

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 209,
Davis-Besse Nuclear Plant, Oak Harbor, Ohio,
commencing on Wednesday, June 19, 1985, at 9:55
o'clock a.m.

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1 PRESENT:

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3 J. T. Beard

4 E. Rossi

5 Walt Rogers

6 Ned Choules

7 Nick Jackiw

8 John Wood

9 Steve Wideman

10 Jack DeSando

11 Tom Isley

12 Mike Borysiak

13 Larry Grime

14 Dennis Mominee

15 Jim Helle

16 Matt Raynes

17 Tom Hiss

18 Phil Hildebrandt

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Wednesday Morning Session

June 19, 1985

9:55 o'clock a.m.

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P R O C E E D I N G S

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MR. ROSSI: Why don't we begin the meeting.

What we're going to do is talk about the action

plans for the NI-1 source range channel, which is

one action plan, and the NI-2 count rate level

indication failure analysis was the second of your

two plans. And I guess the stenographer has copies

of both of these.

And, again, what we're going to do is give

you our comments. We'll try to distinguish between

what is a comment we're just offering as possible

consideration by you for help based on, you know,

what we see in here and things we feel fairly

strongly about. And we'll distinguish those.

I would like to reiterate that when your

work is done on all these action plans, that at some

point in time, there's going to have to be agreement

on what the root cause is, and that the corrective

action has fixed it. So you ought to do whatever

1 you can do to make sure that you don't go through a
2 lot of work and not be able to identify what the
3 root problem is.

4 I think that's particularly true of some
5 of these source range problems where apparently you
6 had problems for a number of years but that may not
7 have ever gotten corrected. I think that's going to
8 be looked at very closely at the end of your effort
9 here to make sure that there is a high degree of
10 assurance that this stuff is going to work properly
11 in the future.

12 Walt, do you have anything to add to that,
13 because that's going to be mostly the Region 3
14 concern, that it's going to be looked at very
15 carefully.

16 MR. ROGERS: Getting into the root cause
17 and making sure that's resolved, definitely a big
18 point.

19 MR. ROSSI: With that, why don't we begin
20 with -- do you have a preference on which one you
21 want to begin with?

22 MR. WOOD: No, I don't think so. And let
23 me just introduce the people who will be
24 communicating with the team here primarily. We have

1 Jack DeSando, Tom Isley and Mike Borysiak. The
2 three of them together will be addressing questions
3 on both plans.

4 MR. ROSSI: Okay.

5 MR. BEARD: The lead person responsible is
6 who?

7 MR. WOOD: The lead person on NI-1 is Mike
8 Borysiak. The lead person on NI-2 is Jack DeSando.

9 MR. BEARD: Okay. Thank you.

10 MR. ROSSI: Okay. Why don't we start then
11 with NI-1. Mike Borysiak prepared this plan. Why
12 don't you first start by telling us what your
13 position is with the company and what your -- a
14 little bit about your background.

15 MR. BORYSIK: Okay. My position
16 presently is associate nuclear engineer. I work
17 for the electrical and control systems division of
18 Facility Engineering downtown. My past background
19 was seven years at the plant in I&C, which when I
20 transferred downtown I was the I&C engineer at that
21 point in time.

22 MR. ROSSI: Okay. J.T., do you want to
23 start with your comments?

24 MR. BEARD: My style of reviewing

1 documents such as this is more going down through it
2 and reading for significant items, not that they
3 necessarily need changed, just things I note as I go
4 through.

5 I guess the first one I'd like to mention
6 just as an observation on my part is that under Page
7 2, you identified, it appears, five hypotheses as to
8 the root cause. And I see those generally
9 characterized as an intermittent problem with one
10 module within the channel, sources of inducement
11 from outside the channel, and the possibility of
12 ground loops between systems. And then the fifth
13 one has to do with the lengths of the cables.

14 Could I ask you to elaborate just a second
15 on the fourth one of what you had in mind when you
16 say intermittent spiking problem caused from ground
17 loops between systems as to what systems or channels
18 or whatever you might be referring to there or why
19 that's on the list?

20 MR. BORYSIAK: Okay. Back in '79 and '80
21 we did some extensive testing with respect to
22 isolating ground loops and trying to eliminate them,
23 which was documented in a report to the NRC, I
24 believe. Since then, we have made some

1 modifications, and I don't know at this present time
2 whether we may have inadvertently introduced some
3 ground loops that we had in the past where we tried
4 to eliminate in the past.

5 So we'd like to take a look at that and
6 see if, in fact, we have or have not induced some
7 problems by adding equipment specifically with the
8 RPS in respect to adding the ARTS system which I
9 believe was done about -- just done shortly
10 afterwards, I believe.

11 MR. BEARD: I see.

12 MR. BORYSIK: Take a look at that from
13 that standpoint.

14 MR. BEARD: So you're interested really in
15 changes that may have been induced since you did
16 this ground analysis back in the '79-'80 time frame.
17 Thank you.

18 MR. ROSSI: Did you see a significant
19 change in the reliability of the instruments after
20 those changes were made from before?

21 MR. BORYSIK: No, sir.

22 MR. BORYSIK: Just a possible hypothesis.

23 MR. ROSSI: Possible hypothesis?

24 MR. BORYSIK: Right.

1 MR. BEARD: That gives me a better
2 understanding of what you had. Okay. Now, over on
3 I guess it's the action plan per se, the work steps,
4 Mike, I believe you said earlier that your
5 experiences at one time you were the I&C engineer
6 for the plant?

7 MR. BORYSIAK: That is correct.

8 MR. BEARD: Could you give us a little bit
9 more information on your formal education and
10 training in the area of instrumentation control?

11 MR. BORYSIAK: Okay. My degree is from
12 the University of Toledo. Received that in 1978.

13 MR. BEARD: What was your degree?

14 MR. BORYSIAK: BSEE.

15 MR. BEARD: Oh, BSEE. I was somehow under
16 the understanding you were a nuclear engineer.

17 MR. WOOD: To clarify that, J.T., we've
18 had a classification change in our engineering
19 series, and we've denoted people in the nuclear
20 mission as nuclear engineers, which is maybe a
21 misnomer as far as formal educational background,
22 but it's to denote we're in the nuclear mission.

23 MR. BEARD: I'm just trying to understand
24 his background. That's all. Go ahead. Is there

1 anything else?

2 MR. BORYSIAK: Would you repeat your
3 second part of the question?

4 MR. BEARD: I'm just curious about a
5 general area of the degree of involvement in this
6 troubleshooting effort of those people who may have
7 knowledge of the specific design considerations for
8 a pulse type instrumentation channel, and so I'm
9 trying to probe and see if you are the one that has
10 this experience by virtue of your education, design
11 work or those kinds of things, or if you don't,
12 who's going to provide that. I'm not picking on you
13 as an individual, I want you to understand.

14 MR. BORYSIAK: Right. No, personally
15 the only experience I have with pulse type
16 instrumentation is with respect to on-the-job
17 training here at this plant. We are going to
18 request B&W's assistance, and we have already done
19 that, to aid us in our troubleshooting.

20 MR. ROSSI: Are they going to be here for
21 the troubleshooting of these NI channels? I mean,
22 the experts with this similar type of equipment that
23 might have a perspective of how it's worked, what
24 kind of problems they've had on other plants?

1 MR. BORYSIK: We have not at this point
2 in time requested them to be on site. We have, in
3 fact, talked to them previously about our ideas of
4 how we want to go about troubleshooting these
5 problems. They have concurred with our action plans
6 at this point in time. Depending upon some of the
7 data that we obtain, we'll be in contact with them,
8 letting them know what we have found.

9 At that point in time, they will -- we
10 will make a decision whether we want them to come on
11 site and to give us a hand if further
12 troubleshooting is a problem.

13 MR. ROSSI: Well, I make an observation
14 that this equipment, you've had kind of a history of
15 having problems with it. And you might really want
16 to think very hard about whether you should have
17 vendor involvement right up front or involvement of
18 other experts with this particular kind of equipment
19 that might give you a perspective of generic
20 problems that they've seen on other plants and so
21 forth.

22 That, you know, if it appears, you've had
23 a history of problems with the equipment at the
24 plant, that now may be the time to get vendor

1 involvement right up front. And if you do that, you
2 ought to have it in your action plan in my opinion.

3 MR. BEARD: Right. Just as an
4 administrative aside, I believe you said something,
5 Mike, that would have been useful had it been
6 written in the plan and that is that you have
7 consulted with the B&W I&C experts, if that's the
8 proper term, in the development of this plan, and
9 they have, after it's over, concurred in it if that
10 was the case.

11 MR. BORYSIAK: That is true.

12 MR. BEARD: I mean, that would be a
13 standard question that I think you're likely to hear
14 on other action plans. That's an administrative
15 aspect. But I've personally had a lot of experience
16 with pulses, pulse instrumentation, both in the
17 nuclear field and in the radar field and with
18 intermittent problems. And it's not the kind of
19 problem you want to be your first problem. It's
20 tricky.

21 My experience is that experience is a dear
22 teacher, and design experience is very important.
23 At least that's my personal view. So I'd just like
24 to add to Dr. Rossi's comment that you ought to -- I

1 think you would like to consider the degree to which
2 you get the experts involved right up front.

3 MR. ROSSI: And where you have vendor
4 involvement or outside experts up front, that you
5 really ought to get that into your action plans,
6 because I think that that's something that may be
7 important to you as you go through this and making
8 sure that when we get to the end, that everyone has
9 a good feeling that everything possible has been
10 done to identify the root cause and make sure that
11 the problems don't recur at unacceptable rates in
12 the future.

13 MR. BEARD: And recognize also that we're
14 not saying you have to go to B&W. We're saying that
15 we think you need -- or would want some additional
16 expertise in this particular area. You may choose
17 to go to an outside consultant. We're not trying to
18 push you onto a particular company at all. But you
19 did mention that you talked to B&W. Do you happen
20 to remember offhand, Mike, who you spoke to there?

21 MR. BORYSIAK: A gentlemen by the name of
22 Paul Mamola.

23 MR. BEARD: Can you spell that name?

24 MR. ISLEY: M-a-m-o-l-a.

1 MR. BEARD: M-a-m --

2 MR. ISLEY: -- o-l-a.

3 MR. BEARD: Is he an I&C engineer or do
4 you remember?

5 MR. ISLEY: I believe he's in the I&C
6 engineer at B&W. I'm not exactly sure what his
7 title is.

8 MR. BEARD: Only reason I ask, I know
9 several people down there.

10 MR. ROSSI: Another thought is I don't
11 know whether you have contacted INPO or B&W owners
12 groups on experience with this, but those both could
13 be areas where you might benefit from other
14 experience. And these are -- you know, that's a
15 suggestion of, you know, things that you might
16 consider as help to you in getting expertise and
17 getting the maximum amount of experience that you
18 can get.

19 MR. BEARD: The second comment or area I
20 think that's worth mentioning or discussing has to
21 do with the item 1B on page 1 of this detailed
22 action plan which reads as follows: Repeat step A
23 only with the high voltage off when the unit is at
24 power (Mode 1). Should I interpret this statement

1 that you would be intending that if the
2 troubleshooting is not successful at resolving the
3 root causes, you would be proposing to restart this
4 plant, take it to Mode 1 with the problem unresolved?

5 MR. BORYSIAK: That is correct.

6 MR. BEARD: That is correct?

7 MR. ROSSI: Well --

8 MR. BEARD: I'm asking for point of
9 clarification.

10 MR. ISLEY: We --

11 MR. BEARD: I'm surprised, and I wanted to
12 have it clarified, that's all.

13 MR. ISLEY: The time when this problem
14 shows up most frequently is when at power with the
15 high voltage off. We don't -- this problem shows up
16 very seldom when we're in Mode 5.

17 MR. ROSSI: I think that's another reason
18 for trying to take maximum advantage of any
19 experience that you can get from either other plants
20 or through vendor experts, because, again, you know,
21 at some point in time the question of whether you've
22 done enough and whether there's reasonable assurance
23 that the problem has been corrected is going to come
24 up.

1 And there may be concerns about going back
2 to power without this problem being corrected. You
3 know, we can't comment on that because we're not
4 going to be the ones making that decision. But I
5 think you -- everybody in the room must appreciate
6 that that's going to be a significant question at
7 some point in time. And Region 3, you may want to
8 comment on that. I don't know.

9 MR. ROGERS: I guess the only thing is
10 what is the technical specification requirements on
11 your source ranges.

12 MR. BORYSIAK: At power we do not need
13 them.

14 MR. BEARD: What about in going to get to
15 power.

16 MR. ROGERS: You got to get from 5 to 1.
17 Are they needed in that transition from 5 to 1?

18 MR. BORYSIAK: Yes, they are.

19 MR. ISLEY: We are required to have some
20 source ranges operable while doing the start-up.

21 MR. ROGERS: I expect you to meet your
22 technical specifications requirements.

23 MR. BEARD: Okay. The third area I'd like
24 to ask about is on Page 2 of the detailed plan

1 dealing with checking of the cables. Your plan
2 indicates in the first step that you're going to be
3 using a technique called time domain reflectometer --
4 or reflectometry. I'd like to understand what
5 experience you or your team has in using such
6 techniques in prior situations or is this the first
7 time or what?

8 MR. BORYSIAK: We have, in fact, used a
9 TDR in the past. With respect to the expertise, I
10 personally have used it once. Jack, I don't know --

11 MR. DeSANDO: I've used it several times
12 in the same type of situation.

13 MR. BEARD: When you used it in the past,
14 were you able to identify a problem that you were
15 looking for?

16 MR. DeSANDO: Yes, sir.

17 MR. BEARD: The reason for bringing this
18 up is that it appears from the way you've described
19 the step here that the implication is that you're
20 going to run it on the cables associated with NI
21 channel 2 and then use that as a bench mark or
22 reference for assessing the information that you get
23 from running this test on NI No. 1. Is that your
24 plan?

1 MR. BORYSIK: Not necessarily a bench
2 mark per se. More of a comparison, comparative type
3 value.

4 MR. BEARD: But it's a comparison. That's
5 all I meant by the bench mark.

6 MR. BORYSIK: Right.

7 MR. BEARD: Is there any validity to
8 using TDR by itself as an absolute measurement or
9 is there any possibility that the way these signals
10 are reflected and the TDR is set up that you may
11 have indications that are in channel 2 that are
12 indicative of potential problem areas that haven't
13 surfaced yet that would cloud or make it difficult
14 spot potential TDR anomaly indications in
15 channel 1?

16 MR. BORYSIK: That is a possibility. I
17 would hope to rely on Jack's past experience with
18 TDR to hopefully identify these anomalies and come
19 up with reasons for them prior to making such
20 comparisons.

21 MR. BEARD: Jack, do you have any comments?

22 MR. DeSANDO: I have been involved in
23 using a TDR as a method of troubleshooting this type
24 of cable, this type of signal cable. And you are

1 correct, there are certain things that could, by
2 comparing one channel to another, we may have
3 problems not yet surfacing that will show up on the
4 TDR. But we should be able to differentiate between,
5 you know --

6 MR. BEARD: I guess what I'm suggesting in
7 a light way is that the measurement be focused
8 possibly or reconsider focusing in on as an absolute
9 measurement as a relative or comparative measurement.
10 I'm not saying that comparison doesn't have its
11 value. But, you know, there could be cable
12 degradations that are picked up in measurement of
13 your -- I'll call it the reference, and that would --
14 you know what I'm talking about.

15 MR. DeSANDO: Yes, sir, I think that's
16 true. We ought to be able to use the measurement of
17 the NI-1 cable alone. The trace that we get from
18 taking the reading on the NI-1 cable alone, we ought
19 to be able to use that without even, you know, using
20 a reference.

21 MR. BEARD: Just out of curiosity, the TDR
22 equipment that you'll be using, is that Hewlett
23 Packard or whose is it?

24 MR. DeSANDO: I don't --

1 MR. ISLEY: I don't know the vendor of the
2 equipment.

3 MR. BEARD: Okay. Does the equipment come
4 with an instruction manual?

5 MR. ISLEY: Yes. Did we -- we purchased a
6 TDR. That's Toledo Edison's equipment. We have a
7 vendor's manual on it.

8 MR. BEARD: There's a vendor's manual.

9 MR. ISLEY: Yes.

10 MR. BEARD: Does the vendor's manual
11 include in it a technique of time Domain
12 reflectometry as a technique or does it discuss
13 exclusively the design or performance of this
14 particular piece of equipment?

15 MR. ISLEY: I can't answer that question
16 'cause I have not read the manual.

17 MR. DeSANDO: The experience that I have
18 using that particular measuring device, the manual
19 that had -- that came with the TDR that I used had
20 both types of information both on the unit itself
21 and how to use it and also how to analyze the traces
22 that you get from that piece of equipment.

23 MR. BEARD: Very good. Thank you.

24 All right. Now I'm back into more the

1 observations than anything else. On the next page
2 is an item 1 having to do with, it says, have the
3 operators monitor and log any spiking problems
4 observed. Have you considered having them also note
5 or make notes of the starting or stopping of
6 equipment in the plant that would occur
7 simultaneously with the spiking?

8 MR. BORYSIAK: That's what I had planned
9 upon doing with respect to writing that on the work
10 order.

11 MR. BEARD: That's an obvious omission
12 from the plan. That's all. That's the only reason
13 I ask. Okay. Have you given any consideration to
14 correlating the duration of this spike, how long it
15 takes for it to recover once it's spiked to the
16 design consideration of the time constants involved
17 in response of the count rate module?

18 MR. BORYSIAK: We had planned on having
19 the operators put on their trend recorders or
20 installing trend recorders somewhere that we could
21 monitor these spikes, try to obtain that data.

22 MR. BEARD: Have you planned on doing any
23 analysis or correlation?

24 MR. BORYSIAK: As part of this, yes, to

1 see what the magnitude of the spikes are. Also to
2 see the time interval between spiking problems.
3 Also the frequency and take a look at that from that
4 standpoint.

5 MR. BEARD: Are you planning on
6 correlating that back to the time response of this
7 particular module in question?

8 MR. BORYSIK: Yes, we can do that.

9 MR. BEARD: I'm not saying do it. I'm
10 asking. I have no further comments.

11 MR. ROSSI: That's on the NI-1.

12 MR. BEARD: On the NI-1. I think the
13 record should reflect that this was the channel that
14 was inoperable prior to the event.

15 MR. BORYSIK: Yes.

16 MR. BEARD: And remained inoperable
17 throughout the event. This is not the channel that
18 failed during the event.

19 MR. BORYSIK: That is correct.

20 MR. ISLEY: That is correct.

21 MR. BEARD: This is clarification. I
22 think Walt has a comment.

23 MR. ROGERS: On the operator monitor log
24 spiking problem, are you all aware of any switch

1 manipulations right now in the plant that will give
2 you a spike on the source range?

3 MR. ISLEY: The alarm test and acknowledge
4 functions will produce some small spiking of the
5 source range. We've had that problem since the
6 plant was built. We -- the grounding testing and
7 ground modifications that Mike had described was in
8 response -- was to try and correct that problem, and
9 we had reduced the spiking to a very minor level.
10 But it does cause a very small spike.

11 MR. ROGERS: Are you all aware of any, say,
12 switching from a T -- one of the TH to another TH or
13 something along that line, one of those switches on
14 the back panels that would cause a spiking problem?

15 MR. BORYSIAK: No.

16 MR. ISLEY: Not right off.

17 MR. BORYSIAK: Not aware of any.

18 MR. ROGERS: I think you might want to
19 talk to some of your operations staff people if they
20 don't already know when you get the spike.

21 MR. BEARD: Very good comment. Depend on
22 your operators. They can tell you how the equipment
23 works. I'm finished with NI-1. Do you want to go
24 right on to NI-2?

1 MR. WOOD: Yes.

2 MR. BEARD: I guess we've clarified which
3 one this is.

4 MR. ROSSI: Let me make a comment while
5 J.T. is getting ready here. We would like to get as
6 soon as -- if you do revisions to these things, we'd
7 like to get copies of those for our files. You know,
8 we're not going to recomment on them or anything,
9 but we want to have a record of what you finally use.

10 And that's true for the ones that we've
11 already reviewed also, that we'd like to get a file
12 copy when -- when and if you've redone them in any
13 way. And I think the first one was the one on the
14 two valves that I think you're already working on
15 that, so presumably there is an update of that.

16 MR. MOMINEE: I put in the cover sheet on
17 each one of these that shows our approval. And then
18 I'll make the solutions -- I'm going to give Bill
19 Rowles copies, and he will be distributing them to
20 you.

21 MR. ROSSI: That's good. That's fine.

22 MR. BEARD: We would then end up with a
23 copy that we go into this meeting with. And if
24 there's any revisions subsequently as a result of

1 this meeting or other information, we'd have that.

2 MR. MOMINEE: Yes.

3 MR. ROSSI: File copies. Okay. Record
4 copies might be a better word. Okay. Go ahead.

5 MR. BEARD: I guess this is NI-2. And
6 this is the one where the failure indications were
7 basically that it fails down scale low and basically
8 goes off scale. That's the significance of being
9 less than point 1 counts per second.

10 MR. DeSANDO: Yes, sir.

11 MR. BEARD: And I notice that your
12 hypotheses deals with two theories. First is
13 loose or intermittent connections, and second
14 is possibility of relating Kl.0 which may be
15 interrupting the output, I presume, from reading
16 your write-up. Okay. That's just an observation.

17 Over on the specific steps of the detailed
18 action plan, I'm disturbed a bit by the general
19 flavor of this plan in that the pages that precede
20 these specific steps indicate that on repeated
21 occasions, you had this problem. And an individual
22 went over and opened the door to the equipment,
23 which you would have to do to make readings and
24 record settings and whatnot, and that was sufficient

1 to make the problem go away.

2 MR. DeSANDO: Yes, sir.

3 MR. BEARD: This plan seems to totally
4 ignore that aspect of the thing. And it does not
5 address any investigation that I've been able to
6 find with respect to the effect of opening the
7 cabinet door. I personally am disappointed, but
8 that's not a team's position. And I was wondering
9 if you have any comments. Am I misunderstanding
10 something?

11 MR. DeSANDO: I don't quite see it that
12 way. The whole point of the hypothesis was hoping
13 to find loose connections or loose components within
14 the cabinet or on the modules themselves or on the
15 connectors within the cabinet itself. I realize,
16 and I see what you mean by, you know, it seems that
17 when they've opened the door or some type of
18 mechanical agitation causing the indication to come
19 back, that's the whole point in going through
20 looking for loose contacts and loose connections.

21 MR. BEARD: Let me see if we can clarify
22 the thing. In the area of the cabinet door I would
23 have expected to see, you know, typically something
24 that says something about maybe take the readings

1 on the instruments, that indicators are available
2 without opening the door, and then maybe an opening
3 of the door in some carefully controlled manner and
4 taking follow-up readings to somehow determine to
5 what effect the door per se has on these things
6 since that's been your history. And I don't see
7 that.

8 MR. DeSANDO: That, what you're talking
9 about, about opening of the door, I believe that
10 only happened one time as a fix to the -- or as a --
11 I think only during the --

12 MR. BEARD: I don't want to get into an
13 argument whether it happened one time or three times.
14 That's not the point.

15 MR. DeSANDO: But I want to go on --

16 MR. GRIME: I guess your basic point is we
17 should fully consider the possibility of adding the
18 special test relative to the door to this action
19 plan.

20 MR. BEARD: No, I guess -- well, that for
21 this specific plan. But my general disappointment
22 is more along the line that it doesn't seem to be
23 consistent with the general guidance that's been --
24 under which these were to be developed at. The

1 detailed troubleshooting procedure would reflect
2 what you've learned from your operating experience,
3 your maintenance history and things of this nature.
4 It just -- what can I say?

5 MR. ROSSI: Well, why don't we leave that
6 for their consideration?

7 MR. GRIME: It's a matter of getting at
8 the connection.

9 MR. BEARD: You can do the protoplan as
10 you feel is appropriate, but you know where I'm
11 coming from.

12 MR. DeSANDO: Yes, sir.

13 MR. BEARD: Okay. The second comment that
14 I have is that after making the initial record of
15 the, I'll call it, the as-found condition with
16 regard to switch settings and things of this nature,
17 that it seems that the next step is to start
18 removing bits and pieces of the modules for detailed
19 examination without conducting any channel-wide
20 tests.

21 In other words, you're jumping in in the
22 middle without doing anything that says am I even at
23 the right module. I'm not sure that I'm making my
24 point clear. Do you understand what I'm saying?

1 MR. ISLEY: You feel that we should go
2 through and do some overall whole channel testing
3 prior to removing the modules? You think that would
4 be more appropriate than the way we have it laid out?

5 MR. BEARD: I'm saying that I don't
6 understand why there's not some troubleshooting
7 steps that would be for the purpose of identifying
8 the suspect module before you start testing
9 individual modules.

10 MR. ISLEY: Okay.

11 MR. BEARD: And this, I guess, relates to
12 the count rate amplifier module and also a high
13 voltage power supply module. But those are details.
14 You know, is there any response to that comment?

15 MR. DeSANDO: Just one. The incident on --

16 MR. BEARD: What page are you on? That
17 would help me.

18 MR. DeSANDO: It's on Page 2 of 3, the
19 incident that occurred on 4-13-85, which is very
20 similar, if not exactly the same that happened
21 during the trip when NI-2 failed to zero to below 10
22 to the minus 1 counts per second, the I&C mechanic
23 had opened the cabinet doors. The reading was still
24 below 10 to the minus 1. And he tapped on the front

1 of the count rate amplifier module, and immediately
2 the indication returned to normal or on scale.

3 That is why I've jumped right to checking
4 for loose connections in that area. That's my only
5 justification for that. As far as concerning the
6 high voltage detector power supply module, the only
7 reason I'm looking at that is because since the
8 problem just prior to the first -- first time this
9 problem has come up we had replaced the blue ribbon
10 connector on the back of that high voltage power
11 supply module, and that is one of the reasons --
12 that is another -- that's my justification for
13 looking at that right away also.

14 But the point of him tapping the front of
15 that module causing the indication to come up I
16 believe is -- I feel confident that that's our
17 problem area right there.

18 MR. BEARD: I don't want you to feel
19 like you have to justify anything to me. I'm just
20 really trying to understand the process of the
21 troubleshooting. And I guess it -- that in the
22 context that we don't want to lose or destroy any
23 evidence that would lead you folks to the root cause
24 or causes, there may be more than one.

1 It just appeared to me that there had been
2 not as much attention given to the event of a
3 failure of March 25th, three weeks before the
4 tapping corrected it. This is where the opening of
5 the door seemed to correct it, and there was no
6 further troubleshooting performed.

7 Just seems like that when you go into the
8 equipment physically, the first thing you have to do
9 is essentially open the door if you're talking about
10 at the rack versus control room mounted indicators.
11 And just seems like going through that phase without
12 careful attention might destroy some information
13 that might be valuable. That's the kind of place
14 I'm coming from.

15 MR. ROSSI: Okay. Do you have any --

16 MR. BEARD: I don't have any other
17 comments.

18 MR. ROSSI: Okay.

19 MR. BEARD: They were just those two.

20 MR. ROSSI: Well, I think that completes
21 everything we want to do with these. And, you know,
22 you can take the comments under advisement and
23 consideration. And I'll just reiterate that the
24 bottom line we're going to be interested in is when

1 you get to the end of this process, that you have a
2 justification that you've found the problem, you
3 know what it is, and it's been fixed, and that --
4 just keep that in mind as you go through the thing.

5 Do the regions have any comments?

6 MR. BEARD: Do the regions have any
7 comments on NI-2?

8 MR. CHOULES: I'd like to make a comment.
9 Probably has more to do with NI-1 than NI-2. I've
10 had a little bit of experience in that area and
11 where actual connectors seemed to give a lot of
12 trouble. And they've got to be absolutely clean
13 when you put them together. You got to use probably
14 alcohol and this type of thing. And I think when
15 you're troubleshooting this NI-1, you ought to pay
16 particular attention to that.

17 MR. BEARD: That's a very important point
18 in my experience also. Does anybody happen to know
19 whether the coax connectors used are the crimp type
20 or the solder type?

21 MR. ISLEY: I am not sure.

22 MR. BEARD: Are your coax connectors a
23 PL-259?

24 MR. ISLEY: That number doesn't sound

1 familiar. It's been a long time since I've looked
2 at one. If I were to say anything, it would be a
3 solder type, not a crimped type.

4 MR. BEARD: That's clearly the experience
5 everybody has that's ever worked with those
6 connectors, that's a highly suspect area.

7 MR. ROSSI: Do you have any more comments,
8 Walt?

9 MR. ROGERS: Maybe one more on NI-1. I
10 see a note discussing a facility change request,
11 84-116. Do you envision implementing that facility
12 change request at some point in time during this or
13 if the troubleshooting points to whatever this FCR
14 is doing for you, will you implement that FCR?

15 MR. BORYSIK: It is presently scheduled
16 to be completed by 1989, I believe. I am pushing
17 for this next refueling outage to have that
18 implemented or during the next refueling outage.

19 MR. WOOD: Walt, my answer to that is that
20 would be part of a corrective action program. If
21 that is what was viewed as necessary as part of the
22 corrective action, then the answer would be yes.
23 But I don't think we're in a position at this point
24 till we identify root cause and the path that we

1 wish to take on corrective action to really tell you
2 that it will or will not be implemented either prior
3 to restart or in the 1986 refueling outage or
4 whatever. That's just -- we aren't in a position to
5 give you a firm answer on that.

6 MR. BEARD: Nick, did you have any
7 comments you wanted to have?

8 MR. JACKIW: No, I haven't. The only
9 question I had was when are you going to start work
10 on both NI-1 and 2?

11 MR. BORYSIAK: We had discussed in all
12 probability Monday.

13 MR. ISLEY: Monday would be the earliest
14 time that we start. We haven't formalized that as
15 being the start date. We're going to go -- we're
16 going to have to sit down and review our action
17 plans in light of the comments made and make
18 revisions which will -- could impact on the starting
19 date.

20 MR. JACKIW: Okay. Thank you.

21 MR. GRIME: Is that for NI-1 and NI-2?

22 MR. BORYSIAK: We need to coordinate our
23 efforts on this.

24 MR. ISLEY: Yes, the work will have to be

1 coordinated on both these plans to make sure we
2 don't get in either of each other's way.

3 MR. BEARD: Speaking about coordinating,
4 are you talking about working on one at a time or is
5 it going to be working simultaneously?

6 MR. BORYSIAK: Depending on the amount of
7 work we want to accomplish. Tech specs requires
8 that we have at least one channel operable. And
9 depending upon the method of testing or what we want
10 to perform on each channel will dictate whether
11 we're going to make that channel inoperable or not.
12 Therefore, this is where we need to coordinate our
13 efforts.

14 MR. ROSSI: Okay. I guess we're -- unless
15 anybody else has any comments.

16 MR. BEARD: I don't have any comment on
17 this one. I just want to make sure I understand,
18 procedurally the next item that you would like for
19 us to address is the one on the turbine bypass valve?

20 MR. WOOD: That's correct.

21 MR. BEARD: And I understand from
22 discussions prior to this meeting that what you
23 would like for us to do now is to take a recess of
24 some period of time in order to review that, and

1 then come back some period today and be prepared to
2 discuss that as we've discussed these action plans?

3 MR. WOOD: That's correct.

4 MR. ROSSI: Fairly quickly I would hope,
5 like this morning.

6 MR. WOOD: Yes.

7 MR. BEARD: Are these the only action
8 plans that we need to discuss with you today?

9 MR. WOOD: That is correct.

10 MR. BEARD: Okay.

11 MR. ROSSI: Okay. Well, then why don't we
12 end the meeting now.

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14 Thereupon, the proceedings were
15 concluded at 10:34 o'clock a.m.

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CERTIFICATE

I, Anne I. McBrayer, a Registered Professional Reporter and Notary Public in and for the State of Ohio, do hereby certify that I took the Proceedings before the Nuclear Regulatory Commission Fact Finding Team 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 20th day of June, 1985.

Anne I. McBrayer
ANNE I. MCBRAYER RPR and
Notary Public in and for the
State of Ohio.

My Commission expires February 3, 1988.