

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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P R O C E E D I N G S

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Proceedings before the Nuclear Regulatory
Commission Fact Finding Task Force in regard to the
aforementioned event, held at Conference Room 210,
Davis-Besse Nuclear Plant, Oak Harbor, Ohio,
commencing on Tuesday, June 18, 1985, at 1:19
o'clock p.m.

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1 PRESENT:

2 J. T. Beard (NRC)

3 Ernie Rossi (USNRC)

4 Don Missig (Senior Assistant Engineer)

5 Tom Isley (Maintenance Specialist)

6 Jeff Blay (Senior Assistant Engineer)

7 Al Topor (J&C Maintenance Engineer)

8 David Lewis (Attorney)

9 Larry Grime (TED-Nuclear Safety Manager)

10 Walt Rogers (Region III)

11 John wood (TED-Fac. Engrg. Gen. Supr.)

12 Dennis Mominee (TED-QA Supervisor)

13 Terry Murray (TED-Assistant Vice-President
14 Nuclear Operations)

15 Bernie Beyer (TED-Nuclear Projects Director)

16 Steve Wideman (TED-Senior Licensing Specialist)

17 Phil Hildebrandt (Consultant)

18 Bob Peters (Licensing Manager)

19 Nick Jackiw (Region III)

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Tuesday Afternoon Session

June 18, 1985

1:19 o'clock p.m.

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5 MR. ROSSI: Okay. Why don't we start the
6 meeting then. What we are here for is to talk about
7 your action plan for the main feed water pump
8 control system.

9 This is part of the work that's being done
10 on or is planned to be done on quarantined equipment.
11 And we have reviewed this.

12 And I guess the general nature of our review
13 is to look for things that might not be specific enough
14 and look to see that all the things that we think
15 ought to be here based on the generic agreement
16 on how you would handle this equipment is here.

17 We have not reviewed it from the
18 standpoint of any details of what you are going to
19 do and that kind of thing. It is a general kind of
20 review.

21 And we are not inferring that we are
22 approving it or anything like that, but we do like
23 to have the opportunity to comment on these before

1 you begin the work.

2 Do you have anything to add to that, J. T.,
3 on the nature of the review since --

4 MR. BEARD: Nature of the review. Let me
5 ask a question. Terry, maybe you are the right one
6 to ask. I don't know for sure.

7 Have you had someone specifically review
8 this plan as a QA check against the generic
9 guidelines to see if it conforms to the guidelines?

10 MR. ROSSI: Wait. we have got a problem.
11 The region is not here. We better stop until the
12 region arrives.

13 MR. MURRAY: Back to the team here to see
14 exactly what they did.

15 MR. MOMINEE: I am Dennis Mominee. I am
16 the Quality Assurance supervisor. I am part of the
17 team that's working for John to review these against
18 those guidelines.

19 MR. BEARD: So you or somebody working for
20 you did a QA check against the guidelines, and you
21 have determined this action plan conforms to it.

22 MR. MOMINEE: Fine.

23 MR. ROSSI: Let's stop until we find the
24 region.

1 (Off the record.)

2 MR. ROSSI: Why don't we begin again. We
3 had started to meet and then we realized you weren't
4 here, Nick, and we stopped until you could get here.
5 And I don't think there was anything significant
6 that happened before you arrived.

7 We are going to talk about the main feed
8 pump control system action plan, and I have given a
9 general overview of the level of review that I had
10 given and J. T. was about to add to that if he
11 wanted to.

12 MR. BEARD: I really only asked one
13 question, and that is the licensee has done a QA
14 check and the results of that are that this action
15 plan does conform with the generic guidelines that
16 we had come to agree to a few days ago. I just
17 wanted to know that that was the case.

18 MR. ROSSI: I guess the biggest area that
19 it looked or I had questions on was the degree of
20 vendor involvement in the trouble shooting.

21 MR. BEARD: Where, about to the table in
22 the back.

23 MR. ROSSI: That's primarily where it
24 talks about it. It is a general comment on. For

1 the actual trouble shooting, what are your plans
2 with respect to the use of the vendor for the
3 equipment?

4 It looks like in item number -- step
5 number two of the action plan seems to specifically
6 indicate that some item will be done under the
7 direction of a GE representative, but then when I go
8 to item three, I don't see that.

9 And could you better define what your
10 intent is with respect to the vendor.

11 MR. ISLEY: Our intention with GE was they
12 would provide most of the direction and trouble
13 shooting.

14 MR. BEARD: Is this on site direction?

15 MR. ISLEY: On site direction, yes. We
16 have two representatives available for our service
17 here on site.

18 MR. BEARD: Do you know if the GE people
19 are engineers or technicians or what?

20 MR. ISLEY: One of them is a regional
21 field representative out of Detroit. The other one
22 is a factory service representative, I believe, from
23 the manufacturing factory in Massachusetts.

24 MR. ROSSI: Okay. And I gather that MPR

1 Associates is involved in just this effort on this
2 component or are they going to be involved in as a
3 consultant on all your trouble shooting?

4 MR. MURRAY: I will let John respond to
5 that. It is more than just this one action plan.
6 John.

7 MR. WOOD: MPR has had direct involvement
8 in this particular item of main feed pump turbine
9 control. They have also had direct involvement in
10 aux feed pumps turbines.

11 In addition to those specific items where
12 we are using MPR Phil Hildebrandt specifically as
13 kind of a process expert for the overall program.
14 So MPR will have some involvement on a broad base on
15 everything and more detailed involvement on some
16 very specific things.

17 MR. ROSSI: And the main feed water
18 controls are one of the specific ones that they will
19 have --

20 MR. WOOD: That's correct.

21 MR. ROSSI: -- relatively high involvement.

22 MR. BEARD: Forgive my ignorance, what is
23 MPR? What does it stand for? What kind of work --

24 MR. HILDEBRANDT: The three gentleman's

1 names who started the firm, Mandell, Panoiff and
2 Rockwell. And we are an engineering service and
3 consulting firm of about 70 professional people. We
4 are located in Washington, D.C.

5 MR. BEARD: Is your expertise in providing
6 like engineering support to maintenance activities
7 like a refueling outage or is it in turbine control
8 or --

9 MR. HILDEBRANDT: All aspects of
10 engineering services primarily to utility and
11 operating plants.

12 MR. BEARD: Is it management thereof or
13 technical or both?

14 MR. HILDEBRANDT: Technical.

15 MR. BEARD: Thank you. That gives me a
16 better understanding.

17 MR. ROSSI: On the involvement of GE, you
18 know, it is pretty specific under step two. I was a
19 little curious as to why it wasn't quite so specific
20 under step three.

21 MR. WOOD: Is the question whether the GE
22 representative is actually directing step three
23 where it is clear in step two that they are?

24 MR. ROSSI: Yes, that's the correction,

1 the concern.

2 MR. WOOD: Can, Jeff, you address that?

3 MR. BLAY: Steps two and three basically
4 would be the same where GE will be directing the
5 trouble shooting that will be taking place.

6 MR. ROSSI: One other question I had is
7 that on five when circuit boards are sent back to
8 GE at Fitchburg, what sort of controls will be
9 maintained over the circuit boards when they go back?

10 MR. BLAY: If we did send them to
11 Fitchburg, we will have someone go with them. In
12 the guidelines you gave us --

13 MR. ROSSI: So you will have someone going
14 with you to Fitchburg, and they will follow the
15 guidelines in the general document on trouble
16 shooting.

17 MR. BLAY: One of us will be going.

18 MR. BEARD: One of the four that is.

19 MR. ISLEY: Yes.

20 MR. BEARD: So you folks will maintain the
21 traceability and company represent plans, makes sure
22 the things are done that should be done and things
23 not done that shouldn't be done.

24 MR. BLAY: Right. And any documentation.

1 MR. ROSSI: And broken equipment is kept
2 and kept track of and that kind of thing.

3 MR. WIDEMAN: Again, I think under the
4 guidelines it said that that type of equipment will
5 be done under a Q purchase order, and our Q P O
6 calls for that type of documentation be supplied.

7 MR. ROSSI: Do you have any comments or --

8 MR. BEARD: I do, but I would rather wait
9 and get it in context.

10 MR. ROSSI: I am finished with questions
11 on it. Go ahead.

12 MR. BEARD: Let me start at the front
13 because I made my comments in the margin, and a
14 couple of them were more like observations than
15 suggestions or things of that nature.

16 I noticed that on page two it indicates
17 that during the event the speed of the turbine went
18 from, as near as I can tell, 3400 RPM and jumped
19 1600 RPM. That's a significant increase; isn't it?

20 MR. BLAY: Yes, sir.

21 MR. BEARD: These are just observations.
22 Oh, yeah, I have a question on page 6 under the
23 section entitled Failure Hypotheses Summary.

24 In the second paragraph, there is a

1 statement that says the ICS turbine speed control
2 circuitry responded properly by reducing the speed
3 reference signal (demanded turbine speed).

4 My question is how did we arrive at this
5 knowledge?

6 MR. ISLEY: During the trip we had on June
7 9, the monitoring that we had available to us didn't
8 provide us any conclusive evidence as to what caused
9 the turbine to trip.

10 We installed the test equipment, and one
11 of the points we are monitoring was this ICS speed
12 signal to the main feed pump. And from that chart
13 recorder we were able to see a drop in the demanded
14 speed signal.

15 MR. BEARD: This was during the June 9
16 event you had this instrumentation, and that's where
17 you saw it.

18 MR. BLAY: It was hooked up following the
19 June 2 trip.

20 MR. MURRAY: It was following the June 2
21 trip so that we were able to make this observation
22 following the June 9 trip.

23 MR. BEARD: Got it. Thank you. Just a
24 matter of understanding, because this is the first

1 one of these action plans we have reviewed under the
2 guidelines.

3 On page 8, there is a section called
4 Hypotheses Investigation. Should it be my
5 interpretation in a more general sense these are the
6 three hypotheses of what the root causes of the
7 failure are?

8 MR. BLAY: Yes.

9 MR. BEARD: All right. Now, on I guess
10 this table in the back or action plan chart like you
11 have got, page 1 of 4, can you tell me a little bit
12 about to what extent you have discussed this
13 particular problem with the vendor in the
14 development of this action plan particularly his
15 ideas or inputs as to what might be the likely cause
16 and things of that nature, things he might suggest
17 in trouble shooting effort.

18 Have you had such a discussion?

19 MR. ISLEY: Yes.

20 MR. BLAY: We have with GE, yes. You want
21 to talk about that list.

22 MR. ISLEY: When we -- when the plant
23 tripped on the 9th, I had gotten a hold of GE that
24 same day and described to him what we saw and asked

1 him for ideas on what kinds of things could have
2 caused that.

3 I had also talked to the people from MPR
4 Associates, who were involved in the main feed pump
5 testing earlier, and explained to them what had
6 happened.

7 Again, we all agreed that some kind of --
8 one possible cause of this is a loose connection in
9 either the speed sensing or the valve feedback loop
10 could have caused what we have seen.

11 MR. BEARD: So they did assist you in
12 developing these steps?

13 MR. ISLEY: They certainly did. We worked
14 closely with them.

15 MR. ROSSI: I think we should know what
16 Rogers came in. He is from the NRC Region III. He
17 is the senior resident here I believe. So if he
18 speaks up you will know who he is.

19 MR. BEARD: Item two, step two I guess it
20 is called on this chart, I am curious when you go to
21 check particular printed circuit boards but the
22 particular boards you list four of interest and you
23 state that function signal generators may be used as
24 input signals.

1 I am curious with regard to the technical
2 reference in the sense of do you have or will the
3 vendor be bringing a trouble shooting chart that
4 says this board, for example, if you put some
5 function on it it is supposed to get something on
6 the output that is predefined?

7 MR. ISLEY: He has developed some
8 guidelines, some action steps that he wants to take
9 in doing the circuit board check out. Those steps
10 will be formalized on the maintenance work order.

11 MR. BEARD: I am trying to focus on
12 whether or not the expected results will be defined
13 prior to making the measurements.

14 MR. ISLEY: Yes.

15 MR. BEARD: Item number four on the next
16 page at the end of item number four the statement
17 that reads GE may also perform additional checks.

18 I think it might be worthwhile for the
19 sake of avoiding, easily avoiding confusion or
20 misunderstanding to add some words in there to the
21 general effect that these as long as they are
22 performed under the general guidelines that we have
23 agreed to or reference to item 01 above whatever, so
24 when the GE man reads this he is reminded that he

1 does not have total carte blanche on this matter.

2 MR. ROSSI: Well, let me ask a question.
3 Do you have satisfactory control over the GE person
4 so if any additional checks are performed they will
5 meet the criterion that J. T. just described?

6 MR. ISLEY: I think we do. We have sat
7 down with the general guidelines, rev two, and we
8 have gone over them with the GE representatives.

9 We have explained to them very clearly
10 that to begin with we are in a trouble shooting
11 phase. When we find something wrong, we are not
12 going to fix it.

13 We are going to stop and inspect, have
14 that documented. And they have -- they understand
15 that clearly, and they have agreed to work within
16 those guidelines.

17 MR. ROSSI: Then why don't we leave it
18 that you ought to look at your document and see if
19 you need any additional words here.

20 If you feel you have got the control and
21 you meet the criterion, then I think that's up to
22 you at this point. That's a comment that we will
23 offer for your consideration.

24 MR. BEARD: I think that we are trying to

1 make it clear that we are not requiring that words
2 be changed here.

3 MR. ISLEY: I understand.

4 MR. MOMINEE: In addition to that, we are
5 going to have some -- one of these individuals there
6 or someone who is cognizant of the work going on at
7 all times, and we are also going to have QC coverage
8 there a hundred percent of the time.

9 We will have a QC person there, and they
10 have had instructions to make sure those guidelines
11 are followed.

12 MR. BEARD: On the last page, I have got
13 one last comment, and I am finished. This one we
14 may need to discuss just a moment to make sure I
15 have a proper understanding, but as I understand in
16 the previous steps you are going to take various
17 boards and do some input of some function generators
18 or whatever.

19 You are going to test various boards, and
20 if you can't determine cause, you are going to send
21 the boards out.

22 MR. ISLEY: That's correct.

23 MR. BEARD: The question came to my mind
24 immediately by trouble shooting by substituting a

1 board known to be good and see if that makes the
2 problem go away versus sending a suspect board off
3 site. I am wondering if you can give me some feel
4 because -- well --

5 MR. ISLEY: We have no plans on doing the
6 substitution routine. If we isolate a bad board, if
7 we isolate the problem to a board, we will have
8 possibly isolated to a specific component on board
9 on site.

10 If we cannot isolate to a specific
11 component on site, that board will be sent to the
12 factory for isolation to the specific component.

13 We have spare boards available to put in
14 the system and make the system operational to
15 support plant start-up or operation as necessary.

16 MR. BEARD: You are explaining something
17 as I had not understood as I read this. I had not
18 understood you were going to isolate to a board and
19 then a component on the board. That wasn't clear to
20 me.

21 MR. ISLEY: I intend to try and isolate to
22 a component if possible.

23 MR. BEARD: At the point where you get it
24 where you narrow it down to a board; that normally

1 not the lowest level you go in materials of
2 replacement to get the machine operable again?

3 MR. ISLEY: It depends upon the time
4 constraints we have.

5 MR. BEARD: Assuming you have a spare
6 board.

7 MR. ISLEY: If we have a spare board,
8 normally we will replace the board and then send the
9 board out for repair.

10 MR. BEARD: Would your trouble shooting to
11 confirm that you found the fault -- let me say it
12 like this, when I was taught to trouble shoot, I
13 guess, you make an educated guess which board it is.
14 You replace it with a new one and convince yourself
15 the problem is away.

16 To test it you put the old one in and see
17 if the problem is going to return. Does your
18 trouble shooting include that confirmatory step when
19 you think you replace the faulty board with the good
20 one.

21 Do you intend to put the old one in and
22 show proof positive that you found the faulty one?

23 MR. ISLEY: That was not something I
24 planned on doing. And I was hoping that by the time

1 we got to a board that it was more than just a guess
2 that the board was bad, hopefully.

3 MR. BEARD: "Guess" was a poor word.

4 MR. ISLEY: Positive it is the board,
5 putting the board back in is something we could do.
6 That is not outside the realm of things we can do.

7 MR. BEARD: Okay. So would it be a
8 correct understanding that any board that went to
9 GE would be a board that you convinced yourself has
10 some faulty component on it and you just haven't
11 identified locally what the component is, but you
12 know the board is bad.

13 MR. ISLEY: No, if we get to step five and
14 have not found anything wrong, then we will be
15 sending the full set of boards, the four boards
16 identified, to GE where they have a more
17 sophisticated test bench to set things and they can
18 do more of a stress test than we can do on site here.

19 MR. BEARD: Okay.

20 MR. ROSSI: Anything else? Do either of
21 you from Region III or, Nick, do you have any
22 comments, or questions?

23 MR. JACKIW: No, I don't. Walt.

24 MR. ROSSI: Walt, do you have anything?

1 MR. ROGERS: No.

2 MR. ROSSI: Okay. I guess we are
3 concluded with this meeting then. It is our
4 understanding that this is the only one that we need
5 to talk about today to avoid holding you up; is that
6 correct?

7 MR. MURRAY: John.

8 MR. WOOD: We have given you also, I think,
9 the turbine bypass problem analysis. I think our
10 intention in the focus of this report that you have
11 and that we are trying to establish that the timing
12 of this failure was in the time frame that should
13 not be a prime concern of the fact finding team.

14 It was in the 7:00 a.m. in the morning
15 time frame, well after the transient event, and the
16 problems associated with the things such as the aux
17 feed pump or the main feed pump activity.

18 If we could have a review of that in a
19 reasonable time frame, it would be appreciated such
20 that we could commence on getting setup to tear the
21 valve apart and see what re-placement parts or
22 activities we will have to undergo in order to
23 restore that valve in that arrangement.

24 MR. ROSSI: Is tomorrow soon enough for

1 you on that one?

2 MR. WOOD: If that's -- yes. That will be
3 soon enough.

4 MR. ROSSI: Did you have something you
5 would -- you wanted to add?

6 MR. ISLEY: I just have a question. I
7 understand that a representative from the NRC will
8 also be witnessing this work at least on a part-time
9 basis. And just what will his function be, please.

10 MR. MURRAY: Our discussions with Wayne is
11 that we inform them in advance of our schedule for
12 actually performing this work, and they will decide
13 to what degree they are going to follow the action
14 that will be followed that we will be taking with
15 our action plan.

16 So our Toledo Edison's requirements are
17 that we provide information to the NRC at least 24
18 hour advance notice on our schedule of activities.
19 Is that consistent?

20 MR. ROGERS: You want to know what I am
21 going to be doing while I am down there, Tom?

22 MR. ISLEY: Yes. Are you going to be
23 doing the same thing if you witnessed me doing a
24 surveillance test or something?

1 MR. ROGERS: I will be doing my normal job
2 in terms of watching what's going on making sure
3 with the new guidelines that you are in accordance
4 with your guidelines and watching the maintenance
5 activity.

6 MR. ISLEY: Okay.

7 MR. WIDEMAN: I went down and witnessed,
8 watched some of the activities on AF 599 and 608.
9 And they had the two inspectors and, you know, at
10 certain points in time there was maybe some
11 discussion between the lead and the NRC as to maybe
12 they just had a couple of questions or, you know,
13 maybe a couple ideas or something like that.

14 So basically they are just overviewing the
15 activities.

16 MR. ISLEY: Okay. Thank you very much.

17 MR. BEARD: Could we take a minute.

18 MR. ROSSI: well, as far as I am concerned,
19 if no one also has any other comments -- did you
20 have anything else?

21 MR. ROGERS: I just wondered when they
22 were going to actually start doing the work.

23 MR. ISLEY: We have to get the MWO's
24 approved. It will be sometime tomorrow before we

1 are actually ready to go down there and do some work.

2 MR. ROGERS: I get a good night's sleep.

3 MR. ISLEY: No problem there, Walt. No
4 problem.

5 MR. ROSSI: I think we can end the meeting,
6 and we will get back when we get to the next one.

7 MR. GRIME: We can also plan to put the
8 NI's on tomorrow's plan.

9 MR. ROSSI: The NI's and turbine bypass is
10 fine.

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12 Thereupon, the meeting was
13 concluded at 1:51 o'clock p.m.

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CERTIFICATE

I, Kim E. Snyder, 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 Registered Professional 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 18th day of June, 1985.

Kim E. Snyder

KIM E. SNYDER, Registered
Professional Reporter, Notary Public
in and for the State of Ohio.

My Commission expires January 12, 1989.