need to be in direct  
16 communication with them, because we did have--the control  
17 room as basically the central focus, the command post, and  
18 as long as they had communications with all stations, then I  
19 thought we were adequately covered as far as the safety  
20 aspect was concerned.

21 MR. WEST: That is all.

22 MR. JONES: Yes, I am done too. You can stop.

23 (Whereupon, at 9:55 a.m., the interview was  
24 concluded.)

REPORTER'S CERTIFICATE

I hereby certify that the proceedings and evidence are contained fully and accurately on the tapes and notes reported by me at the interview in the above-entitled matter before the NUCLEAR REGULATORY COMMISSION.

Rose Arnold, CVR, GCCR No. A-8  
Official Reporter

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ANN RILEY & ASSOCIATES