

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 205,
Davis-Besse Nuclear Plant, Oak Harbor, Ohio,
commencing on Saturday, June 15, 1985, at 4:30
o'clock p.m.

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PDR ADOCK 05000346
T PDR

RUNFOLA & ASSOCIATES (614)445-8477
COMPUTERIZED TRANSCRIPTION

1 PRESENT:

2 J. T. Beard (NRC)

3 E. Rossi (NRC)

4 Wayne Lanning (NRC)

5 T. L. Bell (NRC)

6 W. D. Shafer (NRC RIII)

7 Stephen Burns (NRC OELD)

8 Steve Wideman (TED-Senior Licensing
9 Specialist)

10 John K. Wood (TED-Fac. Engrg. Gen. Supr.)

11 Terry Murray (Assistant V.P. Nuclear
12 Operations)

13 Bernie Beyer (TED-Nuclear projects)

14 Dennis Mominee (TED-Quality Assurance)

15 Larry Grime (TED-Nuclear Safety Department)

16 Ned Choules (NRC RIII)

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1 Saturday Afternoon Session

2 June 15, 1985

3 4:30 o'clock p.m.

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

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7 MR. ROSSI: If everybody is ready, we
8 will go on the record now.

9 And what we are here for is to discuss
10 Revision I, dated June 15th, 1985, of the
11 guidelines to follow when trouble-shooting or
12 performing investigative actions into the root
13 causes surrounding the June 9th, 1985, reactor trip.

14 We have reviewed your revisions based on
15 our meeting yesterday and we have discussed them
16 among ourselves, and we have about three changes
17 which I will give to you that we think ought to be
18 made, and then we will discuss why we think those
19 ought to be made. And we want to just make sure
20 that we are on the record here in the discussion of
21 telling what our understanding is of a couple of
22 other things that we read in here that we aren't
23 going to ask to be changed.

24 Okay. The first actual change to the

1 document would be in Item B, to strike the word
2 "recent" and to put a slanted line between
3 surveillance, slant. It will be surveillance slant
4 testing.

5 And let me explain why we think this
6 ought to be done. We are a little concerned that
7 with the word "recent" in there, it may limit how
8 far you go back and look on your maintenance and
9 surveillance slant testing, and we would rather
10 leave it more open, that you would go back as far
11 as you think you need to go in order to insure a
12 thorough review for finding this trouble-shooting.

13 The reason for the slant between
14 surveillance and testing is that we would
15 understand testing to include any trouble-shooting
16 testing that may have been done on the equipment as
17 part of maintenance or check-outs or trouble-shooting,
18 and not just the licensing-based required
19 surveillance testing. And that's the reason for
20 the change in Item B.

21 Now, does anybody have a problem with
22 making those changes to the document with the
23 understanding that I just gave you?

24 MR. BEYER: With the deletion of "recent"

1 it's open to the judgment on the part of the
2 individuals?

3 MR. ROSSI: Either way is going to be
4 open to a judgment. Either if the "recent" is
5 there it's open to judgment, if it's out it's open
6 to judgment. But you ought to look carefully
7 enough back to make sure you have gone back far
8 enough to be totally applicable to what you are
9 looking for.

10 MR. BEYER: That's what we had in mind.

11 MR. MURRAY: The second part of that, I
12 might add to let you feel a little warmer about the
13 whole thing, normally the testing you were
14 concerned about there would be a part of the
15 maintenance that we review in the front part of
16 that sentence.

17 MR. ROSSI: It fits together then.

18 MR. MURRAY: Right. You haven't changed
19 anything with these words as far as what we would
20 be doing.

21 MR. ROSSI: That's good.

22 MR. BELL: What's the difference between
23 a periodic test and a surveillance test?

24 MR. MURRAY: In our terminology, you will

1 see the formal title periodic test on some of our
2 procedures and surveillance test on others. The
3 surveillance tests are those which are written to
4 comply with the requirements of our technical
5 specifications.

6 The periodic tests are those over and
7 above what's required by the technical
8 specifications which we had decided that we wanted
9 to run for our own information.

10 MR. ROSSI: Okay. And so that's the main
11 thing we wanted to be sure, that that was also
12 reviewed.

13 The next one is in Item C, we would like
14 to insert the words after the word data: "including
15 A and B above."

16 The main reason we want to do that is
17 that we in your documentation and summarizing of
18 data and even in what you do in Item G, we want to
19 make sure that we don't just end up with a
20 statement that the maintenance and surveillance
21 testing history was reviewed, but that we get a
22 reasonable summary of the significance of the findings
23 that you get from your review of maintenance and
24 surveillance and not just a statement that you did

1 the review.

2 So with that, do you have any problems of
3 making that change with the understanding that I
4 just gave? So you know, we really want some sort
5 of a summary conclusion of what you found in your
6 review of maintenance and surveillance testing and
7 its meaning.

8 MR. MOMINEE: You are saying you want us
9 to get specific, note the test and test number and
10 the date that that --

11 MR. ROSSI: No. What we are asking for
12 is a summary of what you found, what your
13 conclusions are, and what their significance is.
14 Not just a statement that you did it and not a list
15 of everything you looked at.

16 MR. GRIME: If you recall Mr. Long's
17 action plan had described some of that type
18 information in it. I think he had the maintenance
19 information in his and we have asked him to add the
20 test information. But that's consistent -- it
21 sounds like what you are saying is consistent with
22 what we have been instructing the people to do.

23 MR. ROSSI: Okay. Fine. Then I would
24 assume that you don't have a problem with those

1 changes?

2 MR. BEYER: I don't have a problem.
3 That's really what we had in mind. The summary of
4 the data would be identifying all of the
5 significant things that we are going to base any
6 determinations on. So that's consistent.

7 MR. ROSSI: Well, I said something I
8 think a little differently. I said we would expect
9 a summary of what you actually found from the
10 maintenance and surveillance testing review, not
11 just how you were going to use it, but, you know,
12 what you found.

13 MR. BEARD: Would an example help at this
14 point? Suppose you reviewed the maintenance and
15 testing history on some component and you found out
16 that the history indicates that the last time that
17 there were problems with this piece of equipment,
18 it happened to be all in one same area; okay? And
19 then you could identify that area. To me that
20 would be a significant conclusion or finding from
21 the review. You would not necessarily have to
22 identify all the dates, specific procedures, et
23 cetera, but that would be a summary, and you may
24 include some details like, you know, five failures

1 over an eight-year period, and they were all in the
2 same cause and those kinds of things. That would
3 tend to support a hypothesis of the root cause of
4 what may have occurred this time.

5 Or you may come up, as a separate example,
6 we have looked back ten years and this device has
7 never had a failure. That's significant also.

8 MR. ROSSI: And that's the kind of
9 summary we would like to have.

10 MR. BEYER: That's what I had in mind. I
11 don't think I have a problem with that.

12 MR. MURRAY: What again were the words
13 after data? You were going to insert the words --

14 MR. ROSSI: "Including A and B above."

15 MR. MURRAY: Including A and B, okay.

16 MR. BELL: Or another part of that would
17 be a stroke time of a valve is increased over a --

18 MR. BEARD: Yeah.

19 MR. BEYER: Yeah.

20 MR. ROSSI: Those are the only changes
21 that we thought ought to be made to the document.

22 Now, there was one other thing that we
23 want to caution you on, and that is up in this
24 first paragraph where you put in where you have in

1 here the personnel developing the action plan shall
2 have knowledge of the design criteria of the
3 specific area being considered.

4 By design criteria, it's our understanding
5 that what that means is the specific design
6 criteria for the equipment or components involved
7 and not just whatever might be listed as design
8 criteria in the FSAR. In other words, we want it
9 down at the equipment level and not just the broad
10 general design criteria that's in the FSAR.

11 Now, we just want to make sure that
12 that's everybody's understanding, and we don't
13 think you need to change the document because we
14 don't know how to change the document to make it
15 any clearer, but we did want to tell you what we
16 think it means and get your confirmation that's
17 what you think it means.

18 MR. BEYER: I think that's very
19 consistent with what we had discussed because we
20 specifically had the word equipment either in our
21 conversation if not in writing and we said
22 equipment was too limiting because when you get
23 into SFRCS or something like that, equipment may
24 not be a very good descriptor. So we used the word

1 area.

2 MR. BEARD: We were discussing the word
3 criteria primarily is what was meant by knowledge
4 of design criteria.

5 MR. BEYER: Yeah.

6 MR. ROSSI: Okay. Those are the only
7 items I had that we needed to talk about. Why
8 don't I pass the marked-up copy down and let you
9 look at what I think we just said we would change
10 in the document, and if you -- if we are in
11 agreement with that, we will just attach it to the
12 transcript that he's taking as what you are going
13 to use.

14 MR. SHAFER: Ernie, do you have a list
15 of attendance for this meeting?

16 MR. ROSSI: I believe we do have a list
17 of attendees. You have that, and we will attach it
18 to the transcript, right.

19 MR. BEARD: It will be a part of the
20 transcript.

21 MR. BEYER: The Xs in the margin have no
22 meaning to us?

23 MR. ROSSI: The Xs in the margin only
24 identify the lines in which the changes were made.

1 MR. SHAFER: For the benefit of the team,
2 I am working -- not working with the licensee, but
3 I have talked with the licensee about establishing,
4 describing how they are going to maintain their
5 controls on this equipment that is either going to
6 be shipped off and/or replaced. You have no need
7 of that on the record?

8 MR. ROSSI: I don't think we do at this
9 time. If we need it, we can talk about it at the
10 time.

11 MR. SHAFER: All right.

12 MR. ROSSI: I mean, it's going to have
13 traceability and keeping track of any failed
14 components so that they will be there for
15 independent examination, if somebody decides that
16 that's appropriate.

17 Then let me ask you to put that into the
18 record as what they will use. And you have I
19 assumed marked up something --

20 MR. MURRAY: I have the same thing marked
21 here.

22 MR. WOOD: For logistics we have to reissue
23 a Rev II with either today's date or tomorrow's
24 date, whenever that happens, and provide you copies

1 as we incorporate these mark-ups. And I take it
2 there is no need to reconvene to confirm that Rev
3 II?

4 MR. ROSSI: Yeah. We have Rev II here.
5 This will be Rev II with these marks in it. If you
6 make any other changes, you ought to let us know
7 and I guess it would be nice to have the typed copy.
8 But we have got what everybody agreed is Rev II
9 here. It will be attached to the transcript.

10 MR. BEARD: I would like to ask a
11 question, if we are basically through with that;
12 that is, is it the proper understanding in terms of
13 the specific action plans that would be developed
14 according to these guidelines that your schedule is
15 such that you would not need for us to discuss or
16 review any of those action plans before Monday?

17 MR. WOOD: That is true.

18 MR. BEARD: Okay.

19 MR. MURRAY: Is it still true?

20 MR. BEYER: That's correct, still true.

21 MR. ROSSI: Okay. Then as far as I am
22 concerned, unless anybody else wants to bring
23 anything else up, I am willing to adjourn now.
24 Does anybody have anything they want to talk about?

1 MR. GRIME: We want to discuss the status
2 of Jim's plan, a review of his --

3 MR. BEYER: The understanding yesterday
4 was that revising Jim's plan as necessary to be in
5 compliance with these guidelines is sufficient for
6 us to proceed with that action plan.

7 MR. ROSSI: That is correct, yes.

8 MR. BEARD: That's the one on AF-599 and
9 608?

10 MR. GRIME: Correct.

11 MR. BEARD: We have looked at that.

12 MR. GRIME: Okay.

13 MR. ROSSI: Okay. Then let's go off the
14 record, and we are adjourned.

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16 Thereupon, proceedings were
17 concluded at 4:50 o'clock p.m.

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CERTIFICATE

I, Nicholas Marrone, a Registered Professional Reporter and Notary Public in and for the State of Ohio, do hereby certify that I took the aforementioned 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 16th day of June, 1985.

Nicholas A. Marrone

NICHOLAS A. MARRONE, Registered Professional Reporter, Notary Public in and for the State of Ohio.

My Commission expires November 1, 1987.

INTRA-COMPANY MEMORANDUM

ED 6214-2

TO

DATE

June 13, 1985

June 15, 1985, Rev. 1

Action Item Lead Individuals

FROM

J. K. Wood

SUBJECT

Guidelines to Follow When Troubleshooting or Performing Investigative
Actions into the Root Causes Surrounding the June 9, 1985 Reactor Trip

1 For each item on the Equipment Freeze list (Attachment 1), an action plan shall be developed for investigative or troubleshooting work which provides the basis for the Maintenance Work Order. Personnel (lead and/or support) developing the action plan shall have knowledge of the design criteria of the specific area being considered. Vendor engineering support will be utilized as necessary to accomplish this requirement. When used, vendor assistance shall be documented.

Troubleshooting and investigative activity shall be preceded by event evaluation and analysis to determine hypothesis(es) and probable causes of failure or abnormal operation. Analysis and evaluation shall proceed as follows:

- a. Collect and analyze known information/operational data for conditions prior to, during and after the transient.
- b. Review ~~reactor~~ maintenance and surveillance *including a + b above* testing history. X X
- c. Develop a summary of data that support any proposed probable cause of failure or abnormal operation. X
- d. Conduct a change analysis (i.e., what has changed since the last known successful operation of the system or equipment).
- e. Based on above Items a-d, develop primary and alternate hypothesis(es) for the root cause of the problem.
- f. Develop plans for testing the probable causes/hypothesis (i.e., checks, verifications, inspections, troubleshooting, etc.). In developing inspection and troubleshooting plans, care must be taken to insure when possible that the less likely causes/hypotheses(ses) remain testable. When planning troubleshooting activity try to simulate as closely as practical the actual conditions under which the system or component failed to operate properly on June 9, 1985.
- g. Document the above in a report.

It is very important that the performance of our investigations do not in any way result in the loss of any information due to disturbances of components or systems. Investigations need to be conducted in a logical, well thought-out and documented manner. To avoid the loss of information

and to assure the capture of reliable information, the following guidelines in addition to the requirements of AD 1844.00 need to be addressed and followed when initiating and implementing an MWO.

1. All action plans for troubleshooting and investigative work shall be reviewed with NRC personnel prior to implementation.
2. All MWOs relating to the 6/9/85 trip investigation shall be handled as NSR.
3. Troubleshooting and repair shall be accomplished on separate MWOs.
4. MWO's are to be approved by the Action Item Lead individual and reviewed by QC prior to their implementation. Copies of MWOs, when approved by the Action Item Lead Individual, shall be forwarded to D. J. Mominee (Stop 3070). It is the Lead Individual's responsibility to assure that the investigative actions are appropriate, sufficient, properly defined, documented, and data is preserved.
5. Only those MWO's approved by the Action Item Lead Individual and QC may be worked on any of the "frozen systems" identified on the attached list.
6. Assure that only current drawings and controlled vendor manuals are used.
7. Consider the need for vendor representatives. Vendor representatives should be used to assist in troubleshooting if appropriate expertise is not available in-house. The representatives will need to be given specific guidance for what they are and are not to do. Vendor representatives must follow the guidelines of this memorandum and requirements of the Maintenance Work Order.
8. The MWO must clearly document the scope, affected equipment, and the desired objective of the investigative activity.
9. The sequence of activity needs to be documented on the MWO or procedures specified in the MWO. If the sequence can be determined prior to the activity being performed, define that sequence and provide a checkoff for each step. If the desired sequence cannot be determined prior to the activity, as a minimum define the fundamental sequence to be taken and document each specific step as it is performed.
10. Document on the MWO all as found conditions. Visual inspect and document any missing, loose or damaged components, note positions (open, closed, up, down, knob settings, switch positions, setpoints, etc.) abnormal environmental conditions, operation of cooling devices, water leaks, oil leaks, loose fittings, cracks, evidence of overheating or water damage, cleanliness, bent tubing, fluid levels, jumpers, lifted wires, etc. Describe the overall condition or

appearance. Whenever possible, use photographs to document as found conditions. When considered necessary, retain a sample of fluids or their residue for further analysis.

11. When discrepancies are noted during the investigation, stop work and notify the Action Item Lead Individual. Document the deficiency. The Lead individual must sign off on the discrepancy prior to continuing the investigation.
12. Document the results of the investigation on the MWO.
13. Prior to starting any repair activities the Action Item Lead Individual must document that all investigations have been properly completed.
14. No equipment is to be shipped off site without prior approval of Nuclear Facility Engineering and Quality Engineering for including appropriate hold and witness points. Use the "Q" purchase order process to obtain these approvals.

NOTE: In all cases, applicable procedure must be followed. The requirements of this memorandum must be communicated to craft personnel to avoid any confusion or misunderstandings during this investigative period.

15. All failed or removed components/equipment shall be retained for ongoing review and examination. Complete traceability shall be maintained.

The NRC shall be notified when the determination of the root cause of the malfunction/failure has been made. As soon as practical, the results of the troubleshooting process, root cause determinations and justification will be presented to the NRC (e.g., next day in a meeting).

The NRC shall be advised as soon as practical of plans and schedules for corrective action work, prior to the work being performed.

NOTE: Any communication with the NRC personnel will be coordinated through John Wood.

JKW/SGW/bjs

Attachment

EQUIPMENT FREEZE

The following list of items is the licensee's proposal for continued quarantine:

1. MFP's Turbine and Controls
2. SFRCS and Associated Instrument Channels
3. Aux Feed Pump Turbines and Controls
4. MSIV's Including Controls - Actuating Circuits, Pneumatic Supplies
5. S/U Feed Valve SP-7A - and Controls
6. Source Range Instrument Channels
7. Turbine Bypass Valve SP-13A2 - Any other components for which there is found an indication of water hammer damage
8. PORV and Controls and Actuation System
9. Main Steam Safety Valves
10. AF 599 and AF 608 Valves, Actuators and Controls
11. MS 106 and Controls

This item was released by the Fact-Finding Team:

1. SPDS

This item was added by the Fact-Finding Team:

1. SW Valve and Controls on AFW Alternate Supply

It is agreed that no work will be done in the proximity of, or on, this equipment.

The licensee agreed to complete a walkdown outside Containment of the Main Steam System by appropriate personnel to identify any additional damage that may have been caused by water hammer.

The Fact-Finding Team stated that:

- a. If required for safety, work shall proceed.
- b. Surveillance Requirements of the Technical Specifications should be satisfied.
- c. The team should be advised of any actions taken in the two areas above.

SGW/bjs