

BEFORE THE FACT FINDING TASK FORCE  
OF THE NUCLEAR REGULATORY COMMISSION

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Re:

Davis-Besse event :  
of June 9, 1985 :

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INTERVIEW OF STEPHEN QUENNOZ AND WILLIAM O'CONNOR

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Interview of Stephen Quennoz and William  
O'Connor by the Nuclear Regulatory Commission Fact  
Finding Task Force, taken before me, Celeste C.  
Dawley, a Registered Professional Reporter and  
Notary Public in and for the State of Ohio, at the  
Site Emergency Operations Center, Davis-Besse Nuclear  
Plant, Oak Harbor, Ohio, on Friday, June 21, 1985,  
commencing at 9:00 o'clock a.m.

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MEMBERS OF THE TEAM:

J. T. Beard

Ernie Rossi

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ACE FEDERAL REPORTERS INC.  
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1 MR. ROSSI: What we are going to do is  
2 continue the interviews with Steve Quennoz and Bill  
3 O'Connor.

4 We had talked to both of you previously  
5 but not together, and we had indicated at that time  
6 we wanted to continue the interview later on.

7 We now are going to interview the two of  
8 you together, because you are both members of  
9 management that arrived at the site sometime either  
10 during or very soon after the event, and first of  
11 all, why don't each of you indicate whether you have  
12 asked anyone else to be in the room at the time,  
13 specifically Mr. Withereil.

14 MR. O'CONNOR: Yes, we have requested  
15 Mr. Withereil be present during this testimony, so  
16 that he could provide counsel if required.

17 MR. QUENNOZ: I concur.

18 MR. ROSSI: Both of you have asked that.  
19 What we have decided to do in talking with you this  
20 time is that we pretty much covered in our previous  
21 interview, everything up to the point where you  
22 either were on your way to the site or had arrived  
23 at the site.

24 So what I would like to do is start with

1 Bill O'Connor and, Bill, why don't you just describe  
2 what you observed and what you did after you arrived  
3 at the site. We are going to try to refrain from  
4 any questions and let you just continue that until  
5 the plant is at a steady state, stable, safe  
6 condition, and if you didn't arrive until after that  
7 then maybe we will have to proceed in a little  
8 different way and then we will have some questions  
9 about what occurred after the plant was at a steady  
10 state, stable condition.

11 MR. BEARD: I think that's a good approach,  
12 and maybe just to sort of get us in the swing of  
13 things we can start with -- I think we had gotten  
14 to the point where, Bill, you had arrived and then  
15 we had gotten to the point where Steve had arrived.  
16 It would be useful for me if we could place those  
17 points in time and go right in where both of you  
18 were there.

19 MR. ROSSI: Let's start with Bill.

20 MR. O'CONNOR: I believe in the last  
21 interview I had already discussed when I arrived on  
22 site and the fact that I had received a turnover and  
23 all that. Do you want me to go over that again?

24 MR. BEARD: If you would just tell me the

1 point in time just to remind me.

2 MR. O'CONNOR: I arrived at 02:46. That  
3 is the exact time that I arrived. I guess I am not  
4 sure. do you want me to go over that again in the  
5 control room?

6 MR. BEARD: I don't think that is  
7 necessary. I just want to get a transition between  
8 the interview we had several days ago and sort of  
9 use that as a transition point. If I could get from  
10 Steve the clock time when he arrived, then we can go  
11 from when you were both there.

12 MR. O'CONNOR: 03:13 Steve arrived, off  
13 the computer printout, 3:13.

14 MR. ROSSI: Bill, describe in general what  
15 the plant conditions were when you got there.

16 MR. O'CONNOR: When I arrived in the  
17 control room, the plant was essentially stable. We  
18 had normal posttrip temperature and pressure  
19 conditions. The startup feedpump was running on the  
20 Number 1 steam generator in parallel with the Number  
21 1 auxiliary feedpump. The Number 2 auxiliary feed  
22 pump was running, providing feedwater to the Number  
23 2 steam generator.

24 Levels were at approximately 50 inches, to



1 the best of my recollection, reactor coolant system  
2 pressure was essentially in its normal postshutdown  
3 condition. I don't remember the exact value, but  
4 they had a bubble in the pressurizer and were under  
5 normal heater spray control.

6 Louie Simon, the operations supervisor,  
7 was in the process of completing the notifications  
8 for the unusual event, which they had declared just  
9 a few minutes before I arrived in the control room.  
10 He was working with the administrative assistant  
11 over the exact message that was going out over the  
12 recorder.

13 When I came into the control room, I asked  
14 Louie to go over the conditions with me and we  
15 basically just walked around the control room and  
16 discussed, you know, where everything was, kind of  
17 what I just told you except in more detail.

18 We went through each panel where we were,  
19 looked at the indications. He explained to me that  
20 the Number 1 auxiliary feedpump was being controlled  
21 from the room locally on the trip throttle valve  
22 control and that the startup feedpump was running in  
23 parallel with it to the Number 1 steam generator.

24 The status of the Number 2 aux feedpump

1 was that they were controlling it in manual from the  
2 control room which is normal after a trip. We put  
3 it in manual control so that you don't get level  
4 oscillation since the controller tends to control  
5 over about a nine-inch band up and down.

6 We went over the rest of the plant in its  
7 status that they were having problems getting the  
8 main turbine onto turning gear. Some of the other  
9 things that were going on. Then Louie informed me  
10 that the source range counters were not -- the one  
11 was technically declared inoperable prior to the  
12 trip and that the other one had not come on scale  
13 properly and that they had emergency boration for a  
14 period of time and that the shutdown margin  
15 indicated that everything was satisfactory and that  
16 they had stopped from the emergency boration.

17 Right after the message was taped for the  
18 recorder -- well, he asked me whether Steve was on  
19 his way in, and I said yes, but he probably wouldn't  
20 be here for another half an hour just due to -- I  
21 know he lives in Perrysburg, Ohio, and it just takes  
22 him longer to get in than it does me, and he said,  
23 "Should we wait for him for the message," and I said,  
24 "No, put the message out that you have recorded at

1 this time and if we need to change anything, we can  
2 later on," but I said it sounded appropriate to me.  
3 You read the message that they put on the tape  
4 recorder.

5 At that time the administrative assistant  
6 was putting the message out and paging the key  
7 response individuals for the unusual event. I then  
8 went to the control room desk and had the -- got the  
9 phone list out for the technical engineer, the  
10 maintenance engineer, the chemist, and health  
11 physicist, and when the admin assistant finished the  
12 paging, which only takes a couple of seconds to key  
13 in the radio pager, I had her get Jack Lingenfelter  
14 on the phone. That was at 3:00. He is the  
15 technical superintendent, and I said I needed Jack  
16 to come in and, at least, Stan Batch and somebody to  
17 delog the computer to start going over the transient  
18 data from the text section since they can delog at  
19 one-second intervals and actually see where the  
20 plant went through the transient, you know, we had  
21 the control room strip charts, but we always call in  
22 a posttrip review team on any shutdown immediately,  
23 and Stan and Jack and usually like Jim Arly or  
24 someone will come in.

1           That evening Jack, Stan, and Joyce  
2   Lingenfelter came in immediately. At five minutes  
3   after three I called Don Lee, the maintenance  
4   superintendent, and I told him that I needed at  
5   least two or three of each of the maintenance  
6   specialties to show up.

7           In other words, I wanted at least two  
8   or three more INC mechanics, two or three more  
9   mechanical maintenance, two or three more  
10   electricians, because of some of the problems we  
11   were having like getting the main turbine on gear  
12   and a few of the other things that were going on, I  
13   just wanted at least eight, ten, or twelve extra  
14   maintenance personnel on site in addition to the  
15   normal nightshift.

16          I called Dave Bryden, the chemist and  
17   health physics superintendent, and told him that I  
18   wanted at least one management and several testers  
19   to come in due to the fact that we would be wanting  
20   additional reactor coolant samples and boron samples  
21   along with the secondary.

22          After a trip we have to sample quite  
23   frequently to make sure that the steam generator  
24   chemistry stays in spec and everything and so with

1 just one tester on site, it is fine for normal  
2 operation with normal sampling, but everything that  
3 you have to do posttrip, it is too much for one  
4 person.

5 Then at 3:20 I called -- not me, I had the  
6 admin assistant call -- all the dayshift operators  
7 and told them to come in at four in the morning,  
8 which is four hours early. In other words, the  
9 normal eight-to-four dayshift, I told them to come  
10 in at 4:00 or as soon as they could thereafter, just  
11 to have an extra operation shift on site since the  
12 nightshift had just been through a, you know, pretty  
13 big event and we needed some extra people.

14 That essentially was all that I wanted as  
15 far as additional support at that time, was to bring  
16 that number of people in, and that would, you know,  
17 make me feel comfortable, if you will, with the  
18 extra support that I needed.

19 MR. ROSSI: I gather at this point you had  
20 completed your preliminary efforts to follow up to  
21 begin the followup of the event and bring additional  
22 people in and that kind of thing?

23 MR. O'CONNOR: Yes.

24 MR. ROSSI: Maybe that is a good point for



1 us to switch over to Steve. Let me ask you one  
2 question. I notice you are using notes today. I  
3 assume that the times and that kind of thing that  
4 you are giving us, that during the last week or two  
5 you have now had a chance to review logs and that  
6 sort of thing, so that the times are relatively  
7 accurate and based on not just your memory, but a  
8 review of logs and events and that sort of thing; is  
9 that correct?

10 MR. O'CONNOR: These are the same notes I  
11 was using during the first couple of interviews, and  
12 you have a copy of these. These are the ones the  
13 administrative assistant was just jotting down in  
14 the control room and you guys have a copy of these.

15 MR. ROSSI: Oh, okay, fine.

16 MR. BEARD: Can we just make it a matter  
17 of record that some people are speaking totally from  
18 memory, some people have one page of notes, some  
19 people have volumes.

20 MR. ROSSI: That is kind of important in  
21 terms of us figuring out later on what is memory and  
22 what is a little more reliable in terms of things  
23 that you have looked at.

24 Steve, why don't you first tell us about

1 any notes and things that you are using so we will  
2 have a feel for that.

3 MR. QUENNOZ: I would like to mention that  
4 I am using the same set of notes that Bill had that  
5 was put down by the administrative assistant, the  
6 shift supervisor, in control at the time of the  
7 event and there has been a lot of things that have  
8 happened in this week and that it would be very  
9 difficult for me to recount these events without  
10 some use of notes at this point in time.

11 MR. ROSSI: Why don't you tell us  
12 basically the same level of detail about when you  
13 arrived and what you found and up to about the same  
14 point in time as what Bill did, and then I think we  
15 are going to switch from the event to some other  
16 subjects.

17 MR. QUENNOZ: All right. As Bill  
18 mentioned, I got there at around half past three,  
19 went in the control room, talked to Bill.

20 Bill discussed efforts he made of getting  
21 personnel in. I looked at the operators; they were  
22 well collected, discharging their duties in a  
23 professional manner. It was calm.

24 I walked around the control room, looked



1 at the equipment. There was, if my memory serves me  
2 right, emergency boration on at the time. I  
3 questioned that and they discussed why they were  
4 doing it and why 1 and 2 was off.

5 We had problems with putting the turbine  
6 on turning gear, and we also had problems with  
7 control room ventilation shutting off due to a  
8 spiking radiation detector that monitors the station  
9 ventilation system.

10 Mr. Crouse was in the control room and  
11 Louie Simon was in the control room. At that point  
12 in time I believe they had the startup feedpump  
13 supplying both steam generators and both auxiliary  
14 feedpumps were backed off. I talked to each  
15 individual operator as much as I could to not  
16 distract him yet get information on the event. I  
17 guess I spent much of the time looking through the  
18 alarm typer, trying to resolve in my mind some of  
19 the things that had happened.

20 I instructed the STA to follow me around.  
21 I was wanting to start making up a log of anomalies  
22 that happened during the event. As I performed my  
23 review and talked with the operators, I instructed  
24 him to write items down we would have to look at or

1 investigate.

2 MR. WITHERELL: Steve, what is an STA?

3 MR. QUENNOZ: Shift technical advisor, he  
4 is a member of the crew, the operating shift, on a  
5 daily basis and he is available there for analysis  
6 of the event. I talked to him briefly also.

7 I think that is my impression of what  
8 happened that morning. The plant was in a stable  
9 condition. The MSIB's were shut and we were looking  
10 long-term to reestablish vacuum.

11 MR. ROSSI: I would like to switch now --  
12 do you have any specific questions on what they have  
13 told us about their actions following the event?

14 MR. BEARD: Not following the event. I  
15 would like to go back at one point and ask one  
16 question on their actions prior to arriving at the  
17 site. I don't know the appropriate --

18 MR. ROSSI: Now is a good time to finish  
19 with the event, and I am proposing to switch over to  
20 questions of maintenance and surveillance testing  
21 and that sort of stuff.

22 MR. BEARD: I will throw out the question  
23 and let either one of you answer as you feel  
24 appropriate, but I would like to understand a little

1 better the thoughts with regard to the need or  
2 desires to go to feed-and-bleed type of core cooling  
3 or PORV cooling as you call it here.

4 We have heard some information that being  
5 close, maybe if we don't get in quick, we are going  
6 to go to it -- maybe that was a form of direction,  
7 but what I am interested in at this point is what  
8 are the key parameters of the plant that you  
9 considered that would trigger such a decision point?

10 I am saying these things like time, is it  
11 things like T ave or what goes into your minds in  
12 terms of making that kind of decision as an  
13 engineering manager as I am generally classifying  
14 you here?

15 MR. O'CONNOR: It would probably be better  
16 for me to start the response to that since I was on  
17 the telephone with the shift supervisor through that  
18 portion of the event.

19 When I called Ted back, as I indicated in  
20 the first discussions on the second phone call which  
21 was, I don't remember the exact time here, but it  
22 was something like 1:46 to 1:48 time frame in the  
23 morning, which was ten to fifteen minutes into it, I  
24 got the plant conditions from Ted, not everything,

1 but the fact that T ave at that time was somewhere  
2 around 585 degrees, somewhere in that ballpark, I  
3 don't remember the exact number.

4 He had told me that he had the steam  
5 isolations to the auxiliary feedpumps open, that he  
6 was opening 599 and 608, that he was opening the  
7 feedwater isolation valves for the startup feedpump,  
8 and he had indications of feed flow from the startup  
9 feedpump although it was not much at that time, and  
10 the aux feedpump was starting.

11 I said, as we discussed before, I said  
12 that if we don't reestablish that in one minute, and  
13 gave him a one-minute time frame from there, that we  
14 would go to PORV cooling.

15 Based on what I was hearing in the  
16 background, the discussions that were going on and  
17 talking to Ted, I was confident at that point that  
18 feedwater would be back on within literally seconds  
19 by the -- he would say things like "I have got  
20 indicated flow on No. 1. I have got indicated flow  
21 on No. 2. Pressure is decreasing in the steam  
22 generator," as the flow was coming on and I said,  
23 "If you don't have stable flow on both pumps within  
24 a minute that I want to go to PORV cooling."

1 MR. BEARD: You are saying you had an  
2 indication from Ted that you did have some flow on  
3 startup feedpump?

4 MR. O'CONNOR: Yes.

5 MR. BEARD: Your direction or comments  
6 were related to getting good stable flow on the two  
7 aux feedpumps?

8 MR. O'CONNOR: Yes, I said I wanted flow  
9 established to both steam generators and if we  
10 didn't have flow to both steam generators, that we  
11 would go to PORV cooling. Now, if he had the  
12 startup pump to No. 1 and the aux to the No. 2, that  
13 is fine, but the words I was hearing was that both  
14 aux feedpumps were rolling and coming up at that  
15 time when I gave him the one minute to go to PORV  
16 cooling, plus T ave was not what I considered  
17 excessively high at that instant. In other words he  
18 told me that subcooling margin was adequate, T ave  
19 was somewhere between 580 and 590 when I was talking  
20 to him at this point, maybe 587, I don't remember  
21 the exact number.

22 He said it was heating up though. He said  
23 he still had good steam generator pressure. I  
24 didn't get an exact number from him, but he said he



1 had good steam generator pressure.

2 What that means, having been an  
3 operator, when you look at that gauge it is a zero  
4 to 1,200-pound gauge in the control room and up the  
5 scale two-thirds to three-fourths, somewhere in that  
6 range, is good steam generator pressure.

7 I mean it isn't like you are reading it  
8 down to a one-pound increment. There are 50-pound  
9 blocks on the gauge and he said, "I have got good  
10 steam generator pressure." He said, "I still have  
11 level indicated," so I was confident that we still  
12 had steam in the steam generators. In the back of  
13 my mind I knew, however, that they probably weren't  
14 removing much heat at this point, but I was  
15 confident that aux feedwater and startup feedwater  
16 were imminent. They would be back in moments.

17 MR. BEARD: What sort of time frame was  
18 this?

19 MR. O'CONNOR: About ten to twelve minutes,  
20 from the best of my recollection, when I called him  
21 back.

22 MR. ROSSI: About ten to twelve minutes  
23 into the incident.

24 MR. O'CONNOR: It was about 1:45 when I

1 called him back, 1:46, somewhere in that time frame,  
2 maybe 1:48.

3 MR. BEARD: Bill, are you using it as sort  
4 of a T zero clock on this time --

5 MR. O'CONNOR: Yes. The trip would have  
6 been at 1:35, the official time, and it was like ten  
7 to fifteen minutes when I called back on the second  
8 call. That is after I had called Louie and Steve on  
9 the initial call.

10 MR. ROSSI: Do you have a record in your  
11 notes or from the administrative assistant on when  
12 that second call --

13 MR. O'CONNOR: No. The only reason I know  
14 that is about the right time frame is looking back  
15 at when the -- these particular valves that Louie  
16 was saying over the phone came open on the alarm  
17 typer, I know it had to be in that 1:45 to 1:50 time  
18 frame because he was saying 599 is coming open, 608  
19 is coming open, 106 open, 107 open. I was listening  
20 to the conversations, you know.

21 In other words, he had the phone up to his  
22 ear just talking to the operators, not to me, and I  
23 was getting all the indications coming open, so I  
24 was getting a warm feeling at that point that



1 feedwater was coming right back on.

2 He would be saying things like, "I have  
3 some flow on No. 1. No. 2 aux feedpump is running,"  
4 so like I say, I had not a good feeling, but I was  
5 feeling better that feedwater was coming back, but  
6 we weren't hesitating not to go to PORV cooling. I  
7 want to make that point. We would have gone to PORV  
8 cooling. We were not ruling it out for any reason.

9 MR. BEARD: Let me see if I can follow up  
10 in that general area. You mentioned at this time T  
11 ave was somewhere around 580 to 590. What is the  
12 normal posttrip type of T ave for loss of main  
13 feedpump to the furnace?

14 MR. O'CONNOR: A normal posttrip T ave with  
15 everything normal in the plant would be around 557  
16 degrees. With the loss of feedwater not removing  
17 heat, the plant of course is going to start heating  
18 up, and with feedwater totally gone, the plant would  
19 have been hotter than this if we had lost it  
20 initially and the main feedpump hadn't done any  
21 cooling, but we had some cooling initially that took  
22 us down to almost our normal posttrip conditions.

23 In other words, what I am saying is if the  
24 reactor trip occurred and all feedwater stopped

1 immediately on the reactor trip, we would have been  
2 up over 600 degrees by our analysis and we weren't  
3 at that point yet. I knew we were heating up, but I  
4 also knew that feedwater was coming back right at  
5 that moment.

6 MR. QUENNOZ: The normal response would be  
7 a dynamic one. It would go up to the PORV and then  
8 scoot its way over to the saturation curve assuming  
9 you had loss of feedwater.

10 MR. BEARD: A normal response for what  
11 kind of a plant condition?

12 MR. O'CONNOR: For a total loss of  
13 feedwater.

14 MR. QUENNOZ: You asked for a total loss  
15 of feed.

16 MR. BEARD: I was really thinking -- maybe  
17 I misstated it. I was really thinking of a total  
18 loss of main feed, not a total loss of main and  
19 auxiliary feed.

20 MR. O'CONNOR: Okay, I was interpreting it  
21 to be a total loss of feedwater.

22 MR. BEARD: Let me ask the other question.  
23 What would be in your estimate typical T ave number  
24 for a loss of main feed, but everything else pretty

1 much working as it would?

2 MR. O'CONNOR: Assuming that the loss of  
3 main feedwater was the initiating transient also,  
4 what would happen is the reactor coolant system  
5 would heat up, trip on high reactor coolant pressure  
6 at 2300 pounds, then come back down, TH and TC would  
7 come together and approach the normal posttrip box,  
8 assuming that the auxiliary feedpump started  
9 normally on the steamfeed rupture control isolation,  
10 so it would come right into its normal posttrip  
11 condition of 557 degrees or so.

12 MR. BEARD: Okay, so that the temperature  
13 would go below the normal posttrip steady value and  
14 then return to some number like 557?

15 MR. O'CONNOR: Yes, sir, that's correct.

16 MR. QUENNOZ: I think that was basically  
17 to your temperature corresponding to the saturation  
18 pressure of your steam generators, plus a few  
19 degrees for thermal driving head.

20 MR. BEARD: One of the reasons for asking  
21 numbers is not to pin you down, but the numbers that  
22 are specific to your facility are a little different  
23 than some of the other numbers for other B and W  
24 designed facilities, and I just want to make sure I

1 understand.

2 So if for a loss of main feedwater  
3 situation, typical number a few minutes into it  
4 would be 557, and you are up at 580 to 590, you are  
5 like 30 degrees ahead of it, higher, but you are  
6 within or below the value you would expect for  
7 complete loss of both main and auxiliary feed?

8 MR. O'CONNOR: Yes, sir.

9 MR. BEARD: Now, what is the significance  
10 in your mind of being 30 degrees above the normal  
11 posttrip value for loss of main feed in terms of  
12 saturation and swells that go on, pressurizer levels  
13 and, you know, benchmark things you carry around in  
14 your head, what is the significance of that 30  
15 degrees?

16 MR. O'CONNOR: The significance of that  
17 thirty degrees is knowing that on a trip we  
18 typically add some water to the pressurizer on the  
19 trip recovery, and the swell of the system would  
20 have taken the pressurizer back up to its normal  
21 operating level.

22 In other words, the plant normally  
23 operates at 582 degrees and we were two to three  
24 degrees above that when I had the callback. The

1   pressurizer level would be somewhat above the  
2   200-inch mark depending on how much water they added,  
3   but it should not be solid or anything like that at  
4   this point. We should still have a good steam  
5   bubble, should be able to spray.

6           MR. QUENNOZ: Maybe I can answer a little  
7   bit on that. There is a thumb rule that the  
8   operators use, that there is one degree of reactor  
9   coolant average temperature will change a  
10  pressurizer level by five inches, so if you had a no  
11  make up to your reactor coolant system as a result  
12  of the trip and came back to 590 degrees, that is  
13  approximately eight degrees above your normal  
14  temperature, which would be five-eighths or 40  
15  inches additional pressurizer level, assuming your  
16  normal level is 200 inches, your pressurizer level  
17  should be 240 inches.

18          MR. BEARD: Along this same line of the  
19  key things that you considered in terms of going to  
20  PORV cooling --

21          MR. ROSSI: Let me ask a question here on  
22  what specifically does the procedure say about when  
23  you go to PORV cooling?

24          MR. O'CONNOR: The procedure states if you

1 have a total loss of main and auxiliary feedwater,  
2 you will go to PORV cooling, and it gives some  
3 details on the right side of the page where they  
4 define what the loss is and that is steam generator  
5 level less than eight inches, steam generator  
6 pressure less than 960 and decreasing is the  
7 definition --

8 MR. QUENNOZ: Both steam generators are  
9 dry.

10 MR. BEARD: I was just following up  
11 Steve's comment that, I think he said that the  
12 condition is that both steam generators are dried  
13 out, and I was following up by saying then I  
14 understand that these pressures and level numbers  
15 that you quote in the procedure would be then the  
16 definition of what constitutes dried out steam  
17 generators, I take it?

18 MR. QUENNOZ: Yes, sir.

19 MR. O'CONNOR: That is the pure definition  
20 of a dried out steam generator.

21 MR. ROSSI: Do you interpret that  
22 procedure as meaning when you get those points from  
23 the control room indicators or recorders for both  
24 steam generators that as quickly as possible PORV



1 cooling should be established, or is there some  
2 procedural thing that modifies it depending on  
3 whether you are about to get feedback or not?

4 MR. O'CONNOR: In the pure sense of the  
5 definition for any procedure you have to do what it  
6 tells you, but operators are allowed to take actions  
7 and there are extenuating circumstances in all  
8 procedures. In other words, there is no need to  
9 jump right up and open the PORV and start both  
10 makeup pumps if you know feedwater is now going in  
11 the steam generators. There is no need to give  
12 yourself a loss-of-coolant accident for no reason.  
13 The operator discretion does come into play in all  
14 emergency procedures.

15 It is impossible to write a procedure to  
16 cover every single circumstance, and it would be  
17 foolish to ever make that requirement, because then  
18 what you will have is a bunch of operators standing  
19 in the control room with their hands in their pocket  
20 blindly following a procedure, so there has to be  
21 some latitude given to the operators knowing that he  
22 has plant conditions that are going on that he knows  
23 for the time and for the specific incident and, in  
24 this case for an example, the operators were



1 confident that feedwater was being re-established  
2 momentarily and they knew that as soon as that  
3 feedpump started that steam generator pressures  
4 would fall right off, cooling would be  
5 re-established immediately.

6 They also knew the seriousness of this  
7 event, and we have been well trained on this  
8 particular event in our annual simulator training,  
9 and they know time frames for reestablishing PORV  
10 cooling.

11 MR. BEARD: They know time frames?

12 MR. O'CONNOR: Yes, they know that if you  
13 let that system cook up and heat up to saturation  
14 and then you start your cooling, odds are you might  
15 not recover it with only PORV cooling, but that  
16 typically takes 20 to 30 minutes without feedwater,  
17 which they were only eight to ten minutes into it at  
18 this point.

19 MR. QUENNOZ: I would like to preface that  
20 that is with only makeup HPI cooling. If at any  
21 time you get back the electric startup pump, you are  
22 assured that you will adequately cool the core,  
23 and any time you would get back either auxiliary  
24 feedwater pumps, then that would be sufficient. You

1 would have no possibility of core uncover.

2 MR. BEARD: You mentioned a minute ago the  
3 operators are very familiar with this type of plant  
4 transient and know the time frames that you gave us,  
5 numbers like 15 to 20 minutes, 15 to 30, what did  
6 that presume?

7 MR. O'CONNOR: I will backup and say it  
8 over again for the time frames. The operators know  
9 based on their training and study of this particular  
10 event for loss of feedwater that the longer you wait,  
11 the worse it is in that if you are without feedwater  
12 for 20 to 30 minutes and then do not regain  
13 feedwater but only get makeup PORV cooling, that the  
14 core may not be protected for that period after that.  
15 They are also well aware that if you get any  
16 feedwater back, whether it be just the startup pump  
17 alone, in conjunction with the PORV cooling or  
18 auxiliary feedwater pump, that there is absolutely  
19 no problem that every analyzed event is within the  
20 bounds of that particular analysis. In other words,  
21 the core will always be in good shape.

22 So putting yourself in their frame of mind  
23 and mine on the phone, knowing we are only ten  
24 minutes into the loss of feedwater and knowing

1 feedwater is imminent, there was no need to initiate  
2 PORV cooling right at that moment. However, we also  
3 put the rule on it, or I did on the phone, and Ted  
4 was going to do it anyhow, that if he didn't have  
5 flow within another minute, that PORV cooling would  
6 have been established. There is absolutely no  
7 question that that would have been done.

8 MR. BEARD: My personal assessment is both  
9 of you gentlemen are very sharp engineers, and I  
10 read between the lines of what you say is that you  
11 are very familiar with the plant transient analysis,  
12 and it seems to me, based on other information that  
13 your people have presented to us, that the operators  
14 as well as you have a feel that the magic point  
15 seems to be we need to get 450 gallons feed from  
16 someplace within 30 minutes. Would you agree with  
17 that or disagree with that?

18 MR. O'CONNOR: I would agree that we need  
19 to get feedwater within that 30-minute time frame --

20 MR. BEARD: Maybe not that number.

21 MR. O'CONNOR: -- but 30 minutes might not  
22 be the exact number. The analysis uses 30 minutes,  
23 but they are also trained that get that back as soon  
24 as you can. In other words, don't sit there with

1 your hands in your pockets for 30 minutes and then  
2 say okay, we will start the startup feedpump now.

3 MR. BEARD: What I am trying to  
4 understand, Bill, is simply that I think you and the  
5 operators knew you were something like twelve  
6 minutes into this scenario. You had an outside  
7 analysis number of 30 minutes, so you wanted to be  
8 moving quickly, but it is not like something one  
9 minute into it -- you hadn't crossed over the magic  
10 threshold is what I am trying to ask you, is that  
11 the kind of feeling you had?

12 MR. O'CONNOR: Yes, we had not crossed  
13 that threshold into "Oh, my goodness, we are in  
14 trouble now." There is still, if you can call it a  
15 comfortable feeling, they still felt confident that  
16 reestablishing feedwater right now, everything is  
17 going to be just fine and it is not necessary to go  
18 to PORV cooling in that first eight or ten or twelve  
19 minutes.

20 MR. BEARD: Let me let that particular  
21 part drop for a minute and go on to the other aspect  
22 of PORV cooling. Did Ted tell you anything about  
23 his perception of the need for PORV cooling or  
24 whether the licensed operator in the control room

1 who was running the secondary side had recommended  
2 that he felt it was time for PORV cooling?

3 MR. O'CONNOR: I do not recall any  
4 recommendations from the RO on the phone at the time.

5 MR. BEARD: Did Ted say anything about  
6 what his assessment was as far as the need to go to  
7 PORV cooling in the sense of should we do it now or  
8 should we wait a minute?

9 MR. O'CONNOR: Ted implied to me that we  
10 were getting feedwater back momentarily and we  
11 discussed PORV cooling on the phone and that is when  
12 the one-minute rule came out of my mouth and it was  
13 "You have one more minute, if not, go to PORV  
14 cooling."

15 MR. BEARD: What about the consideration  
16 of your emergency procedures which say if both steam  
17 generators are dried out go to PORV cooling? What  
18 degree did you consider that in making the one-  
19 minute decision?

20 MR. O'CONNOR: I was convinced the steam  
21 generators were not less than the 960 and less than  
22 eight inches based on what Ted told me when I asked  
23 him what -- when he gave me the plant conditions,  
24 he said, "I have good steam generator pressure."



1 MR. BEARD: For both generators?

2 MR. O'CONNOR: Yes, which to me means he  
3 has got pressure in the 900 to 1,000 range. When  
4 you are looking at the meter, it isn't like he is  
5 sitting there saying, "I have got 967 or 943," but  
6 an operator has a feel for his meters and he looks  
7 down and he sees that needle up at this point on a  
8 scale that is this wide, that is good steam  
9 generator pressure.

10 MR. BEARD: Obviously as we have earlier  
11 noted, the traces of the event, and as we have noted,  
12 you had a chance to look at those now, I presume you  
13 have; is that correct?

14 MR. O'CONNOR: Yes, sir.

15 MR. BEARD: The traces show both steam  
16 generators were in the condition of satisfying the  
17 criteria for both being dried out for some period of  
18 minutes, maybe it is three minutes, maybe it is five  
19 minutes, but some period of minutes, not for ten  
20 seconds.

21 Now, in retrospect, and you may choose not  
22 to answer this and I would not be offended, but in  
23 retrospect do you think you should have been  
24 required or you should have made the decision or

1 that your procedures required you to enter PORV  
2 cooling?

3 MR. O'CONNOR: Not being in the control  
4 room with me watching the meters, I prefer not to  
5 answer the question.

6 MR. BEARD: That is fine, Bill. That is a  
7 perfectly acceptable answer to me.

8 Steve, would you care to comment on that  
9 same question?

10 MR. QUENNOZ: The same comment.

11 MR. BEARD: I have no further questions.

12 MR. ROSSI: I would like to switch over to  
13 some other issues just on general organization of  
14 the plant staff and that kind of thing.

15 Steve, I think this is best addressed to  
16 you first. Could you tell us how the maintenance  
17 organization is at this plant, whether that is under  
18 you, under someone else, and so forth, and how the  
19 organization and engineering support for  
20 troubleshooting is at the plant?

21 MR. QUENNOZ: The maintenance department  
22 is under the plant manager at Davis-Besse. The  
23 maintenance superintendent reports directly to me.  
24 He has a total of four staffs and five different



1 shops which report to him. He has a mechanical  
2 staff, he has an electrical staff, he has an  
3 instrumentation and control staff, and he has a  
4 maintenance planning group. In the shops he has a  
5 pipe shop, a well shop, a repair shop, an  
6 instrumentation and control shop, and a station  
7 services shop.

8 MR. ROSSI: When there are problems with  
9 equipment at the plant, how are they normally  
10 identified and brought to the attention of the  
11 maintenance supervisor or maintenance groups?

12 MR. QUENNOZ: In general, the operators  
13 are the main source of inputs, not the complete  
14 source, but as the operators make their rounds, they  
15 identify equipment problems which they document on a  
16 work request.

17 These work requests are submitted to, in  
18 the case of operators, to the shift supervisor, and  
19 then they are electronically entered. They are  
20 submitted first to the shift supervisor. Then we  
21 have an operations coordinator who receives the  
22 output every morning from the shift supervisor, and  
23 he reviews those for their completeness and to make  
24 sure they are not duplicates, and they are entered

1 electronically on our Davis-Besse maintenance  
2 management system. The maintenance staff will then  
3 turn those work requests into maintenance work  
4 orders. They take basically a request for repair or  
5 calibration or replacement of mechanical equipment  
6 or electronic instrumentation, turn it into a  
7 maintenance work order which is a structured work  
8 procedure.

9 MR. ROSSI: If during this -- oh, let me  
10 ask one question before I go to that. Nonlicensed  
11 equipment operators also identify problems with  
12 equipment?

13 MR. QUENNOZ: Yes, sir.

14 MR. ROSSI: Who decides whether the  
15 maintenance problems that are found are such that  
16 they are actually design problems or more basic  
17 equipment problems that they can't just solve by  
18 repairing equipment or replacing it with identical  
19 equipment? Who makes that kind of decision?

20 MR. QUENNOZ: Well, they just continue  
21 going on with the process. When that particular  
22 staff engineer, maintenance staff engineer, he uses  
23 the CRT to find out which new work requests are  
24 written against his system.

1           Each engineer on the maintenance staff is  
2 assigned one or more systems for which he is the  
3 expert on, and he receives training on those  
4 particular systems. He is the focal point for that  
5 particular system. He is responsible to ensure that  
6 the procedures associated with that system are  
7 current and he is responsible for the final  
8 implementation of any modifications that are made to  
9 that system by our engineering and facility  
10 modification department.

11           MR. ROSSI: Are the engineering and  
12 facility modification department, is that under the  
13 plant manager also?

14           MR. QUENNOZ: No, sir that is under  
15 different organizations outside the station under  
16 the engineering director for the engineering  
17 department and under the nuclear projects director  
18 for the facility modifications. But basically he is  
19 the focal point; he is an expert on the system.

20           MR. ROSSI: "He" being the maintenance  
21 staff engineer?

22           MR. QUENNOZ: Maintenance staff engineer.

23           MR. ROSSI: He is under the plant manager?

24           MR. QUENNOZ: He is under the plant

1 manager. He will prepare a work package based upon  
2 what is written in the work request. Often it  
3 requires him to go out to look at the equipment, to  
4 personally inspect it and determine what is needed.  
5 He may have to talk with people in the shop about  
6 problems they have had with that piece of equipment.  
7 He perhaps would have to go to the vendor if he did  
8 not have the expertise in hand for the repairs of  
9 that equipment.

10 He essentially builds up a package that  
11 specifies tag-out requirements, the procedures to be  
12 used, travelers to be attached to the work order,  
13 such as tagging and welding permits and things of  
14 that sort. He builds up a package for the proper  
15 repair of that particular piece of equipment.

16 He then submits that product to the  
17 maintenance planning group which properly plans  
18 that equipment so that it can be conducted  
19 efficiently on line. We are also instituting in  
20 July a prioritization effort that will, when it goes  
21 through that operations engineer, he will assign a  
22 priority to it based upon operations input on how  
23 important that particular request will be, and it  
24 uses eight different factors.

1 MR. ROSSI: That is not in place now?

2 MR. QUENNOZ: No, it is not in place now.

3 MR. ROSSI: Something new on the  
4 priorities?

5 MR. QUENNOZ: One of our PEP items. It  
6 will serve to prioritize the repair of equipment,  
7 and there are three different categories, and the  
8 first two are really outside of the prioritization  
9 because they are such a high priority that they are  
10 not scheduled, but all the repair work that will be  
11 scheduled starting in July will be done according to  
12 the priorities assigned by the operations department.

13 MR. ROSSI: How has that been done in the  
14 past?

15 MR. QUENNOZ: It has been done in the past  
16 and will also continue to be done under the new  
17 system, but it has been done with biweekly meetings  
18 of the maintenance planning group. There are weekly  
19 meetings, twice-weekly meetings, that will have all  
20 of the maintenance planners, representatives from  
21 operations and QC. They will meet together  
22 generally all morning to develop the work packages  
23 that are going to be released to the shops in the  
24 next few days. Every day we have a meeting.



1 MR. ROSSI: That includes operations?

2 MR. QUENNOZ: Operations input.

3 MR. ROSSI: Who usually attends those  
4 meetings from the operations side?

5 MR. QUENNOZ: A person like Louie Simon or  
6 Vern Opfer and Jerry Lannon. They are all former  
7 shift supervisors who hold or have held senior  
8 reactor operators license, very knowledgeable of  
9 plant systems, and they provide the prioritization  
10 and the operations input so that the work being done  
11 is adequate to support safe operation of the plant.

12 MR. ROSSI: Who decides things like  
13 preventive maintenance and testing of equipment to  
14 ensure that it is operating properly in surveillance  
15 testing? What group does that?

16 MR. QUENNOZ: Surveillance testing is --

17 MR. ROSSI: I am talking more on  
18 surveillance testing more than just what is required  
19 by the technical specifications, but any testing  
20 that is done over and above the technical  
21 specifications to make sure that the operation of  
22 the equipment is kept up to proper level.

23 MR. QUENNOZ: We are under standardized  
24 tech specs so we have a very elaborate surveillance



1 test program. We have a person assigned to that  
2 called surveillance test engineer. He is required  
3 to ensure the proper scheduling of the surveillance  
4 tests.

5 We run a very large number of tests in the  
6 area, in the neighborhood of ten thousand, in excess  
7 of ten thousand tests during the year. There is a  
8 review process associated with a surveillance test  
9 program which I think would be similar to what other  
10 plants have.

11 MR. ROSSI: This is all now really  
12 directed at the tech spec requirements?

13 MR. QUENNOZ: That's all directed in the  
14 tech spec requirements. There are acceptance  
15 criteria with each test to ensure that the equipment  
16 is operable in accordance with the technical  
17 specifications.

18 They receive a subsequent review by the  
19 cognizant engineer, that designated engineer who is  
20 a systems expert. There is also another program  
21 called a performance test program. That is resident  
22 in the technical section which is also a part of the  
23 station. They have a station performance group  
24 which runs a number of performance tests on

1 equipment within the plant to ensure that it is  
2 running to optimal performance. It covers pumps,  
3 pump performance, heat exchangers.

4 MR. ROSSI: This is over and above what is  
5 required by the technical specifications?

6 MR. QUENNOZ: Yes, sir, over and above  
7 them. There is also a number of what we call  
8 periodic tests which are not surveillance tests, but  
9 look identical to a surveillance test, that we run  
10 that is scheduled concurrent with the surveillance  
11 test program. These performance tests will cover  
12 all your turbine testing, other important pieces of  
13 equipment throughout the plant. It is not a  
14 performance test as such, the theoretical  
15 calculation of performance, but actually tests that  
16 are required or recommended by the vendor to  
17 properly check out the equipment.

18 MR. ROSSI: Now, all of that, I gather, is  
19 also under the plant manager and not under the  
20 engineering director?

21 MR. QUENNOZ: Yes, sir, that is correct.  
22 In addition to that program we have a PM Program and  
23 that is inherent in the Davis-Besse maintenance  
24 management program. Those PMs which are identified

1 by those cognizant engineers, the frequency of which  
2 is determined by the engineer utilizing vendor-  
3 supplied instruction manuals. These PMs are  
4 electronically scheduled. If it is a monthly PM,  
5 the computer system will generate that particular  
6 maintenance work order, it is the same one each time,  
7 on a monthly basis. That will be used by the  
8 planner in the shop to conduct that preventive  
9 maintenance, so there is a PM Program, periodic  
10 tests, surveillance tests, and performance tests.

11 MR. BEARD: Ernie, could I interrupt?

12 MR. ROSSI: Sure.

13 MR. BEARD: In this area of your various  
14 programs of testing, have you as a plant manager or  
15 has the plant manager prior to your coming on the  
16 scene specifically asked one of these groups that  
17 are under your control to review the licensing basis  
18 of the plant FSAR to determine that your testing is  
19 adequate to demonstrate that the equipment can  
20 perform in all the various plant conditions, modes,  
21 and things like this that are described in your  
22 licensing documents?

23 MR. QUENNOZ: We are in the process in the  
24 PEP program of developing a configuration management

1 program itself, which part of which will be to get a  
2 handle on the design basis of the facility. We  
3 recognize we have problems in this area and we are  
4 no different from any plant in the nation in that  
5 respect. I somewhat feel that we are ahead of most  
6 plants because it has been identified to us by the  
7 NRC and by our own people and we have made a  
8 preliminary effort, but we are in the process of  
9 making a very structured effort. We have for the  
10 PEP program established a USAR review committee of  
11 very senior people within the company who are doing  
12 a system-by-system review of the USAR who flag the  
13 design basis requirements and also to identify  
14 where the USAR specifically describes procedural  
15 requirements so that they won't get changed, and  
16 this committee has been very formative and  
17 innovative in developing the third guidelines and  
18 they have on a trial basis completed a review of the  
19 high-pressure injection system. So we are on our  
20 way. We have had concerns in this area and we are  
21 addressing them.

22 MR. BEARD: I gather from what you say,  
23 Steve, that this PEP program, PEP --

24 MR. QUENNOZ: Performance enhancement

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1 program.

2 MR. BEARD: This is something that has  
3 been initiated relatively recently, within the last  
4 year, something like that?

5 MR. QUENNOZ: I would want to say two  
6 years old. It is a regulatory improvement program.  
7 One of the main reasons why it was instituted was to  
8 improve our performance based upon the region's  
9 assessment of our operations.

10 MR. BEARD: I gather from your earlier  
11 comment that this committee has completed at least  
12 some initial phase of their work on the high-  
13 pressure injection system. Have they completed a  
14 similar initial phase of work on any other plant  
15 systems?

16 MR. QUENNOZ: No, they will do each of  
17 those in a series again.

18 MR. BEARD: I am just trying to get a feel  
19 for where they were. That is all.

20 MR. ROSSI: Do you have anything more you  
21 want to add on this subject? Unless do you, I  
22 think I am ready to bring it to a close. If you  
23 have anything more that you think is pertinent on  
24 this maintenance or maintenance engineering



1 interface, you know, why don't you add it? I don't  
2 know that I have any more specific questions.

3 MR. QUENNOZ: We do have processes which  
4 will help us flag design problems, maintenance  
5 problems. We do have a nuclear reliability group  
6 who reviews the MWO, MPRDS, call it a checklist that  
7 supplies inputs to the NPRES system, and they are  
8 also charged with reviewing plant operations with  
9 respect to reliability of the components, identify  
10 potential design problems. We have a good contact  
11 with engineering.

12 We write facility change requests, which  
13 is our vehicle to implement or request design  
14 changes, modifications facility.

15 MR. ROSSI: This nuclear reliability group,  
16 that is under the plant manager again?

17 MR. QUENNOZ: No, sir. That is under the --  
18 right now it is under the engineering, nuclear  
19 engineering director.

20 MR. ROSSI: Is that under the -- is that  
21 what you called the engineering director before?

22 MR. QUENNOZ: Yes.

23 MR. ROSSI: So the nuclear reliability  
24 group reviews the NPRDS system and reviews plant



1 operations for design changes is under the  
2 engineering director?

3 MR. QUENNOZ: We also have a nuclear  
4 safety department which gets involved in identifying  
5 problems in the plant that involve nuclear safety,  
6 and they typically champion problems that may be of  
7 a design nature.

8 MR. ROSSI: This nuclear safety group is  
9 again under the engineering director or under the  
10 plant manager?

11 MR. QUENNOZ: The nuclear safety group  
12 reports to the nuclear licensing and safety director.

13 MR. ROSSI: Now is he under the  
14 engineering director or plant manager or is he --

15 MR. QUENNOZ: He is his own director, at  
16 the director level.

17 MR. BEARD: Did you have anything more you  
18 wanted to add on this subject of design or  
19 maintenance?

20 MR. QUENNOZ: Yes, I would like to say  
21 when they do submit facility change requests, there  
22 are design review meetings which help identify where  
23 the station is coming from, help determine what the  
24 possible solutions could be, and help identify

1 whether it is a maintenance problem or a true design  
2 problem.

3 MR. BEARD: I have two general questions I  
4 would like to close out with. These are not  
5 specifically related to the event, and I think that  
6 maybe it is appropriate to ask Bill.

7 Bill, the operators and the shift supers  
8 and things like this report directly or indirectly  
9 to you?

10 MR. O'CONNOR: Yes, sir.

11 MR. BEARD: We are doing a factfinding for  
12 this event at Davis-Besse in a more structured way  
13 than we have done in the past. One of the ways that  
14 we doing this is we are using a court reporter. I  
15 would be very interested in your comments reflecting  
16 your personal opinion and the opinions of other  
17 operators you have talked with and whatnot as to  
18 whether or not the presence of a court reporter has  
19 significantly hampered the exchange of information,  
20 has been basically neutral, or has improved either  
21 the quality or quantity of the information that we  
22 have been able to obtain in this effort.

23 MR. WITHERELL: For the record, I don't  
24 think that either of you have had an opportunity to

1 review your transcripts yet, right? So there may be  
2 some question as to the accuracy of the transcript  
3 after they have an opportunity to read it.

4 MR. BEARD: Right, I was thinking more of  
5 the intangible effect on the people, Bill, your  
6 operators.

7 MR. O'CONNOR: My personal opinion, it has  
8 not significantly affected any information exchange  
9 from me in the one operator session that I witnessed  
10 with Steve Feasel on his initial one, I do not feel  
11 that it significantly hampered his information  
12 exchange, and in talking to the other operators, I  
13 get the same feeling.

14 However, I do feel that it did put some  
15 undue stress upon them that if we were all just  
16 sitting in a room talking, that they wouldn't have  
17 had that extra little feeling on their insides that  
18 there was some level of stress above what is normal.  
19 In other words, had you come in and set us all in a  
20 room and discussed the incident with the exact same  
21 questions that you gave without the reporter, I feel  
22 that they would have felt a little more at ease than  
23 with a court reporter present.

24 MR. BEARD: I guess I don't want to go

1 into it, but the same question I guess could be  
2 asked about the presence of attorneys, legal counsel.  
3 I know I personally was surprised to arrive here and  
4 find the attorneys to greet us for your company. I  
5 guess that is the nature of the situation we are in.

6           Going on from there, the last question I  
7 would like to throw out is that for each of you, is  
8 there anything that you feel that we ought to know  
9 in terms of determining the facts and causes of this  
10 event that you would like to share with us or  
11 anything else that maybe is not related to that,  
12 maybe more general, that you would like to tell us?  
13 I have always asked that at the end of every  
14 interview. If you would prefer to ask the attorneys  
15 to be absent, we can arrange that, if that is your  
16 preference.

17           MR. O'CONNOR: The only thing I would like  
18 to reemphasize is that I know a lot of people that  
19 are not maybe technically competent or whatever will  
20 get to see these tapes and the entire report, and a  
21 lot of people in Washington, such as House of  
22 Representatives people and senators, may not  
23 understand the full impact of all these proceedings  
24 and discussions, and I would just hate to see the

1 pendulum start swinging to require rigorous operator  
2 procedural requirements such that there is no  
3 latitude for the operators.

4 I brought this up a few minutes ago, and I  
5 feel strongly about it, that we would do more damage  
6 to nuclear power or put in extra faults by having  
7 that tone come out of this, that the operators  
8 didn't exactly follow their procedures, and had they  
9 done that, everything would have been all better.

10 These are complex units. There is no one  
11 procedure that can be written for every case. I  
12 will stand our reactor trip procedure, our EP 120201,  
13 against anybody's in the industry. I am confident  
14 that it will solve the problems that would occur in  
15 our station under all the events, and I am confident  
16 that the operators will follow that procedure and we  
17 won't do core damage. But I think that that could  
18 get squashed, if you will, if people feel operators  
19 didn't follow their job and they are suddenly told  
20 to blindly follow everything and don't think.

21 MR. ROSSI: Did the operators have  
22 procedures telling them what to do when they went to  
23 the auxiliary feedwater pump rooms and when they  
24 went to the valves and when they put the startup

1 feedpump in service, or was that primarily training?

2 MR. O'CONNOR: That was primarily training.  
3 They know how to start the auxiliary feedpumps.  
4 They know how to start a pump.

5 They may have had a startup feedpump  
6 checkliist with them, I don't know, but I know that  
7 all of the what we call fully qualified equipment  
8 operators can go down and reset trip throttle valves  
9 on startup feedpumps and open motor operated valves  
10 manually. They demonstrated that they did it in a  
11 very short period of time and I feel should be  
12 commended over those actions. I am not sure whether  
13 you got a chance to walk through where they were in  
14 that period of time, but, you know, to try and  
15 duplicate those efforts, their training played a key  
16 role in this. They knew what to do. They knew  
17 where to go without having to be told step by step  
18 to go down push the lever down, handcrank the valve  
19 open. They knew that. They knew where the valve  
20 was. That should be pointed out.

21 MR. BEARD: We have retraced pretty much  
22 the steps, and I appreciate what you are saying.

23 Steve, did you have comments -- or was  
24 that the end of your comments?



1 MR. O'CONNOR: Yes, sir.

2 MR. QUENNOZ: I had one comment, because  
3 I know that there has been some concern over the  
4 notification process, the fact that we were in a  
5 site emergency and did not declare it. The shift  
6 supervisor and the operating shift was busy with the  
7 plant.

8 In fact, they were in our procedure which  
9 requires them to take actions to place the plant in  
10 a safe condition and then look in the EAL, emergency  
11 action levels. I know that the NRC is struggling  
12 with the concept of the shift engineer, and I  
13 think -- I hope that you can see from the actions of  
14 the operators that they are well qualified and they  
15 have the necessary knowledge and experience to  
16 handle problems, and if there is some concern about  
17 adding additional personnel on shift to handle some  
18 of these problems, I certainly hope they do it in  
19 the right manner by adding additional senior reactor  
20 operators to the shifts.

21 MR. BEARD: What purpose would the senior  
22 reactor operator serve, or are you saying in  
23 contrast to shift engineers?

24 MR. QUENNOZ: In contrast to adding, say,

1 an additional emergency planning individual who  
2 would be assigned to review the EAL and make sure  
3 the notification is made irrespective of plant  
4 operation problems. You can see that there are a  
5 number of responsibilities that they have, as far as  
6 getting into their procedures and making the  
7 emergency plan notification. Somebody standing back  
8 and supervising, somebody handling the maintenance  
9 people that are coming in and want to help, you just  
10 can't let them run off without direction, and there  
11 has got to be a senior level person that is also  
12 providing interface with corporate management and  
13 all those responsibilities are assumed by the shift  
14 supervisor, and my concern is that if we do add  
15 additional people, that they be the right type, they  
16 be senior reactor operators.

17 MR. BEARD: Thank you. That is a good  
18 observation.

19 MR. ROSSI: I think we are finished then.

20 MR. BEARD: I would like to thank both of  
21 you for a good interview.

22 MR. ROSSI: Thank you very much, we  
23 appreciate talking with you.

24

## CERTIFICATE

I, Celeste C. Dawley, a Registered Professional Reporter and Notary Public in and for the State of Ohio, do hereby certify that I took the proceedings and that the foregoing transcript of such proceedings is a full, true and correct transcript of my stenotypy notes as so taken.

I do further certify that I was called there in the capacity of a Court Reporter, and am not otherwise interested in this proceeding.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my seal of office at Columbus, Ohio, on this 24<sup>th</sup> day of June, 1985.

Celeste C. Dawley  
CELESTE C. DAWLEY, RPR and  
Notary Public in and for the  
State of Ohio.

My Commission expires August 25, 1987.

DIRECTIONS FOR MAKING CORRECTIONS

If you have any corrections that you wish to make on your transcript, please do so on the following page in the following fashion:

Indicate the page of the correction, the line number, and then the change to be made and the reason for making the change. Date and sign all correction pages that correspond with your transcript.



11	5	"administrative assistant, the shift supervisor" to administrative assistant to the shift supervisor - correct title.
12	4	"why 1 and 2 was..." should be "why NI 1 and 2 were" recorder error, she was having problems with me talking fast.
13	9	"MSIB's" should be "MSIV's" correct terminology for Main Steam Isolation Valves.
20	7, 8	Sentence should read: "The <sup>RCS</sup> would go up to the PORV setpoint pressure and temperature would work its way over to the saturation curve....."
21	16	Should read: I think that it would go to the temperature corresponding to the saturation pressure of.....
23	14	"which would be five-eghts..." should read "which would be five times eight..." This is what I really said.
33	5	"z well shop" should be "z weld shop" incorrect terminology
34	20	"well, they just" should be "Well, lots just" recorder error
35	15	"the station under" should be "the station. Under" punctuation problem
35	18	"facility modifications." should be "facility modification department.." to correct title.
36	8	"expertise in hand" should be "expertise in house"
36	18	"plans that equipment" should be "plans the work"



	continued	for that equipment ... " evidently talking too fast.
36	21	"that operations engineer" should be "the operations engineer" to make it gramatically correct
36	24	"different factors..." should be "... different factors to make that prioritization" to clarify the comment
37	7	"categories, and the" should be "categories. The ..."
37	15	"It has been done in the past" to "It has been done in the past by operations" recorder error or me talking too fast.
37	18	"There are weekly meetings, twice weekly meetings ..." should be "There are <del>weekly</del> twice weekly meetings" I was correcting myself.
39	19	"engineer, that" should be "engineer, the..." correct grammer
39	21	"called 2..." should be "called the" recorder error
40	2,3	"it covers pumps, pump performance" should be "it covers pump performance" ... stutter?
40	10	"that is scheduled" should be "and is scheduled" talking fast
41	1	"by these cognizant engineers" should be "by the cognizant engineers" grammar
41	8	"in the shop" should be "and the shop" recorder error
41	9	"maintenance, so there is" should be "maintenance, so there is" punctuation problem.

42	1	"itself, which part of" should be "itself, part of" recorder error
42	17	"third" should be "their" recorder problem
43	17	strike the word "again" no meaning.
44	6	"reviews the MWO, MPRDS," should be "reviews the MWO for NPRDS data," terminology, unfamiliar to recorder
44	6	"MPRDS, call" should be "NPRDS, call" punctuation
44	10	"We have a good contact" should be "we have good contact"
44	14	"modifications facility" should be "modifications to the facility" talking too fast caused difficulties with the recorder
44	18	"right now it is under the engineering" should be deleted, "That is under the nuclear engineering director" is to the point.
51	10	"LAL" should be "LALs" plural to be grammatically correct
52	2	same as above "LALs" recorder unfamiliar with terminology.
52	12	"management and" should be "management. And" punctuation