

BEFORE THE FACT FINDING TASK FORCE
OF THE NULCEAR REGULATORY COMMISSION

- - - - -

RE: :

Davis-Besse event :

of June 9, 1985 :

- - - - -

P R O C E E D I N G S

- - - - -

Proceedings before the Nuclear Regulatory
Commission Fact Finding Task Force in regard to the
aforementioned event, held at the Davis-Besse
Nuclear Plant, Oak Harbor, Ohio, commencing on
Friday, June 14, 1985, at 2:53 o'clock p.m.

- - - - -

B507290067 B50614
PDR ADDCK 05000346
T PDR

1 PRESENT:

2 Wayne D. Shafer (NRC-RIII)

3 Stephen G. Burns (NRC OELD)

4 Ted J. Myers (TED-Nuclear Safety and
5 Licensing Director)

6 William C. Rowles (TED)

7 Terry D. Murray (TED-Assistant Vice-President
8 of Nuclear Operations)

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

10 Steve G. Wideman (TED-Senior Licensing
11 Specialist)

12 I. Nick Jackiw (NRC-RIII)

13 Larry A. Grime (TED-Nuclear Safety Manger)

14 Dennis Mominee (TED-QA Superivsor)

15 Bernard R. Beyer (TED-Nuclear Projects
16 Director)

17 James Helle (TED-Director of Nuclear Facility
18 Engineering)

19 James W. Long (TED-Electrical Maintenance)

20 Masoud Bajestani (TED-Nuclear Facility
21 Engineer)

22 Wayne D. Lanning (NRC)

23 T. Larry Bell (US NRC)

24 Ernie Rossi (US NRC)

1 PRESENT:

2 J. T. Beard (NRC)

3 Neal Bonner (TED-Lead Electrical Maintenance
4 Supply Engineer)

5 Don Kosloff (NRC-RIII)

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

INDEX

Exhibit No.	<u>Page No.</u>
1 - guidelines	6
2 - action plans	41

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

1
2
3
4 MR. ROSSI: We are on the record then. I
5 understand that the licensee has asked for this
6 meeting to talk about some of the equipment that's
7 on the quarantine list and their plan for starting
8 to work on that equipment in such a way that we know
9 what the as-found condition is and systematically
10 work towards finding out what the root cause of any
11 problems are with that equipment.

12 So at that point at this point let me turn
13 it over to Toledo Edison to begin the discussion.

14 MR. WOOD: Okay. What we had intended to
15 cover in this setting was to talk generically about
16 our approach that we were using for trouble shooting
17 and performing investigative actions and then go
18 through the first item that we wish to get
19 concurrence on, that being the analysis of valves AF
20 599 and 608.

21 So at this point I will pass around a
22 handout which goes through guidelines that we are
23 establishing for our people.

24 Jim Helle will discuss the guidelines and

1 give you our basic approach as to how we are dealing
2 with these items, and it may be well at this time to
3 go around the room and just introduce the people
4 that we have present so that you will know what
5 their activities are in the organization.

6 MR. BURNS: Could we have a copy of the
7 handout for the reporter. And will you mark that as
8 Exhibit 1 and include it in the back of the
9 transcript.

10 - - - - -
11 Thereupon, Exhibit No. 1
12 was marked for purposes
13 of identification.

14 - - - - -
15 MR. BEARD: What was the gentleman's name
16 you said would be speaking.

17 MR. WOOD: Jim Helle, H-e-l-l-e.

18 MR. HELLE: John, did you want to go
19 through the introduction before I proceed.

20 MR. WOOD: I think that would be
21 appropriate. I will start.

22 John Wood, facility engineering general
23 supervisor.

24 MR. WIDEMAN: Steve Wideman, senior

1 licensing specialist.

2 MR. JACKIW: Nick Jackiw, NRC Region III.

3 MR. GRIME: Larry Grime, nuclear safety
4 manager.

5 MR. MOMINEE: Dennis Mominee, QA
6 supervisor.

7 MR. BEYER: Bernie Beyer, nuclear projects
8 director.

9 MR. HELLE: Jim Helle, director of nuclear
10 facility engineering.

11 MR. LONG: Jim Long, electrical
12 maintenance.

13 MR. BAJESTANI: Masoud Bajestani,
14 electrical and control system engineering downtown.

15 MR. ROSSI: NRC team leader.

16 MR. BEARD: I am J. T. Beard, and I am on
17 the NRC Fact Finding Team.

18 MR. SHAFER: Wayne Shafer, Region III.

19 MR. BURNS: Steve Burns, I am an attorney
20 in NRC office of the executive legal director.

21 MR. ROWLES: Bill Rowles, assistant to
22 the vice-president nuclear.

23 MR. MYERS: Ted Myers, safety and
24 licensing director.

1 MR. MURRAY: Terry Murray, assistant
2 vice-president nuclear operations.

3 MR. HELLE: Okay. I will proceed. As we
4 foresee it to develop our approach to developing the
5 action plans and performing the investigative work
6 to define the root causes for the various problems
7 that we had with our systems and equipment here, we
8 very quickly realized there is a special nature to
9 this work.

10 It is a little extraordinary because of
11 the large number of pieces of equipment found, and
12 it is very clear that we have got to be careful in
13 preserving evidence relating to equipment failures
14 and then proceeding in a very logical manner.

15 We felt it was necessary to supplement our
16 normal maintenance work order program, which is the
17 major program that we are going to be using for
18 conducting work in the field on equipment.

19 It will be AD 1844 for your reference, but
20 in this generic letter or this guidance memo that
21 has been written on the subject of guidelines for
22 trouble shooting and performing investigative work
23 it's been directed to all of the action item lead
24 individuals, these are people who have been assigned

1 specific responsibilities for analyzing problems in
2 specific areas by John Wood, who is our project
3 manager for this entire analytical program and
4 recovery.

5 Some of the things that we try to cover in
6 here is, first of all, we stated that our work will
7 be covered by MWO's.

8 Any time plant people or any other people
9 go out into the plant begin to work with equipment,
10 it is going to be covered by an MWO, under the
11 administrative procedures and provisions identified
12 in that procedure in addition to this guidance
13 memorandum.

14 In addition we have identified as one of
15 the provisions here is that we are going to handle
16 those MWO's for inspections and investigative work
17 as nuclear safety related whether they are or are
18 not, which means that if we are looking at turbine
19 bypass valves, which I believe is not nuclear safety
20 related, we would still employ those same type of
21 controls.

22 The other thing that's unique in this
23 situation here is that we have established a lead
24 individual who may be a person in engineering and

1 because he has corporate responsibility for
2 resolving the plans, we want to put him in a special
3 position of control as we proceed with the
4 investigative work.

5 So you will see that the provisions of
6 this letter identify that in developing the
7 maintenance work orders and proceeding with the work,
8 the lead in -- the assigned lead individual is
9 contacted when work proceeds, when something is
10 discovered and there is a hold point established at
11 any point in time we feel we have discovered
12 something that may explain or is out of the ordinary.

13 We want to very clearly document the
14 as-found condition. That's one of the first
15 elements of this program. And it is included in
16 here.

17 We do not want to lose any relevant
18 information by not carefully planning, documenting
19 the sequence and the observations throughout the
20 investigative work.

21 I believe that that's really the full
22 essence. Again, in supplemental instruction to our
23 normal maintenance work order procedure it puts our
24 lead assigned responsible individual in a key

1 position in terms of all the work out there.

2 It documents the as-found condition, and
3 it places a hold in a continuing review by our lead
4 individual at any particular time something is
5 discovered and then we evaluate the discovered
6 information, and we may want to regroup and
7 reconsider the action plans that we have developed
8 up to that point in time to discover that
9 information.

10 Now that's the general. That's the
11 general philosophy. You will see that there is a
12 series of steps in here that identify more
13 specifically each of the provisions of this guidance
14 memorandum, but I think they essentially capture and
15 further define what I have outlined as being a
16 general philosophy.

17 Now, I could possibly go over each of the
18 items if that would be something that you would want
19 for the record or I would stand to address any
20 questions that might come up.

21 MR. BEARD: Well, I think that, Jim, the
22 obvious thing to me is you just handed us this piece
23 of paper, and it is three pages long, and we haven't
24 had a chance to read it yet.

1 It seems to me you are either going to
2 have to give us a little time to read it and digest
3 it or you may choose to speak about what it says in
4 more detail.

5 MR. HELLE: Okay. Why don't I go through
6 it. The guidance memo is two pages. I want to
7 speak to that. I don't know what got attached to
8 page number three. It is equipment freeze.

9 MR. WOOD: It is equipment freeze list.

10 MR. HELLE: The guidance memorandum is
11 really the two sheet memo.

12 Again, the essence of the memo, I just
13 simply lead into it and say that we feel that it is
14 very important to proceed in a methodical and
15 reasonable way in this fact finding effort and to
16 avoid any loss of information or the destruction of
17 relevant information we have outlined the following
18 steps to be implemented.

19 The first one, all MWO's relating to the
20 6-9 trip shall be handled as nuclear safety related.

21 Second point, trouble shooting and repair
22 shall be accomplished on separate MWO's.

23 MR. BEARD: The repair would be, in other
24 words, what you are saying is that the trouble

1 shooting will be done, that would close out that
2 work order and then there would be a separate work
3 order for any readjustments or corrective actions?

4 MR. HELLE: That's correct. We would
5 write the maintenance work order to do the
6 investigative trouble shooting work and then the
7 follow on, any follow on work after that point in
8 time would be addressed by a separate item.

9 MR. BEARD: I assume that along that line
10 the corrective actions would come back to us in
11 terms of some information as to what you think the
12 cause was and corrective actions --

13 MR. HELLE: Well --

14 MR. BEARD: In other words, I am trying to
15 get into the area at what time would the second work
16 order for the corrective actions be initiated and
17 work on that start.

18 MR. HELLE: It would certainly be after
19 the investigative work is concluded. All of the
20 work, let me say it that way, all of the work is
21 covered by the action plans, which are going to be
22 submitted, and as long as we are proceeding with
23 that action plan and you approve it, we are going to
24 proceed with that work.

1 Now, corrective or repair work will not be
2 incorporated, you know, initially in the plans you
3 look at. So once we discover something that leads
4 to repair or corrective actions, there will be
5 another recycle of an action plan or a work plan to
6 address that problem.

7 MR. MYERS: For concurrence.

8 MR. ROSSI: You are going to give us an
9 action plan for each piece of work on each component.

10 MR. HELLE: That's the way we were
11 proceeding right now. Today we are going to
12 conclude this general session by giving you a
13 specific action plan relating to the auxiliary feed
14 AF 599 and 608.

15 It will identify very specifically what we
16 planned to do in terms of the investigative work.
17 Now, if at any point in time we discover something,
18 it goes on hold and then we begin to digest that
19 information. Any time we are outside of what we
20 preplan, we will regroup and redevelop that.

21 MR. BEARD: I guess part of my concern I
22 was trying to get at was I think that the fact
23 finding team does not want to necessarily approve
24 all the corrective actions because our charter is

1 primarily find out what happened and the why part
2 and the why is the root causes.

3 However, when you have completed the first
4 work order, which would be the trouble shooting part,
5 and determine then I think that before you proceed
6 with corrective actions be they only readjustments
7 that we would like to hear back what you found as a
8 root cause before some corrective action takes place.

9 MR. HELLE: I believe that's incorporated
10 in our program right now because again we plan only
11 to proceed to the extent that our action plans that
12 we negotiate with you are approved. That's where we
13 will go and right now they are developed only to the
14 investigative point, to trouble shoot.

15 MR. BEARD: If that's your intent, I can
16 accept that.

17 MR. SHAFER: We are going to get a copy of
18 the action plan, and I take it that's going to be my
19 official notification that you intend to do certain
20 work activities; is that --

21 MR. WOOD: Well, it would be a result of a
22 meeting such as this where we would concur that we
23 would go out and do work. We would then be
24 preparing MWO's which would then be the formal

1 release in the field as all of our work is so you
2 will be aware as a result of a meeting such as this
3 that we plan on doing that work, and we can plug you
4 in to that cycle in any shape that you desire.

5 MR. SHAFER: I need to have adequate
6 notification, and I guess we have to maybe sit down
7 and caucus just what work activities you feel and we
8 feel are appropriate to monitor.

9 MR. ROSSI: I agree that there may be a
10 point after we have gone through this where we will
11 need to caucus amongst ourselves to decide, you know,
12 like whether we want to be involved in approving
13 each separate stage or what because it sounds like
14 what you have got now is your after the trouble
15 shooting you are going to come back to us and I
16 don't know that we want to be in the position of
17 approving the next step.

18 I mean, we want to make sure that we have
19 a plan where we get the root cause and find out what
20 was wrong without being involved in each and every
21 step, I believe.

22 MR. SHAFER: This, indeed, this identifies
23 the activities that the lead individuals will take,
24 but if I were a lead individual, I would feel free

1 to have authorization to go ahead and release
2 maintenance work activities and, in fact, I would
3 even feel free to ship things on site as long as I
4 had the facility engineer and quality engineering
5 approval, and I don't think that's what we are
6 looking for.

7 MR. HELLE: Wayne, this here only covers
8 the trouble shooting and investigative. It doesn't
9 include any corrective action or repair.

10 I think this will become clear as we are
11 able to present to you one of the action plans. You
12 will see how far we plan to carry the work in that
13 action plan, and it is not where you are concerned
14 about.

15 MR. SHAFER: You said shut up very nicely.

16 MR. HELLE: I didn't say that. I think it
17 will evolve for you though, and you will see that
18 you will be plugged in, and this is not a license
19 for the responsible individual to do anything more
20 than trouble shoot and then find something and hold
21 right there if it explains the problem that we have
22 and he is documenting this all along so it has been
23 made perfectly clear to us that we feel that's the
24 way you want it to operate.

1 You wanted to look at the action plans,
2 the approach that we are going to take to this and
3 when we present that to you, I think that you will
4 see that we are pretty tightly controlled in terms
5 of the way we are proceeding with the work.

6 MR. SHAFER: Why don't we go on.

7 MR. MYERS: One caution as we go through
8 this, our understanding is we have to agree in
9 whichever manner we come up with, after this example
10 I think is a good time, how that complies with the
11 requirements of the confirmatory action letter,
12 which does tie the team into concurrence with
13 corrective actions.

14 So however I heard what you said, and it
15 may require some square peg round hole fitting here
16 to actually come up with what we have agreed with
17 the region to produce or maybe we can modify that.

18 MR. BEARD: Recognize we are at an
19 interface here, Ted, and we have to caucus amongst
20 ourselves, but my personal opinion is that we don't
21 want, as a team, to approve any specific corrective
22 actions as much as we want no corrective actions
23 taking place until we have had presented to us what
24 the root causes are so that, you know, we can get

1 into a situation with a limitorque valve where
2 people think here is the problem, and they go out
3 and adjust it before we agree and probably would
4 want some follow-up investigation maybe confirmatory
5 nature to make sure that we can agree that that was
6 the cause.

7 That was the only thing I think this team
8 is interested in and once you get beyond that I
9 think the approval of specific corrective actions is
10 primarily the responsibility of Region III.

11 MR. MYERS: I understand your concerns;
12 however, we do have have on the books certain words
13 that we must either have to change or comply with.

14 MR. SHAPER: I realize that, and I just
15 want to make very sure that we are all communicating
16 because I am a little upset that your chief
17 executive officer has complained that we are
18 impeding your maintenance repair work effort.

19 I don't believe that's true. And I want
20 to make certain that we minimize the impact that we
21 might have in your trying to achieve some of these
22 maintenance work activities.

23 MR. HELLE: Should I carry on here. I
24 think we are in agreement with you.

1 MR. WOOD: Do you want to wait for Ernie.

2 MR. BEARD: No, I think we can go ahead.

3 MR. HELLE: Okay. The third point, MWO's
4 are to be approved by the action item lead
5 individual and reviewed by QC prior to
6 implementation.

7 It is the lead individual's responsibility
8 to assure that the investigative actions are
9 appropriate, sufficient and well defined.

10 Point number four --

11 MR. SHAFER: Did you scratch a sentence
12 out of there?

13 MR. HELLE: No, the copy of the MWO's go
14 to Dennis Mominee. I was just trying to capture the
15 essence of that right there.

16 MR. BEARD: Are you finished with number
17 three?

18 MR. HELLE: Right.

19 MR. BEARD: It seems to me a very
20 important aspect of the investigation is not covered
21 by the words in this particular paragraph, and that
22 is the lead individual's responsibilities.

23 This is his charter statement, so to speak.
24 At least I read it as being a charter statement. It

1 is not only important that he designs investigative
2 actions that are appropriate, sufficient and well
3 defined. I think it is equally important that those
4 actions are well developed and the findings are well
5 developed.

6 MR. HELLE: Okay. I think, again, as you
7 see our action plans that we are giving to the lead
8 individuals, I mean, that are being developed and
9 his instruction to follow on where the rest of these
10 steps, that will all be well developed. Everything
11 will be well planned and documented in the course of
12 that.

13 MR. WOOD: I think there are other several
14 points that alluded to documentation. Maybe if I
15 could -- if I could go through all of them, I think
16 you will capture the documentation element of here
17 that evolves from the steps and then possibly come
18 back and address the questions.

19 MR. HELLE: Point number four, only those
20 MWO's approved by the action item lead individual
21 and QC may be worked on any of the frozen systems
22 identified on the attached list. Okay. That's
23 where the attached list came from.

24 Point number five, assure that only

1 current drawings and controlled vendor manuals are
2 used for the work.

3 Point number six, consider the need for
4 vendor representatives. Vendor representatives
5 should be used to assist in trouble shooting if
6 appropriate expertise is not available in house.

7 The reps will need to be given specific
8 guidance for what they are and are not to do.
9 Vendor representatives must follow the guidelines of
10 this memorandum.

11 Point number seven, the MWO must clearly
12 document the scope, affected equipment, and the
13 desired objective of the investigative activity.

14 MR. BEARD: Sounds like you are right,
15 that when we get further into this, some of the
16 points we raised are coming.

17 MR. HELLE: Point number eight, the
18 sequence of activities need to be documented on the
19 MWO or procedures specified in the MWO. If the
20 sequence cannot be determined prior to the activity
21 being performed, define the sequence and provide a
22 check off for each step.

23 If the desired sequence cannot be
24 determined previous to the activity, as a minimum,

1 define the fundamental sequence to be taken and
2 document each step as it is performed.

3 MR. WOOD: Jim, I think you inserted a not
4 in the second sentence that is not here.

5 MR. ROSSI: It may have found its way on
6 to the transcript.

7 MR. WOOD: And it is not intended to be
8 there either.

9 MR. BEARD: How about if you reread.

10 MR. ROSSI: Read number eight again.

11 MR. HELLE: I'll reread eight. The
12 sequence of activities needs to be documented on the
13 MWO or procedures specified in the MWO. If the
14 sequence can be determined prior to the activity
15 being performed, define that sequence and provide a
16 check off for each step.

17 If the desired sequence cannot be
18 determined previous to the activity, as a minimum,
19 define the fundamental sequence to be taken and
20 document each specific step as it is performed.

21 Point number nine, document on the MWO all
22 as-found conditions. Visual inspect and document
23 any missing, loose or damaged components, note
24 positions (open, closed, up, down, et cetera)

1 abnormal ordinary environmental conditions,
2 operation of cooling devices, water leaks, oil leaks,
3 loose fittings, cracks, evidence of overheating or
4 water damage, cleanliness, bent tubing, fluid levels,
5 et cetera.

6 Describe the overall condition or
7 appearance. Whenever possible use photographs to
8 document the as-found conditions. When considered
9 necessary, retain a sample of fluids or their
10 residue for further analysis.

11 MR. BEARD: On this item that you just
12 read, Jim, it sounds like it is a long list there of
13 note positions, et cetera, et cetera, but it seems
14 like it is oriented in the mechanical area, highly
15 in the mechanical area, and its thrust of it.

16 It seems to me that you would want to add
17 in here the kinds of things that would be
18 appropriate to electronics types of feed such as
19 feed steam rupture system where I believe you would
20 want to document those settings that of things, for
21 example, if a knob is set to a certain fourth count
22 on it or whatever, set points and adjustments and
23 things of that nature and other electronics related
24 items rather than the mechanical items.

1 MR. ROSSI: That would be primarily out of
2 tolerance adjustments.

3 MR. BEARD: What I had in mind, maybe you
4 are saying other things, I am saying if you go to an
5 electronic cabinet that has knobs on the front of it
6 that has scales, that type of an as-found adjustment
7 is not well described in the present version of
8 number nine.

9 And I am saying that I think you would
10 want to amend that number nine to suggest to the
11 lead individuals that knob setting, et cetera, et
12 cetera, in other words, items that would be
13 appropriate for instrumentation and control and
14 safety related electronic equipment.

15 MR. HELLE: Switches on and off,
16 indicating -- I think you are right. The people
17 that were sitting around developing this were
18 primarily mechanical engineering people so you see
19 that flavor.

20 MR. ROSSI: Even your valves that you want
21 to work on or trouble shoot first are going to have
22 torque switches and limit switches and that kind of
23 thing and that could very well be in a key in the
24 issue so that really needs to go on here as an

1 addendum.

2 MR. MYERS: Could I propose in front of et
3 cetera, switch settings, instrument settings,
4 anything else?

5 MR. WOOD: Set points.

6 MR. GRIME: Set points.

7 MR. BEARD: I think that adequately
8 addresses the point I raised. I guess the paper
9 amended with those few words.

10 MR. HELLE: I think we can agree to that.
11 Okay.

12 Point number ten, when discrepancies are
13 noted during the investigation, stop work and notify
14 the action item lead individual. Document the
15 deficiency. The lead individual must sign off on
16 the discrepancy prior to continuing the
17 investigation.

18 Item number eleven, document the results
19 of the investigation on the MWO.

20 Number twelve, prior to restarting any --
21 excuse me. I want to start 12 over.

22 Prior to starting any repair activities
23 the action item lead individual must document that
24 all investigations have been properly completed.

1 MR. BEARD: I think this is the point that
2 we addressed -- the point I raised earlier that I
3 think it should be replied very clear to the lead
4 individuals, some of whom may not be in this room, I
5 presume, that however you choose to put the words
6 but basically that you as an organization would not
7 allow, convey to him through this document that he
8 is not allowed to improve it until after this team
9 has had some opportunity for concurrence action in
10 the determination of root cause.

11 MR. WOOD: I think it is always our
12 intention to bring the lead individuals in with the
13 action plan so they will have that direct interface
14 to fall back on also.

15 MR. BEARD: I think you are probably right.
16 I was just thinking it would be best if it were put
17 right here.

18 MR. ROSSI: We need to talk about what our
19 involvement and going back and concurring in any of
20 this is, who does that, the region, the team or what.
21 That is something we will have to caucus on at some
22 time.

23 MR. MYERS: If we could, probably the best
24 thing to say with action item lead individuals will

1 need concurrence from TED's management and blank.

2 MR. BEARD: If you leave NRC, then it is
3 sufficiently ambiguous that it doesn't define the
4 region or --

5 MR. ROSSI: That again we need to caucus
6 on that.

7 MR. WIDEMAN: We can probably put that in
8 this guidance, however, the CAL says the
9 investigative team so that would need to be cleared
10 up, you know. And I know, Wayne, we will have to
11 talk about that later on. Maybe a clarification.

12 MR. HELLE: I think that is intended, like
13 I said before, by our program. And I think that
14 will become evident as we go through the case that
15 we are showing here.

16 Point number 13, no equipment is to be
17 shipped off site without prior approval of the
18 nuclear facility engineering and quality engineering.
19 Use of Q purchase order process to obtain these
20 approvals.

21 Note, in all cases applicable procedure
22 must be followed. The requirements of this
23 memorandum must be communicated to craft personnel
24 to avoid any confusion or misunderstanding during

1 this investigative period.

2 That's basically the full guidance
3 memorandum and then the attachment being the freeze
4 list of equipment to which we believe these provisions
5 apply.

6 MR. ROSSI: Now, this particular document
7 here is only for trouble shooting and not for repair?

8 MR. HELLE: That's right.

9 MR. ROSSI: The subject is guidelines to
10 follow when trouble shooting or performing
11 investigative actions.

12 MR. HELLE: That's right. Investigative
13 work.

14 MR. ROSSI: And even if trouble shooting
15 may involve the shipment of equipment off site?

16 MR. HELLE: Yes.

17 MR. ROSSI: Is there anything in here that
18 involving the replacement -- the replacement of any
19 broken parts or defective equipment or anything like
20 that is not covered by this.

21 MR. HELLE: That's right.

22 MR. ROSSI: This is only to find out what
23 the problem is and not to replace anything.

24 MR. HELLE: That's right.

1 MR. ROSSI: So none of the equipment, any
2 equipment here would either be shipped off site for
3 trouble shooting and it is not going to disappear
4 anyplace or anything like that. It will be
5 maintained even after what they find out what the
6 problem is whether it goes to a vendor or whatever.

7 MR. HELLE: I believe that to be true.

8 MR. ROSSI: That's a very important point.
9 We don't want any equipment that is removed or
10 replaced from the -- replaced at the site, we don't
11 want any defective equipment to be retained. That's
12 a very clear issue.

13 MR. HELLE: I think maybe this memo could
14 be addended to include that provision that any
15 equipment that needs further investigation off site
16 that we maintain traceability and we maintain that
17 equipment or maintain those parts.

18 MR. SHAFER: That ties very close because
19 I was going to ask you what mechanism do you have in
20 place here. Are you setting up a holding pen
21 somewhere such that, you know, properly identified
22 in that location the team will know enough to go
23 there if they want to look at a specific part that
24 failed and it is going to be shipped off or whatever.

1 I think that might be useful to describe that here.
2 So the parts aren't laying all over the place.

3 MR. HELLE: If we included provisions to
4 preserve and keep the failed equipment here or off
5 site that would address your concern, we have it
6 available for inspection or somebody to look at it.

7 MR. ROSSI: You need to keep it and have a
8 record of exactly where it came from.

9 MR. BEARD: Track records.

10 MR. ROSSI: Like when you are working on
11 valve 599 and 608, if you have the same broken part
12 from both of those valves, we would want a record as
13 to which of the two broken parts came from valve 599
14 and which from 608.

15 MR. WOOD: We want to maintain full
16 traceability.

17 MR. BEARD: I think also along the same
18 line let me give you a different example. Suppose
19 it were come to pass you were to replace an assembly
20 with a governor with a new governor. I think that
21 -- I think we want that governor kept here so that
22 if the commission should choose to -- if you were
23 through with your analysis of it, for example, the
24 commission should choose to have that analyzed by an

1 independent laboratory that that option would not be
2 closed out.

3 MR. ROSSI: That's an important point.

4 MR. BEARD: So that any failed item that
5 is replaced either on site or off site should not be
6 discarded even if it is an oil filter to be used as
7 an absurd example. Save the old oil filter.

8 MR. SHAFER: I think it is very important
9 too that if you do replace failed parts with new
10 parts, the new part is suspect until such a time as
11 your analysis establishes that there is no
12 relationship between the old part and what you just
13 put in there.

14 MR. MYERS: Let me recommend at the end of
15 13 we add the sentence individual equipment
16 traceability of off site actions and equipment
17 return is required.

18 MR. BEARD: What do you mean by -- you are
19 talking about on the off site shipments, yeah.

20 MR. HELLE: I think it is a broader thing,
21 Ted. It certainly applies there, but it also
22 applies to anything we don't ship off.

23 MR. BEARD: We may need a new item to
24 retaining the components or parts with it.

1 MR. MYERS: For on site.

2 MR. BEARD: For anyplace.

3 MR. GRIME: There is going to have to be a
4 similar guideline for the repair phrase that would
5 address in detail those issues of retaining those
6 failed components no matter how minor they might be.

7 MR. BEARD: If you get in the electronic
8 instead of valve and pipe you may choose to trace
9 this thing down to a printed circumstance cut board
10 in a cabinet someplace.

11 And the normal repair actions I have seen
12 at a lot of nuclear facilities go on the board would
13 be replaced, a new board put in its place and the
14 defective board or presumed defective board may go
15 in the trash can because of its price, and what we
16 are saying that should not occur in this situation.

17 MR. ROSSI: Any replaced parts we want
18 retained and marked and labeled so that if we choose
19 we can have an independent assessment of the failure
20 mode.

21 MR. WOOD: Do you have some words that we
22 can adapt, Jim?

23 MR. HELLE: Well, I added an item 14. I
24 captured a few thoughts and have to do some word

1 engineering, but here are the thoughts.

2 Keep all failed equipment, full
3 traceability, extra information where it came from,
4 you know, where it originated, keep for further
5 examination and do not discard any pieces or parts.

6 So I am saying I think we can capture that
7 in a statement called 14, and I see everybody
8 shaking their head on Edison side anyway that we can
9 certainly accommodate that requirement.

10 MR. BEARD: I think those words are
11 generally acceptable. Certainly for the benefit of
12 the transcript they are acceptable. The intent is
13 here.

14 MR. SHAFER: Let me ask some logistics.
15 How many lead individuals are there?

16 MR. HELL : John, do you want to speak to
17 that?

18 MR. SHAFER: You have a list somewhere
19 IN's I was going to get a list from someone but
20 maybe one of the staff members got it.

21 MR. WOOD: There is approximately eight to
22 ten and some of them have more than one item that
23 they are working on. This deals with equipment on
24 the freeze list. We have other lead individuals for

1 some analytical work that won't be necessarily
2 subjected to this hardware oriented investigation
3 action.

4 MR. SHAFER: How many would be in the
5 field at any one time? Do you have a feel for that?

6 MR. WOOD: I am assuming eight to ten of
7 them could be in the field at the same time. I
8 don't know that we have limited ourselves to our
9 capabilities to go out and work X number of these
10 things simultaneously.

11 MR. SHAFER: Well, what's bothering me a
12 little bit. Do you intend to work around the clock?

13 MR. WOOD: Terry, maybe you could better
14 address that.

15 MR. MURRAY: We must get approval to go,
16 we are going to work extended hours. I won't say we
17 are going to work around the clock.

18 MR. BEARD: Does your maintenance
19 organization normally work single shift?

20 MR. MURRAY: Normally it is single shift.
21 We have skeleton coverage on the back shifts but
22 normally the major jobs are a single shift now
23 because of the outage here and once we get our plans
24 worked out and get your approval, we are going to do

1 some reshifting of resources, but I still don't
2 think we will go around the clock.

3 MR. MYERS: Your concern is schedule for
4 coverage.

5 MR. SHAFER: Yeah, because the first
6 assign valves 599 and 608. I assume you are going
7 to have two teams working on the same time.

8 MR. LONG: No, that's incorrect.

9 MR. SHAFER: When you have a mechanical
10 team looking at the body of a valve and an
11 electrical team looking at the electrical.

12 MR. LONG: No, the intent is to work one
13 valve at a time, start to finish.

14 MR. SHAFER: As a team you would have a
15 group of people that would do all of the work?

16 MR. LONG: Yes.

17 MR. HELLE: We need to get the action plan
18 for the valve on the table to really look at the
19 overall process that we wanted to use here for
20 getting your condition questions with our proposed
21 action.

22 MR. BEARD: I have another general
23 question on the same line before the specific case.
24 Of the eight to ten lead individuals to what extent

1 can you tell us that these are engineers who would
2 be knowledgeable of the design considerations that
3 are involved in the equipment?

4 MR. HELLE: That's the reason they were
5 picked basically because they did have -- John, I
6 just passed you my list down there. Maybe you
7 should address that or pass that list back down to
8 me.

9 It looks to me like we have got about 20
10 people, and the people that have been identified as
11 lead individuals to address the problems have been
12 picked because of their knowledge in the problem
13 area and for the engineering people, you know, they
14 would be our lead people, senior level lead people
15 typically if we have that type of an individual
16 assigned to the problem.

17 The most knowledgeable person that we
18 would have in engineer -- or I would say in the
19 station for the station items they have picked the
20 people who are most knowledgeable.

21 Now, not everybody that is assigned lead
22 responsibility is an engineering person or has an
23 engineering background, but looking at the list here,
24 I would say for those items that have key engineer

1 questions at stake there are engineering people
2 assigned to them.

3 The majority of these people are engineers.
4 Looking at the list most of them are engineering
5 people with few qualms, about 20 of them.

6 MR. BEARD: I guess my concern is focused
7 on people, whether they are engineers or technicians
8 I could care less, but people who are familiar with
9 the design considerations that went into a
10 particular component's electronic rack, valve,
11 widget, whatever it is, that they have specific
12 knowledge of the design considerations.

13 And I appreciate where you are coming from,
14 Jim, you tried to select the most knowledgeable
15 people within your corporation, but this interfaces
16 the question with regard to the use of vendors.

17 Those are the, typically, the
18 manufacturers and the designers. And we have
19 learned through some experience utilities actually
20 learned the lesson. We were just around the
21 peripheral of it, but it is very, very important
22 that when investigative activities are undertaken
23 that knowledge of the design considerations be a
24 part of that team.

1 And you may have to, for example, if you
2 do the steam feed rupture control system if your
3 engineers are not very familiar with the design
4 considerations, it may be ultimate to go to
5 consolidate controls or get somebody up front maybe
6 even in consideration of the maintenance work order
7 seems to be the focal point of this focal document
8 in outlining the investigative effort.

9 MR. WOOD: I think that, in fact, is being
10 done. For instance, on main feed pump turbines and
11 control, we have G E that we are talking to. We
12 have consultants that are working with our people in
13 addition to G E.

14 And I think we really can't summarize our
15 whole effort and expertise level by taking them as a
16 group. We are really going to have to break them
17 down almost item by item and explain the expertise
18 that we have applied and the type of program that we
19 have laid out for each individual item.

20 But we share, I think, your thoughts and
21 intents here, and we have tried to apply that
22 rationale to our assignments. And where necessary
23 we have augmented our own capabilities by bringing in
24 either vendor reps or outside third-party

1 consultants to help us.

2 MR. BEARD: Recognize vendor rep, there
3 are vendor reps and vendor reps. Some of the vendor
4 reps are well experienced superior technicians and
5 mechanics and have no engineering background, and I
6 am trying to focus on engineering, knowledge of the
7 engineering design aspects of the equipment. I will
8 stop at that point.

9 MR. ROSSI: Let me ask a question. Do you
10 want -- you want release today to just trouble shoot
11 599 and 608?

12 MR. WOOD: Based on an action plan.

13 MR. ROSSI: We have been through this
14 general thing on trouble shooting, which I assume is
15 going to apply to all the equipment on the list, and
16 now you are prepared to talk about the specifics of
17 599 and 608.

18 Let me suggest that we go ahead and start
19 talking about that plan for 599 and 608, and then at
20 some point here we ought to decide where we ought to
21 break and caucus amongst ourselves and try to
22 identify what issues we need to talk with you about
23 and what things we are concerned about and then
24 reconvene because I don't think we can -- we

1 certainly can't resolve all the issues in the
2 meeting between us.

3 We are going to have to caucus at some
4 point and probably the best place is after we look
5 at the specific plan.

6 MR. WOOD: Our intentions were to go
7 through the guidelines to give you our thought
8 process that we were trying to apply to activities
9 before we actually talked any specifics.

10 MR. ROSSI: Right. I think we have done
11 that. I think we need to come back to this after we
12 caucus and after we look at this, but we are ready
13 to go on.

14 MR. WOOD: If there are any extras, I
15 would like one.

16 MR. ROSSI: We need this marked as --

17 MR. BURNS: We will mark that as Exhibit 2
18 to this meeting transcript.

19 - - - - -

20 Thereupon, Exhibit No. 2
21 was marked for purposes
22 of identification.

23 - - - - -

24 MR. WOOD: I guess I would like Bernie

1 Beyer to kind of describe the layout of the action
2 plan.

3 And Bernie is heading up the efforts to
4 collect and consolidate these action plans. And
5 then we would have Jim Long and Masoud Bajestani
6 discuss the details of the action plan with the team
7 members.

8 MR. BURNS: Make sure she knows what we
9 are referring to, it is the exhibit is entitled
10 auxiliary feedwater system valve problem analysis.
11 AF 599 and 608.

12 MR. BEYER: In a very simple approach we
13 wanted to basically collect data, analyze the
14 conditions that existed, get all the information
15 that we could and then in some logical fashion
16 determine from the information we had from equipment
17 history what possible hypothesis we might have
18 relative to the causes of the problems.

19 And we go through these plans that's
20 basically what you see then is collection of the
21 data, development of hypotheses and then development
22 of a plan to either prove or disprove the hypotheses,
23 to hone in on a given root cause or more than one
24 root causes if that happens to be the case.

1 MR. BEARD: That's basically the outline
2 for each of these specific plans?

3 MR. BEYER: That would be the outline that
4 you would see for each plan that we would present.

5 MR. BEARD: Okay. One nuclear power plant,
6 a different one from this one, they learned another
7 lesson and that is as I read this you are talking
8 about through the change analysis you will develop a
9 hypothesis which I would envision is the most likely
10 cause of the problem.

11 MR. GRIME: Plural. Hypotheses at this
12 point.

13 MR. BEARD: I think it is important that
14 you also plan for and anticipate to take adequate
15 precautions that neither the most likely cause or
16 causes but the last one you would have ever
17 suspected really is the cause and be careful to
18 introduce steps that would be in design to prevent
19 destroying evidence that that was the cause.

20 MR. BEYER: I think that sounded nice.

21 MR. ROSSI: Why don't we look at what they
22 have here and see if there are specific changes that
23 need to be made to it because that's kind of a
24 general comment.

1 MR. BEARD: Yes, it is a general comment.

2 MR. MYERS: Our plant not here was? The
3 name of that power plant so we could get our people
4 in touch with their people.

5 MR. BEARD: Well, I don't talk about other
6 utilities in front of a specific one, but there was
7 a plant in Colorado.

8 MR. BEYER: I think the additional
9 information that came with this handout basically is
10 specific to the particular action plan. And I will
11 let Jim Long take it from there.

12 MR. GRIME: I think as far as your point,
13 Mr. Beard, we can point out that one of the main
14 purposes in getting the people to document their
15 hypotheses and several of them was just for your
16 reason so that in looking at the total potential and
17 in the instructions to them and developing the
18 subsequent questioned actions for just that purpose.

19 Even though I would like to jump right in
20 there and test my number one hypotheses, number
21 three here is not going to be able to test it if I
22 do it that way so that they can establish the proper
23 total tests sequence to test all of the various
24 hypotheses as far as what might have concerned with

1 that particular component.

2 MR. BEARD: My comment is very general in
3 that you may want to amend that particular page for
4 in future other people developing that's got to be
5 part of their program plan. That's all.

6 You may have very well have done an
7 outstanding job with this item on this particular
8 thing.

9 MR. GRIME: That was in the general
10 instructions that was given to the group.

11 MR. LONG: Well, my responsibility is to
12 determine why the auxiliary feedwater valves 599 and
13 608 did not reopen during the incident that occurred.

14 Now, those valves are both normally locked
15 open valves. They were both open prior to the
16 incident because of the improper initiation of SFRCS
17 both those valves went shut.

18 MR. SHAFER: When you say locked open
19 valves, how is it locked open?

20 MR. LONG: The valve hand wheel has a
21 chain with a padlock to prevent someone from
22 inadvertently shutting it. The local hand stations
23 also have covered with padlocks on them to keep
24 someone --

1 MR. SHAFER: It is local controls that are
2 locked open.

3 MR. LONG: Yes, local controls.

4 MR. ROSSI: The remote ones are not.

5 MR. LONG: The ones from the control room
6 are unlocked.

7 MR. ROSSI: Either manual or automatic
8 from control.

9 MR. LONG: During the improper initiation
10 of SFRCS those valves were shut, the error
11 discovered, and SFAS reset.

12 Those valves did not automatically reopen
13 even though they had a signal telling them to open.
14 At that point, operators were dispatched to the
15 valves.

16 And in my discussion with the operators
17 they informed me that he put the valve, this is each,
18 he said the same on both valves he put the valve in
19 manual, he started to turn the hand wheel in the
20 open direction. And it was hard to move.

21 And he said he went about half a turn and
22 then he went back towards the closed direction. He
23 was going to try and give it a hammer blow. He went
24 in the open direction again still stop, closed

1 direction again.

2 At that time he heard a rattling sound in
3 the operator and the valve opened electrically. Now,
4 prior to this incident the last time or the last
5 time the maintenance was done on these valves was
6 during the 1984 refueling outage.

7 We went in and on both of these valves we
8 replaced the brake and the motor as part of our
9 environmental qualification program.

10 AF 599 was also completely disassembled,
11 relubricated, some worn parts replaced in it and
12 reinstalled.

13 Both of these valves were successfully
14 tested per ST 506401, which is the containment valve
15 post maintenance test, ST.

16 The changes that I saw from the time that
17 they were successfully tested the last time and this
18 incident is that when they were tested during the
19 outage the plant was shutdown, cool down,
20 depressurized so the valves were tested cold without
21 any additional pressure.

22 And during the incident, from the
23 information that I have gathered, they could have
24 exhibited a opening against at least the maximum DP

1 of 1,050 pounds. Not knowing the exact pressure I
2 am going to assume they had the maximum DP across
3 them.

4 MR. BELL: Are these valves tested per
5 ASME Section 11 per stroke times are measured?

6 MR. LONG: Yes, they are.

7 MR. BELL: Have you looked at that
8 documentation to see if stroke time is periodically
9 increased on a periodic basis?

10 MR. LONG: Yes, the stroke time has not
11 changed. In fact, subsequently to this at 15:15 on
12 6-9 after they performed ST 507102, which is the
13 stroke time on these valves, and they successfully
14 passed their stroke time test so the valves have
15 been successful strokes since the incident.

16 MR. ROSSI: Since the incident.

17 MR. LONG: That was prior to the CAL being
18 placed against the plant.

19 MR. BEARD: If we get a list of the
20 activities conducted of a trouble shooting repair
21 nature before the freeze over, that would be an item
22 on that list?

23 MR. LONG: Yes, sir.

24 MR. WOOD: Yes.

1 MR. ROSSI: Was that done under the plan
2 with what condition?

3 MR. LONG: That the plant was in mode 3,
4 steam under pressure with approximately 850 pounds
5 at the time those valves were stroked.

6 MR. SHAFER: How many pounds?

7 MR. LONG: 850.

8 MR. JACKIW: Did you say that the torque
9 setting was recently changed?

10 MR. LONG: The torque switch setting was
11 changed in March of 1984. We had an FCR that we
12 performed.

13 Based on the Torry pin study we changed
14 the torque switch setting from -- I am not sure, but
15 it is now 1.5 open, 1.0 closed.

16 The MWO's that I had pulled out the data
17 indicates that that is what the torque switch
18 settings were found as prior to the maintenance, and
19 that's what they were left at.

20 Now, based on that information, okay, we
21 developed a hypotheses of the different things that
22 could cause a limitorque to torque out, okay.

23 Now, the indication of the operators from
24 what they told me I am going to have to assume right

1 now that the torque switch stopped the valve on
2 opening. So the question is now what caused the
3 torque switch to function.

4 Now, there are several things that can be --
5 we can go under. Now, on the sheet here that lists
6 the hypotheses some of the things that we looked at
7 was that the bypass, the torque switch bypass
8 contact could have been improperly adjusted when the
9 maintenance was done meaning that it takes a certain
10 number, a certain percentage of valve travel before
11 you put the torque switch in the circuit just
12 because of the valve unseating capabilities.

13 So that is one hypotheses that could have
14 caused the valve to torque out.

15 And as you can see from the action plan
16 items three and five, okay, two of the things that
17 we are going to do to either prove or disprove that
18 is that, one, we are going to be bringing MOVATS
19 Incorporated in to provide us a signature of these
20 valves under a stroke condition and from that
21 information their print-out will tell us whether or
22 not the switch is opening too early in the stroke to
23 unseat the valve.

24 In addition to that, we will -- using our

1 procedure again we will manually open the valve and
2 verify where the limit switch contact is actually
3 opening and compare that to the MOVATS data and see
4 if we have a discrepancy in that procedure.

5 Another thing that could --

6 MR. BAJESTANI: The first item I want to
7 mention that the first thing is we want to see if
8 the limit switch is set improperly. That's what we
9 are talking about.

10 MR. LONG: Well, I might mention that the
11 first thing we are going to do before we get any of
12 this is that we are going to do a visual inspection
13 of the valve to see if we can see any, you know,
14 anything that might be obvious without tearing it
15 apart.

16 And then once we get the switch cover open,
17 we will check the as-found torque switch setting to
18 verify that it is, in fact, set at one and one and a
19 half. That's what number two is improper torque
20 switch setting.

21 That is just going to be a visual
22 inspection to see, in fact, that it is set at one,
23 one and a half as we think it is.

24 Another thing that could cause the valve

1 to torque out is either the wrong spring pack or an
2 improperly adjusted spring pack, okay.

3 Now, again, the MOVATS data will tell us
4 somewhat whether or not the valve is torquing out or
5 delivering the required thrust and whether the
6 torque switch is opening prematurely or whether or
7 not the one and a half setting on the torque switch
8 is sufficient to overcome the required thrust when
9 the valve is opening.

10 MR. SHAPER: You can't tell now what
11 spring pack is in there. You don't know?

12 MR. LONG: The only way you can tell is by
13 looking at the torque switch calibration plate. It
14 will tell you what is supposed to be in there.

15 Without physically going in there and
16 taking the spring pack out, take it apart, count the
17 thickness and the number of washers and the preload,
18 that's the only way you can tell what spring pack is
19 in the operator.

20 MR. SHAPER: There is no number on it?

21 MR. LONG: No, no part on the spring packs.
22 Each limitorque on the limit switch has a torque
23 switch calibration plate and on that strictly has a
24 number in thousands which tells you the thickness of

1 the ring, Bellville springs and a number telling you
2 the number of springs.

3 You have to go to Limitorque and give them
4 the operator serial number, and they can tell you
5 the number of springs, the thickness and the pre-
6 load on that spring pack.

7 MR. LANNING: May I ask you a question.
8 Is the control circuitry for this valve such that
9 the valve can change position during mid stroke? Do
10 you understand my question?

11 MR. LONG: I see what you are saying. If
12 the control circuit operated properly, the valve
13 should seal in until it opens all the way up.

14 When it opens up, if when it is shut it
15 should have torqued out. When it torqued out, the
16 contacts in the control circuit then would have
17 aligned the open circuit and if it had an automatic
18 signal to open, it should have opened back up.

19 When they rest SFAS, the valve should have
20 had a valve to open.

21 MR. MYERS: The answer is it goes to
22 complete stroke before it allows another signal.

23 MR. BAJESTANI: You can't change the
24 position if you look at the control circuits.

1 MR. LANNING: Cannot.

2 MR. BAJESTANI: Cannot.

3 MR. LONG: Assuming no equipment
4 malfunctioned, the circuit is designed to complete
5 the stroke before it goes the other way.

6 MR. ROSSI: Does this valve get
7 periodically cycled when the plant is running?

8 MR. LONG: Yes, there is a quarterly valve
9 test ST -- I don't remember the number now, but
10 there is an ST that periodically strokes these
11 valves to test their timing quality.

12 MR. BELL: The same test you said that was
13 performed Sunday, right?

14 MR. LONG: I believe so.

15 MR. ROSSI: And that's -- had that test
16 been performed since the last time you went up to
17 temperature and pressure I guess --

18 MR. LONG: When I checked the log today,
19 the last stroke time I saw listed in the log was the
20 December '84 timing test, which was the post
21 maintenance testing for the outage.

22 MR. ROSSI: That was done cold?

23 MR. LONG: Yes.

24 MR. ROSSI: And the valve normally

1 operates with pressure on hot and pressure on one
2 side in the pipe or what?

3 MR. LONG: The valve is a normally open
4 valve; therefore, it doesn't normally see the time
5 requirements in the open direction, okay. There is
6 no time requirement to close the valve.

7 MR. ROSSI: I understand that, but what is
8 the normal condition temperature pressure of the
9 valve when the plant is operating? Like what would
10 it have been, I guess, before the event on last
11 Sunday?

12 MR. LONG: Whatever steam air pressure is,
13 950 pounds.

14 MR. ROSSI: And the last time it was
15 tested cold without pressure and on Sunday it would
16 have been hot, I assume, hot and pressurized?

17 MR. LONG: Right.

18 MR. ROSSI: So it would have been at the
19 saturation temperature to the steam in the steam
20 generator basically.

21 MR. SHAFER: Just out of curiosity, is it
22 difficult to check that at hot conditions?

23 MR. LONG: The time?

24 MR. SHAFER: The stroke on those valves.

1 MR. LONG: No, it shouldn't be.

2 MR. ROSSI: Why had it not been checked
3 not since last December?

4 MR. LONG: I would have to check, but I
5 don't think it is required to. I think that valve
6 is listed as 18 month refueling test check, and I am
7 not sure if it has another ST that requires it any
8 frequently than that or not.

9 MR. ROSSI: The only requirement may be
10 that you test stroke test it cold every 18 months?

11 MR. SHAFER: It is required to be operable
12 at full pressure temperature. It seems to be a
13 conflict.

14 MR. BEARD: When you are referring to the
15 18 month testing, are you talking about the plant's
16 technical specs requirements?

17 MR. LONG: Yes.

18 MR. BEARD: Are there any additional such
19 as the ASME code?

20 MR. LONG: I would have to say I am not
21 sure. I don't know at this time.

22 MR. BEARD: For valves of this type, not
23 this specific one, would you expect that the ASME
24 code would require testing in addition to an 18

1 month test?

2 MR. LONG: Yes. There are certain valves
3 now, as an example, the aux feedwater monthly test,
4 there are certain valves listed there that are
5 strokes as part of the lining up the aux feedwater
6 and verifying that it, in fact, feeds the generators.

7 As far as these two valves what I could
8 find was that they were listed under ST 507102, the
9 18 month refueling test, and then when I tested them
10 during the outage, ST 506401.

11 MR. BEARD: But you didn't find -- I
12 guess you are referring to some cross reference the
13 utility has a component versus the required testing
14 items?

15 MR. LONG: Yes.

16 MR. BEARD: You didn't find any reference
17 to some test procedure that would be the ASME type
18 quarterly test?

19 MR. WIDEMAN: I think we would have to go
20 to our code people and determine whether that valve --

21 MR. ROSSI: Let me say something. I think
22 that this is kind of deviating from the direct
23 discussion that we are here for.

24 But at some point while we are here doing

1 our fact finding we are going to want to want you to
2 look and see what you did with these valves in terms --
3 what your test requirements are and when the last
4 time that you tested them was for sure and then talk
5 to whoever does that looking about both the test
6 requirements and when they were last testing so that
7 we will know for sure when the last time they were
8 tested was during refueling with the thing cold and
9 it's never been tested since then with the steam
10 generators hot and pressurized because that is
11 something we are going to need, I think, in our fact
12 finding that has, you know, an obvious, I think,
13 implication on perhaps the problem that may have
14 occurred with these valves beyond what you actually
15 find in terms of torque.

16 MR. WIDEMAN: I think we would probably
17 have to go to our valve inspection program and look,
18 and we can determine that.

19 MR. ROSSI: I think that's probably
20 something that we are going to want to generally
21 explore on the equipment that malfunctioned on
22 Sunday is we are going to want to talk about what
23 are your normal test requirements for that equipment,
24 what tests were last done and then one of the things

1 that our fact finding team ought to do is make some
2 -- do some fact finding on what we find.

3 And the kinds of things I think that we
4 are going to want to know for sure is where valves
5 or other equipment that had to perform on Sunday
6 under certain set of conditions, do they ever get
7 tested under those same set of conditions because I
8 think that's a pertinent issue for our fact finding
9 team.

10 MR. BEARD: It may turn out, for example,
11 that the testing that's specified might be desirable
12 to be improved when possible situation that could
13 arise would be that the specifics could be changed
14 to just read tested every so often under not normal
15 plant conditions, for example.

16 And if that's what we learn out of this,
17 then Davis-Besse folks benefit and the rest of the
18 world can benefit of the lessons learned in those
19 transient. And that's one of the reasons we
20 ultimately do these things.

21 MR. ROSSI: These valves are normally open
22 during operation. They have to be open to perform
23 their safety function, and it may very well be that
24 people somewhere along the line decided there isn't

1 any reason to stroke these things because you aren't
2 going to have to close them and reopen them and
3 along comes the air, and that's exactly what they
4 had to do.

5 MR. WIDEMAN: So the team is aware, we
6 recently had an inspection on our pump and valve
7 program where they came in and inspected the program.
8 And there was one violation that only dealt with a
9 trending.

10 MR. ROSSI: Again, we are collecting facts
11 on what you actually did independent and what you
12 were required to do also.

13 And I suppose at some point somebody is
14 going to look at the comparison of those, but what
15 we want to do is find the fact, what were you
16 required to do, what did you actually do and is what
17 you actually did appropriate for making sure the
18 equipment will work. That's our fact finding.

19 MR. SHAFER: Steve, what you had to say
20 about what the team findings were maybe
21 appropriately on the record; however, and I think in
22 all honesty in order to set the record straight,
23 yes, the team identified that they have an excellent
24 program over here; however, they are having problems

1 implementing that program.

2 MR. BEARD: I have a different question if
3 I could, Jim. It seems like in reading the
4 documents that you prepared here that this valve,
5 like maybe some other valves, has undergone a number
6 of changes in the last refueling outage.

7 For example, I notice down here that the
8 brake and the motors were replaced.

9 MR. LONG: Yes.

10 MR. BEARD: In your review of the
11 maintenance history, surveillance, et cetera, did
12 you have find that before these valves were declared
13 operable that post maintenance testing was conducted
14 that would verify that all these changes would have
15 been thoroughly checked out?

16 MR. LONG: Yes, sir, we did.

17 MR. BEARD: Second question was with
18 regard to the general guidance that Bernie suggested
19 earlier or was discussing earlier, you are to
20 conduct a review of recent maintenance history, and
21 I am assume you are talking about also including
22 surveillance action testing?

23 MR. LONG: Yes. Let me clarify that. I
24 went and checked the valve log today to see what

1 ST's have been done on the valves recently and
2 whether or not the times have either gotten longer
3 or shorter.

4 And I like I said, the last ST I saw
5 listed in the valve log for that was the one prior
6 to this incident was in December of '84.

7 MR. ROSSI: So we are pretty sure the last
8 time the valve was tested after, after you did a
9 number of things to it last refueling and it was
10 only tested cold.

11 MR. LONG: Right. And then it was tested
12 not after the incident at 15:15.

13 MR. ROSSI: But not not after the
14 maintenance was done only cold.

15 MR. LONG: As far as I can tell, yes.

16 MR. BEARD: I guess I was wondering on
17 this item number two page maintenance history or the
18 points I was trying to get to would you prepare some
19 sort of a very, very brief summary of what kind of
20 problems had -- previous problems had been, for
21 example, in four case it may be that you had torque
22 switch problems chronically on a particular valve
23 for a number of years or the last three times that
24 there was a problem with the valve it did turn out

1 to be a torque problem or that the valve has never
2 had a torque problem, et cetera or something of that
3 that would tend to say this is a supporting thing as
4 to why I believe this is the most likely cause, et
5 cetera, et cetera.

6 Had you intended to do something of that
7 nature?

8 MR. LONG: No, I hadn't, but it probably
9 would be worthwhile looking it.

10 MR. ROSSI: At some point in time, and I
11 am not sure when that point is, we are going to have
12 to break and caucus and decide exactly what we want
13 to do to these documents and we are happy with them.

14 MR. SHAPER: How about now?

15 MR. BEARD: I would like to ask one more
16 question then I would be at that point.

17 In this developing of your hypotheses, we
18 certainly don't disagree with what you are saying is
19 the most likely cause going back to the earlier
20 point doing things that might disrupt our cause,
21 would it be helpful to identify other possible
22 causes in order to have some feel for what steps
23 should be avoided?

24 MR. LONG: I think we did that in our

1 detailed analysis of what we plan to do. I think we
2 looked into that to take a -- systematically that
3 we would not disturb anything that could have caused
4 it.

5 MR. WOOD: This first memo here, I think,
6 lists the hypotheses that he would be --

7 MR. BEARD: I am lost for a real good
8 example. Let me makeup something sort of
9 hypothetical, okay.

10 Suppose you think the torque switches but
11 there is another widget in there that in some cases
12 could lead to the same symptoms. It would seem like
13 if you identified that widget as a possible cause,
14 then you could be setup in the thinking mode and the
15 procedure writing mode to not only do what you think
16 is the most likely cause in the system and orderly
17 but keyed in certain things you want to stay away
18 from.

19 I am not arguing that what you have done
20 is not systematic and orderly and this, that and the
21 other. I am trying to focus in on possibility --
22 like I said, I don't have a good example to give you
23 on inventory.

24 MR. LONG: I think we tried to look at

1 that when we developed that into looking what could
2 have caused it, and I think I tried to look at all
3 the possible causes that they could be internal to
4 the valve that might be causing it.

5 I think one thing is that from my talking
6 with MOVATS is that they are convinced that their
7 system will be able to tell us whether or not there
8 is a problem internal to the operator other than
9 what we suspect, ie, a broken gear tooth, a bent
10 stem, something internally operable that they have
11 the expertise right now that they can pretty much
12 pinpoint things down to that point.

13 MR. BEARD: Did someone say caucus?

14 MR. ROSSI: Before we do that I want to
15 see where we are here. We have this first document
16 on guidelines to follow when trouble shooting and
17 performing investigative actions, and that's going
18 to apply to all of the equipment that we are going
19 to be talking about.

20 MR. MURRAY: That's a generic document to
21 apply to all the trouble shootingshooting plans.

22 MR. ROSSI: And the second document you
23 gave us is a trouble shooting only not affixing but
24 trouble shooting only for the two valves.

1 MR. MURRAY: For the total of those two
2 valves. One of the specific plans that fits under
3 the generic document.

4 MR. ROSSI: And what you want from us
5 today is agreement to go off and do the trouble
6 shooting, just the trouble shooting, and find out
7 what caused the problem.

8 And then when you find out what caused the
9 problem, you intend to come back and tell us that
10 that's what you believed caused it and tell us why
11 you think that caused it and then you are proposing
12 or you are intending at that point to get inferences
13 to proceed to fix the part.

14 Is that what you -- so if you go off and
15 find out that the limit switch isn't adjusted
16 properly, then you will come back to us and get
17 concurrence that that was the problem and then you
18 will go adjust it?

19 MR. WOOD: That's right.

20 MR. BEYER: I don't think that's quite
21 what we had in mind specifically. Our thought on
22 this plan was that we had identified several
23 potential causes, and we had anticipated that the
24 lead individual, as long as he was within the plan,

and then test
the problem and adjustment
you wouldn't come back to us to get concu
MR. BEYER: Where we identified in the
might be one of several possible causes,
pursue to the point where we
cases without coming back
that says

plan that it m-
we would continue to p-
would check each of those cau-
That's what we had in mind.
MR. ROSSI: I see in here a step
going to the motor horsepower
to determine if the motor is
torque.
and find out the
that,

that you are capable of providing enough horsepower to do that. If you weren't enough, then we'd come back to us and tell us to change the torque.

the motor house
case where you would go
that and then you would go
MR. BEYER: Absolutely.
MR. ROSSI: As part of trouble
ASSOCIATES (614) 445-8477
ED TRANSCRIPTION

MR. BEYER: As part
MR. ROSSI:
RUNFOLA & ASSOCIATES (614) 441-
COMPUTERIZED TRANSCRIPTION

1 would determine if an adjustment was needed.

2 If it was out of adjustment, we would
3 adjust and maybe proceed to verify the other items
4 as well.

5 MR. ROSSI: So if you are going to make
6 adjustments if it is adjustments only you would make
7 the adjustments and then test it to show that that
8 involved the problem and adjustment was done right,
9 and you wouldn't come back to us to get concurrence.

10 MR. BEYER: Where we identified in the
11 plan that it might be one of several possible causes,
12 we would continue to pursue to the point where we
13 would check each of those causes without coming back
14 to you. That's what we had in mind.

15 MR. ROSSI: I see in here a step that says
16 that you are going to the motor horsepower
17 calculations in order to determine if the motor is
18 capable of providing enough torque.

19 If you were to do that and find out that
20 the motor horsepower wasn't enough, then that's a
21 case where you would come back to us and tell us
22 that and then you would go change the torque.

23 MR. BEYER: Absolutely.

24 MR. ROSSI: As part of trouble shooting if

1 it is an adjustment problem, you would proceed to
2 fix the adjustment. If it is --

3 MR. BEYER: Yes.

4 MR. ROSSI: If it is a change, repair or
5 modification, those are the cases where you intend
6 to come back and get our concurrence.

7 MR. BEYER: That's a clarification we want
8 from you.

9 MR. ROSSI: If you find a flat out broken
10 part that needs to be repaired, what would you
11 intend to do then, come to us first or replace it?

12 MR. BEYER: We are prepared to do whatever
13 you ask. We were looking for some clarification on
14 just what type of activities you wanted us to come
15 to you before we proceeded. In light of the CAL and
16 the words there, we wanted to make sure.

17 MR. ROSSI: I understand. I am trying to
18 figure out what it is that we need to decide when we
19 need to go caucus, and we need a confirmatory action
20 letter.

21 MR. MURRAY: In general what we had said
22 there in the boiler plate document is that what we
23 are proposing here is the trouble shooting and that
24 we would come back and in a separate interview for

1 the corrective action.

2 Now, Bernie is giving a slight variation
3 on that when talking about making an adjustment
4 because you start getting into --

5 MR. ROSSI: It is hard to distinguish
6 between trouble shooting and fixing when the problem
7 is the adjustment of the limit switch. I don't know
8 where trouble shooting stops and fixing starts. I
9 guess that's what we need to caucus about.

10 MR. MURRAY: We would carefully document
11 those things.

12 MR. SHAFER: I think that's why I
13 mentioned, in fact, if you are going to replace a
14 part that that part is suspect until you have
15 identified the root cause of the failure. And that
16 calls for control. Okay.

17 MR. LONG: Obviously, if I find the same
18 part broken in both valves, to me that's an
19 engineering problem we need to resolve two valves
20 that operate the same way.

21 MR. WOOD: We are certainly open to any
22 suggestions you may have to do this more effectively
23 because we are learning this interface as well as
24 you are.

1 MR. ROSSI: What we want to find a most
2 expeditious way to let you go on about your business
3 without losing the information. That's what we want
4 to do.

5 We want to know the root cause, but we
6 don't want to hold you up any more than we have to
7 to get it.

8 Did you have any other documents? This is
9 the main thing you wanted to talk about today.

10 MR. WOOD: That's it.

11 MR. BELL: This hypothetical adjustment,
12 if that adjustment was required to restore the valve
13 to operate, then once the adjustment was made you
14 would look for additional problems with the valve.

15 MR. BEYER: If we have identified several
16 hypotheses, we would continue to check each one.

17 MR. ROSSI: Every one in here.

18 MR. BEYER: Yes.

19 MR. BELL: To ensure that there was
20 nothing else wrong with the valve torque adjustment.

21 MR. BEYER: That we have identified.
22 That's why I wasn't trying to run off or suggest
23 that we would run off without getting your
24 concurrence.

1 I just wanted you to understand that
2 that's what we had in mind, and if you desire to
3 more checks, we are certainly willing to --

4 MR. ROSSI: I don't think we know, hopefully
5 we will after we caucus. We don't know the right
6 way to do this any more than you do, and we are
7 certainly going for the most expeditious way to do
8 it correctly. And that's what we are doing so --

9 MR. BEARD: I think in another meeting I
10 told the story about the weekend that you folks had
11 the transient here we were on standby for of going
12 to another B and W plant for which turned out to be
13 related to an adjustment or may have been related to
14 an adjustment.

15 And the situation was that the licensee
16 checked the other five of his breakers, made
17 readjustments and then the vendor came in and said
18 you didn't measure it right let alone adjust it
19 right and now it was unclear as to whether that
20 licensee had one bad breaker or all breakers bad.

21 And that's a serious loss of information,
22 and I just caution you that experience tells me
23 adjustments probably should not be made except to
24 the extent that it is essential.

1 MR. ROSSI: We need to discuss that. This
2 is where I am coming from.

3 MR. LANNING: I have one last question
4 before we recess.

5 When do you expect to have the next action
6 plans available to discuss with the team?

7 MR. MURRAY: As soon as we finish with
8 this one.

9 MR. BEYER: Based upon your acceptance or
10 concurrence with this, we would expect to have more
11 available tomorrow.

12 MR. ROSSI: We have to decide from the
13 standpoint of having somebody here to take the
14 transcript. You are going to want to talk with us
15 tomorrow. We already have somebody coming tomorrow
16 all day.

17 MR. BEARD: Tomorrow being Saturday. The
18 next question is are we likely to have a meeting on
19 Sunday because if we are going to have a meeting on
20 Sunday for this purpose, we will want to make
21 arrangements to have somebody come to do the
22 transcript on Sunday.

23 MR. BEYER: I would say we are likely to
24 have a need for a meeting on Sunday as well.

1 MR. ROSSI: You should arrange to have
2 somebody come for a transcript on Sunday.

3 If you don't use them all day we will have
4 them come, and they will be here.

5 MR. BEYER: We may be able to have a
6 better appreciation for that tomorrow.

7 MR. ROSSI: As of now, we need to plan for
8 Sunday.

9 MR. BEYER: Are we going to reconvene this
10 afternoon?

11 MR. ROSSI: Yes, we are going to caucus
12 until we are prepared to come back and meet. And
13 right now we are going to take a recess so I think
14 we are off the record.

15 MR. JACKIW: One more question. When do
16 you think we are going to start on these two valves?

17 MR. LONG: If I get concurrence to start
18 the action plan, I will have the MWO's ready in the
19 system Monday.

20 Art Charbanneaux from MOVATS, as far as I
21 know, is going to be here Monday to discuss what we
22 are going to do, and his team will be here Tuesday
23 ready to test Tuesday.

24 MR. ROSSI: One thing that maybe needs to

1 be added to one of these things is a requirement
2 that NRC Region III be informed about the schedule
3 of doing this stuff because you want the option at
4 least of having somebody there when it is done.

5 MR. BEARD: I think that's --

6 MR. ROSSI: So that really needs to be in
7 there.

8 MR. BEYER: You would say that needs to be
9 addressed in each action plan or part of our
10 guideline?

11 MR. ROSSI: I think the generic guidance
12 is where it ought to go, but it ought to be an item
13 in the generic item that NRC Region III needs to
14 know in advance of the schedule of the work so that
15 a decision can be made about whether they want
16 somebody present when it is done.

17 MR. BEARD: In other words, you have
18 established the schedule, and I think it would be
19 appropriate for you to advise Region III.

20 MR. ROSSI: You may want to think about
21 how to word some of the changes while we are
22 caucusing.

23 It might be good if you were to think
24 about writing the words out on things that have come

1 up here that may require changes. And then if you
2 have those ready for us when we come back from the
3 caucus, that part will go quickly, and we can
4 perhaps get this resolved.

5 Off the record for a recess.

6 (Thereupon, a recess was taken.)

7 MR. ROSSI: Are we ready to go on the
8 record.

9 Okay. We within the NRC have met and
10 talked about the two documents that you gave us for
11 our consideration, and we have come to the
12 conclusion that we would like to see some
13 modifications in the document that's referred to as
14 guidelines to follow when trouble shooting and
15 performing investigative actions into the root
16 causes surrounding the 6-9-85 reactor trip.

17 And in a couple of minutes J. T. Beard is
18 going to go through those specific items with you in
19 some detail.

20 Once we have agreed on the modifications
21 to the generic guidelines document, then we would
22 like to make sure that the action plan for the
23 auxiliary feedwater system valve problem analysis is
24 modified as necessary to be consistent with the

1 generic guidelines.

2 After we have come to an agreement on the
3 guidelines document, we don't feel that it is going
4 to be appropriate for us to approve each action plan
5 for each component that you are going to work on.

6 We don't want to go through a formal
7 approval thing, but what we would like to do is we
8 would like to see each of these action plans and
9 have them presented to us in a meeting like this so
10 that we will have a chance to comment on them before
11 you go off to actually begin the action plan work.

12 I guess at this point we will let J. T.
13 Beard go through the specific changes that we have
14 for your generic guidelines and then we will go from
15 there.

16 You had a question.

17 MR. MURRAY: Question on the statement you
18 just made, you want to get us to modify our
19 guidelines and then if we use those appropriately,
20 there won't be a need for approval of each
21 individual action plan, but you do want us to
22 present the action plans --

23 MR. ROSSI: Before you start to do them,
24 yeah.

1 MR. MYERS: For comments.

2 MR. ROSSI: For comment and discussion in
3 the meeting, but we aren't going to have a formal
4 sign off approval on it.

5 MR. MURRAY: No formal sign off, okay.

6 MR. ROSSI: But we do want to see them and
7 have them discussed in a meeting before you do begin
8 the work. Okay.

9 Now, J. T. is going to run through the
10 modifications that we would like to see in the
11 guidelines, and we will see if you have any problems
12 with those.

13 MR. BEARD: Okay. Let me go through these
14 improvements to your general guidelines as a series
15 and then once I have covered all of them, then, if
16 you desire, we can come back and talk about the whys
17 and wherefores of the changes that we feel are
18 appropriate.

19 MR. ROSSI: J. T., can you talk a little
20 louder.

21 MR. BEARD: Is that agreeable to everybody?

22 MR. HELLE: Sounds good.

23 MR. BEARD: We would like to have -- we
24 believe it is necessary that there be a new item one

1 on the guidelines as an insert not as a replacement
2 but as an additional item but up front which would
3 read something like what I will now read: It says
4 for each item on the quarantine list an action plan
5 will be developed which provides the basis for the
6 maintenance work order, MWO.

7 The personnel developing the action plan
8 shall have knowledge of the design considerations of
9 the specific item being considered, vendor
10 engineering support, design engineering, we are
11 referring here to not maintenance engineering, will
12 be utilized as necessary to accomplish this
13 requirement.

14 We think it is also important -- that's
15 the end of that new item one.

16 We think it is also important to incorporate
17 into this guidelines document another piece of paper
18 which you presented to us a few minutes ago as
19 actually part of what you had labeled the auxiliary
20 feedwater valve problem analysis valve numbers AF
21 599 and 608.

22 The first page of this, page 1 of 1, which
23 I believe Bernie discussed before Jim Long started
24 talking, the first page has items such as number one,

1 collect and analyze information; number two, review
2 maintenance, et cetera, et cetera.

3 That first page we think is a very generic
4 document that needs to be as part of a general
5 guidance for all of them. It is not, in our view,
6 unique to this one problem.

7 MR. BEYER: That's a proper perception.

8 MR. BEARD: We think it ought to be
9 officially retyped and put in the thing. Okay.

10 Now, along with that there are certain
11 changes we feel are necessary on that page. Item
12 number two of that document of the six steps you
13 have got should read words something to the effect
14 of: Review maintenance and surveillances/testing
15 history. Develop a summary to support item number
16 four below.

17 That would be the end of changed item two
18 or step two on that page.

19 MR. MYERS: A summary of the maintenance
20 history?

21 MR. BEARD: Right. In other words, the
22 individual who goes out and review the maintenance
23 and testing and whatnot should write a paragraph or
24 something and say what does he conclude.

1 MR. MYERS: A summary of that review.

2 MR. BEARD: You understand.

3 Okay. In item number four should be
4 revised to read something like: Based on the above,
5 develop primary and alternative hypotheses for the
6 root cause of the failure.

7 Item number five after the words that say
8 develop a plan for testing the hypotheses and then
9 the parenthesis we believe the sentence needs to be
10 amended by adding: Which would include specific
11 considerations that provides assurances that the
12 lesser likely hypotheses remain testable.

13 After that we believe there needs to be an
14 additional sentence something like: The plan for
15 testing hypotheses should, to the extent practicable,
16 be performed under the conditions similar to those
17 which existed during the June 9, 1985 event.

18 Now, obviously our intent here is to
19 simulate to the extent you could -- there is a lot
20 of instances on the practical aspect.

21 Like, for example, we discussed earlier
22 testing under hot conditions versus cold conditions.
23 And that's the kind of thing we have in mind here.

24 MR. ROSSI: But it doesn't mean that they

1 can heat the plant up.

2 MR. BEARD: There is no release on the
3 restart of the plant.

4 MR. MYERS: To the extent practicable.

5 MR. BEARD: I think that's the standard
6 phraseology.

7 MR. WIDEMAN: So you are saying that even
8 if, I am, even if ASME code I don't know if it says
9 cold testing or something like that, if the
10 requirements are for those conditions, you still
11 wants us to test it in the -- what the plant, if
12 possible, the plant's condition.

13 MR. BEARD: The intent of this kind of
14 language is to try to supplement where it may become
15 necessary the existing ASME codes or whatever codes
16 may be applicable but to try and test the things in
17 as close to its service condition as practicable.

18 MR. ROSSI: See, some of your problems may
19 have occurred only when the plant is hot. We talked
20 about the packet that the test of these valves was
21 done cold, which maybe we have to do for code
22 reasons and so forth, but that may not ensure that
23 they will work when they have to work.

24 And so you ought to give thought to

1 testing this stuff, testing your hypotheses under
2 the conditions that are closest to the way the
3 equipment would have to work.

4 MR. BEARD: I am not through going through
5 the changes if you want to get through those rather
6 than get into a lot of discussion because I want to
7 finish.

8 Going back to the main document now which
9 would have this page added into it. In item number
10 nine, we had already identified that there needed to
11 be some additional language to address the type of
12 as-found conditions that would be appropriate to
13 electronics equipment and other types. You may
14 already have adequate words.

15 I believe also that previously we had
16 discussions and item number 14 a new item which
17 generally dealt with the retention, preservation and
18 identification of any components that were replaced,
19 at cetera.

20 MR. HELLE: Yes.

21 MR. BEARD: We have an additional new item,
22 I guess we could call it number 15, which would say
23 that as soon as the schedule for the corrective
24 actions for an item is established, the NRC will be

1 advised.

2 And the NRC that we are referring to here
3 may take the form of the resident inspector, the
4 regional staff or us as is convenient.

5 MR. BEYER: That's basically --

6 MR. BEARD: -- a rephrasing of what you
7 had suggested earlier to inform the NRC Region III
8 of the schedule of the work.

9 I think it is an implementation of that
10 document. You may want to look at it and see if
11 that is the optimum position for that item to be
12 numbered, but the thought is clear.

13 Okay. Then we think there is an
14 additional item, another additional item, that needs
15 to be added.

16 Logically in order maybe it comes before
17 the one we just heard, but nonetheless an additional
18 item says the NRC shall be notified once the
19 determination of the root cause of the malfunction/
20 failure has been made.

21 The root cause including supporting
22 information or justification for the identification
23 of the root cause shall be presented to the fact
24 finding team as soon as practicable.

1 Now, what this says in effect is when you
2 know the root cause, we want to be advised. Okay.
3 We found the smoking gun, so to speak, and that
4 could be through the resident or regional staff who
5 will contact us or like we discussed earlier. We
6 know what it is.

7 The second part of this item says as soon
8 as practicable, which may be the next day or take
9 other format, we would like to have some sort of a
10 presentation such as in a meeting like this of the
11 results of your trouble shooting process, what root
12 cause you found, why you believe that to be the root
13 cause or causes, et cetera so that we can learn from
14 your experience.

15 And we would anticipate that as your
16 normal process probably already involves there would
17 be some documentation of the results of your efforts
18 and that we eventually would probably like to see
19 the written report that goes with that, but
20 basically we are saying we would like to have
21 notification that you found it and then followed as
22 soon as practicable by some discussion as to how you
23 arrived that conclusion.

24 MR. ROSSI: That's really the key bottom

1 line of what you are going to be doing here. You
2 are going to have to do the work. We can't follow
3 you around and see what you are doing and watch over
4 your shoulder at all times and that kind of thing,
5 but the bottom line is you have got to work towards
6 identifying the root cause and being able to justify
7 that you know what it is.

8 And all the rest of this stuff is to make
9 sure that you don't lose the information along the
10 road that you are going to need to get to that
11 bottom line.

12 MR. BEARD: Okay. I think another thing
13 that is important to realize is that what we are
14 trying to do here is to have the fact finding team
15 that's been setup by the EDO to be involved in the
16 process of determining the root cause and be
17 informed of what the results are but at an
18 appropriate level.

19 We do not want to be regulatory wise
20 involved in the details every minute, every hour of
21 your trouble shooting process and be involved in
22 every minute, every detail of the approval.

23 And we would like to avoid holding up any
24 plan activities to the extent practical consistent

1 to the chart Mr. Wood gave us.

2 We think this is an appropriate text that
3 we have laid out for you what we described for you
4 of approving the generic document, of all reaction
5 plans and in turn maintenance work orders and then
6 coming back and letting us know what the results are.

7 Let us provide the NRC will have to know
8 through the notification to observe various parts
9 and phases of the activity. And I think that's the
10 way you would want it also.

11 MR. WIDEMAN: Who would you expect would
12 give the concurrence on the proposed corrective
13 action?

14 MR. BEARD: What proposed corrective
15 action?

16 MR. WIDEMAN: The CAL says the team will
17 give concurrence.

18 MR. ROSSI: Region III needs to address
19 what ought to be done with the CAL.

20 MR. BEARD: Before you get to the subject
21 of the CAL, there is another subject that's been
22 raised.

23 It has been my experience, and I am sure
24 you have too, that in certain cases where equipment

1 has malfunctioned that you can go back in and
2 trouble shoot it. You can perform surveillance
3 tests, which are not a good device for trouble
4 shooting, but nonetheless that could be a part of
5 your trouble shooting phase, but the end result is
6 you cannot duplicate the failure.

7 It is either intermittent, gone away or
8 for whatever reasons. Now, for those kinds of
9 situations it seems to us that the burden of doing
10 an earnest, indepth investigatory type trouble
11 shooting process is clearly on you folks and would
12 not expect you to say I ran one little test, don't
13 find anything and that's the end of that.

14 We don't think that will happen. But
15 there are be will those cases you can't get there
16 from from here. If those cases are, you have really
17 not identified a root cause. In those cases, you
18 would expect according to the guidelines that we
19 have identified to you that we think are necessary,
20 we would expect you to come back, present us your
21 process, what you found, why you think you are in
22 the situation you are in and what you propose to do
23 from there.

24 That's just sort of a minor caveat, if you

1 will, that goes with explaining what you found as a
2 root cause.

3 Any questions on what we have outlined
4 here before we go to the CAL?

5 MR. BEYER: I was not able to write all
6 that down. Can we --

7 MR. BEARD: Well, you folks are keeping a
8 tape recording of this meeting.

9 MR. ROSSI: J. T., I think we need to find
10 a way to give them a copy of what we have here
11 marked up so that we can read off of it because --

12 MR. MYERS: Or maybe the option would be
13 we type what we think we heard --

14 MR. ROSSI: Probably the best thing to do
15 is give you something that is marked up and you can
16 type it.

17 MR. MURRAY: We would love to have that.

18 MR. ROSSI: We will just have to do that
19 and give it to them before we leave.

20 MR. BEARD: I think speaking personally
21 here that since there is a tape recording and you
22 people have the secretarial support to do it that
23 you have everything that you need to proceed, and
24 you recognize that you are not waiting for us for

1 some more specific written instructions than what we
2 have given to you over the tape recorder.

3 MR. MYERS: Could we then have a
4 clarification between you two individuals.

5 MR. BEARD: I am just saying I don't want
6 you to come back and say we are at work stoppage
7 because you didn't give us a piece of paper.

8 MR. MYERS: I want to know if we will get
9 something marked up or not.

10 MR. ROSSI: We will mark it up so it can
11 be clearly read. We may need a clean copy of your
12 guidelines thing.

13 MR. BURNS: Do you want to go off the
14 record for a minute?

15 MR. ROSSI: Off the record.

16 (Discussion held off the record.)

17 MR. ROSSI: Let's go back on the record
18 then. We have agreed that what we will do to get
19 the changes to the guidelines to follow when trouble
20 shooting will be that the licensee will get them
21 from their record of the meeting rather than for us
22 to give them a markup.

23 Okay. Let's see, are we to the
24 confirmatory action letter discussion now?

1 MR. MYERS: I have one question. We will
2 probably where it says notify the NRC, we will
3 probably add a sentence in there because these are
4 guidelines to our people, this communication will be
5 coordinated through and identify an individual in
6 our organization just because it is specifically
7 written to our people and that would make sure that
8 the one person who knows whether it is Region III,
9 the resident or the fact finding team would only
10 have to be one person rather than the action leaders
11 as hours transpire through the day or something like
12 that so that would be clear on how our people would
13 notify you. Is there any objection to that?

14 MR. ROSSI: That's fine, and J. T. did
15 indicate he tried to give you some words that may
16 need some smoothing. It may be desirable so you do
17 have some flexibility as to the thought that we
18 wanted to get in there, but I think the words are
19 pretty good as they are. So I hope that you don't
20 do too much word smoothing and what you do doesn't
21 change the thought significantly.

22 Do you have any problems with anything you
23 heard at this point?

24 MR. MURRAY: No, I don't think so.

1 MR. BEYER: Sounds good to me.

2 MR. ROSSI: we are going to be here all
3 day tomorrow interviewing people so we will be
4 available tomorrow to talk to you about any problems
5 with this that you have.

6 Now I guess the next question is the
7 confirmatory action letter. And, Wayne, do we need
8 to talk about whether it needs -- whether this is an
9 interpretation of the confirmatory action letter or
10 whether clarification is in order and how to do that
11 and if we need to caucus to talk about that because
12 maybe we didn't talk about that enough before we
13 came in here feel free to go back and caucus for a
14 few minutes.

15 MR. SHAPER: We can certainly make every
16 effort to, if, in fact, it is written such that it
17 cannot be interpreted to do just what you propose,
18 then we will certainly make an effort to try to get it
19 revised to meet that proposal that you have just
20 given.

21 MR. ROSSI: That might be the smoothest
22 way to do it because that way everybody will feel
23 most comfortable that we are being consistent, but
24 and again if you want to caucus and talk about this

1 some more --

2 MR. SHAFER: Well, we certainly have to
3 sit down and think out the lettering. And we can do
4 that and get it changed. It doesn't involve this
5 meeting, okay.

6 I would say though that you probably would
7 not see it before Monday understanding now that your
8 first job is not scheduled until Tuesday; is that
9 correct?

10 MR. WOOD: Correct.

11 MR. ROSSI: So that would not hold you up.

12 MR. MURRAY: Wait a minute. The job that
13 we ask about here was not going to get started until
14 Tuesday, but I don't know how these other action
15 plans are going to proceed.

16 If we get this thing ironed out and get
17 your approval tomorrow on some action plans, we
18 could be going on Monday or late Sunday or something
19 like that.

20 MR. ROSSI: Something else just occurred
21 to me when we came into the room what was going to
22 be done was you were going to proceed with the
23 action plans and then there was perhaps going to be
24 a hold point when you came to us to tell us what the

1 corrective actions were.

2 Where we are now is I guess these action
3 plans could be begun for the most part, and you
4 probably aren't going to face this problem of having
5 any consistency with the confirmatory action letter
6 until you got to the part of the trouble shooting.

7 So I would assume that schedule wise there
8 probably isn't going to be a problem or at least if
9 there is nobody knows of a specific one yet.

10 MR. MURRAY: That's true.

11 MR. MYERS: I could interpret the last
12 thing which specifically talks about proposed
13 corrective actions so that we have time to if you
14 want to reword it, fine, but we could operate under
15 the way we are talking about here until that rewording
16 or clarification is provided.

17 MR. ROSSI: Because you aren't going to
18 get to the corrective action part, strictly speaking,
19 until after the trouble shooting.

20 MR. MURRAY: Have to do some trouble
21 shooting first.

22 MR. ROSSI: So schedule wise it doesn't
23 seem to be a problem so it might be a good idea to
24 talk about revising the confirmatory letter so

1 everybody knows what it is we have done.

2 MR. BURNS: Just to make it clear we are
3 talking about a confirmatory action letter issued on
4 June 10 by Region III by Mr. Keppler.

5 MR. ROSSI: Now, is there anything else
6 that we need to talk about this afternoon or this
7 evening as the case may be?

8 MR. MURRAY: Bernie, Jim, do you have
9 other things that we need to resolve?

10 MR. BEYER: I am not sure that we have yet
11 addressed the subject that was brought up earlier
12 about whether we could make an adjustment without
13 further concurrence by the team.

14 MR. ROSSI: Well, see, the wording that we
15 now have in your generic guidelines is intended to
16 cover this because what we have said is that the NRC
17 shall be notified once the termination of the root
18 cause of the malfunction failure has been made.

19 The root cause including supporting
20 justification for the identification of the root
21 cause shall be presented to the FFT as soon as
22 practicable.

23 So what we -- one of the reasons that it
24 took us so long while we caucused was we recognized

1 the difficulty of drawing a fine line between
2 trouble shooting and corrective action.

3 So the key point again is where you do
4 anything make sure you know what the as-found and
5 record what the as-found conditions are if you make
6 any of those adjustments, and we are not trying to --
7 and you don't have to come back to us to get
8 approval each time you do an adjustment. That's
9 just not practical.

10 MR. BEYER: I think I understand.

11 MR. MYERS: Bernie, does that also address
12 if there is a significant change for some strange
13 reason in our action plan for trouble shooting?

14 MR. BEYER: I would expect that if we had
15 a significant change in the action plan, that we
16 would appraise the team before we made that change
17 and go down a different path.

18 MR. ROSSI: For the one that you showed us
19 today, and I will poll the team members and make
20 sure they agree with this, that one we recognize you
21 are going to have to make some changes to bring it
22 into alignment with the guidelines, but we do not
23 need to see it again before you begin trouble
24 shooting. We are all agreed on that.

1 MR. BELL: Certainly.

2 MR. BEYER: Is it also correct to
3 understand that once we change the guidelines to
4 meet the suggestions that you offer the comments you
5 offered, then the guidelines also don't have to have
6 any further --

7 MR. ROSSI: Well, we would like to see
8 them and, you know, I don't know that we need to
9 approve them again, but we want to see them.

10 And we would like to see them soon so that
11 if we have a problem with them, we can resolve it
12 before you get much further.

13 MR. MYERS: We will have those typed and
14 before they are actually signed. Before it is
15 actually signed we will check with you to make sure
16 we picked up all the terminology correctly.

17 MR. HELLE: I think we would like to do
18 that tomorrow, right away in the morning.

19 MR. ROSSI: We will be here tomorrow so
20 that won't be a problem. That will solve that
21 problem.

22 MR. ROSSI: Are we ready to adjourn?

23 MR. WOOD: I think there is one more point
24 that we should put on the record is that we have

1 added a piece of equipment to the freeze list that
2 is different than when we developed, I guess it was,
3 two days ago. And that is MS 106 is now put on the
4 equipment freeze list.

5 MR. BEARD: MS 106, maintain steam valve
6 of some sort.

7 MR. BELL: That's the steam supply to the
8 auxiliary feed pump.

9 MR. WOOD: That's correct.

10 MR. BEARD: I think 't would be worthwhile
11 work we have a piece of paper with a time and date
12 saying this is our agreed upon list.

13 MR. BURNS: Was that on your list, I may
14 misremember, the first memo you gave us apparently
15 attached to it was a list. Is that MS 106 on that
16 list there?

17 MR. WOOD: No, it is not. It is something
18 that was in the review of the alarm points and
19 checking of the valve operation times it was noted
20 that that valve instead of going to a full open
21 position before it turned around and went closed by
22 the time points it indicated that it did not go to
23 the full open but it turned around in mid stroke and
24 went to the closed position.

1 MR. MYERS: We think time wise it looks
2 like --

3 MR. ROSSI: Okay. We will add it to the
4 list then and, J. T., did you want to make a comment
5 about --

6 MR. BEARD: I was just thinking that
7 procedurally attached to the documents you gave us
8 today, your generic guidelines that we had so much
9 discussion about it attached to that is an equipment
10 freeze list, I guess it is called, with a date and
11 time on it.

12 It seems to me that for tracking purposes
13 it might be appropriate to add some place on this
14 page that this item has now been added to the list
15 and revise the date and time at the top and then
16 reissue that and that continues to be our working
17 understanding.

18 MR. WOOD: We will do that.

19 MR. WIDEMAN: We will take that action and
20 revise this.

21 MR. WOOD: And provide you that at the
22 same time that we redo the guidelines.

23 That's all I have.

24 MR. MURRAY: Anybody else, anything?

1 MR. ROSSI: Okay. We are finished then.

2 - - - - -

3 Thereupon, the proceedings were
4 concluded at 6:48 o'clock p.m.

5 - - - - -

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

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 16th 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.

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.

INTRA-COMPANY MEMORANDUM

ED 6214-2

TO

DATE

June 13, 1985

1 Meeting
6-14-85

Action Item Lead Individuals

FROM

John Wood

HWood

SUBJECT

Guidelines to Follow when Trouble Shooting or Performing Investigative
Actions into the Root Causes Surrounding the 6/9/85 Reactor Trip

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 MWOs relating to the 6/9/85 trip investigation shall be handled as NSR.
- 2) Trouble shooting and repair shall be accomplished on separate MWOs.
- 3) MWOs 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, and well defined.
- 4) Only those MWOs approved by the Action Item Lead Individual and QC may be worked on any of the "frozen systems" identified on the attached list.
- 5) Assure that only current drawings and controlled vendor manuals are used.
- 6) Consider the need for vendor representatives. Vendor representatives should be used to assist in troubleshooting if appropriate expertise is not available in house. The reps 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.
- 7) The MWO must clearly document the scope, affected equipment, and the desired objective of the investigative activity.
- 8) 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 check off for each step. If the desired sequence cannot be determined previous to the activity, as a minimum define the fundamental sequence to be taken and document each specific step as it is performed.

- 9) Document on the MWO all as found conditions. Visual inspect and document any missing, loose or damaged components, note positions (open, closed, up, down, etc.) abnormal ordinary environmental conditions, operation of cooling devices, water leaks, oil leaks, loose fittings, cracks, evidence of overheating or water damage, cleanliness, bent tubing, fluid levels, 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.
- 10) 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.
- 11) Document the results of the investigation on the MWO.
- 12) Prior to starting any repair activities the Action Item Lead Individual must document that all investigations have been properly completed.
- 13) No equipment is to be shipped off site without prior approval of Nuclear Facility Engineering and Quality Engineering. 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.

JKW/DJM

Attachment

dm d/6

6/12/85

4:00 PM

gtr

EQUIPMENT FREEZE

The following list of items ^{is} ~~if~~ the licensee's proposal for continued quarantine:

1. MFP's Turbine and Controls
2. SFRCS and associated instrument channels
3. AuxFeed Pump Turbines and Controls
4. MSIVs 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 & Controls and Actuation system
9. Main Steam Safety valves
10. AF 599 & 608 valves, Actuators 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.

- outside containment

The licensee agreed to complete a walkdown 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.

Bob

*FFT has agreed to this
clarification*

*W D Shafer 6-13-85
1:19 PM*

ACTION PLAN

8040 Q3

TITLE	DATE	TIME	LOCATION	REMARKS
...

AUXILIARY FEEDWATER SYSTEM VALVE PROBLEM ANALYSIS (AF 599 & 608)

SPECIFIC OBJECTIVE

Develop reasons for valve failure.

[illegible]

INTRA-COMPANY MEMORANDUM

ED 6214-2

DATE

June 14, 1985

TO

J. K. Wood

FROM

JW MB
J. Long, M. Bajestani

SUBJECT

Hypothesis for failure of SG 2 AFW Isolation Valve 599 and
SG 1 AFW Isolation Valve 608

Based on the information received during the transient, it appears that both valves torqued out when opening. There are several conditions that could cause the valves to torque out:

1. Improperly adjusted torque switch bypass contact (this hypothesis covered by Action Items 3 & 5).
2. Improper torque switch setting (this hypothesis covered by Action Item 2).
3. Wrong or improperly adjusted spring pack (this hypothesis covered by Action Item 7).
4. Failure of motor brake to release when energized (this hypothesis covered by Action Item 4).
5. Improper torque switch setting calculations (this hypothesis covered by Action Items 8-11).
6. Improper torque switch installation (this hypothesis covered by Action Item 6).

lrh

1. AF 599 and 608 are normally locked open valves and were open prior to the transient. During the transient, both valves went shut because of the improper initiation of SFRCS. After the error was corrected and SFRCS was reset, both valves failed to reopen automatically. Operators were sent to manually open the valves, according to the operator, the valves were placed in manual and the handwheel turned in the open direction. The handwheel was hard to turn and was only moved $\approx 1/2$ turn in the open direction. The handwheel was then turned in the close direction $\approx 1/2$ turn. This was repeated a second time and when turned in the close direction, a rattling noise came from the valve operator and the valve opened. The actual DP seen by these valves at the time they were attempting to open is unknown but they designed to open against a 1050 psid. At 1515 on 6/9/85, both valves were cycled satisfactorily within their required stroke time per ST 5071.02. At that time S/G pressure was 850 psig.
2. During the 1984 refueling outage, both valves had the motors and brakes replaced per FCR 83-067. In addition, AF 599 was disassembled, relubricated, all bearings replaced and reassembled. Both valves were cycled per ST 5064.01 (Ctmt. Iso. Valve post Maint. test) and the results were satisfactory.
3. When the valves were tested during the 1984 outage, the plant was in Mode 5, therefore, the valves were cold and no differential pressure across them. During the 6/9/85 transient, the valves were hot and a differential pressure existed across the valve disc.

ACTION PLAN

FD 4408

TITLE

AFW SYSTEM VALVE PROBLEM ANALYSIS (AF 599 and 608)

SPECIFIC OBJECTIVE

To determine the root cause of motor operated valves AF 599 and 608 failure to open.

PLAN NUMBER	PAGE
12	1 of 3
DATE PREPARED	PREPARED BY
6/14/85	M. Bajestani

STEP NUMBER	ACTION STEPS	PRIME RESPONSIBILITY	ASSIGNED TO	START DATE	TARGET DATE	DATE COMPLETED
1	Before beginning troubleshooting work, document the as-found condition of the valves (limit to those conditions which can be recorded without changing conditions - i.e., valve position, general condition, environmental conditions). ¹	J. Long				
2	The torque switch settings were changed for MV 599 and 608 under FCR 84-039 (1.5 open and 1.0 closed). These settings should be verified.	J. Long				
3	The stem thrust load should be measured to verify the thrust calculation. MOVATS (Motor Operated Valve Analysis & Test System) should be used to measure valve stem thrust, time of control switch actuation, and dynamic motor current).	J. Long				
4	MV 599 and 608 are fast speed operators. A magnetic brake is provided to oppose the motor inertia after the power is removed from the motor. The brake and motors were replaced	J. Long				

50-6408

AFW SYSTEM VALVE PROBLEM ANALYSIS (AF 599 and 608)

SPECIFIC OBJECTIVE

PLAN NUMBER	PAGE
12	2 of 3
DATE PREPARED	PREPARED BY
6/14/85	M. Bajestani

To determine the root cause of motor operated valves AF 599 and 608 failure to open.

STEP NUMBER	ACTION STEPS	PRIME RESPONSIBILITY	ASSIGNED TO	START DATE	TARGET DATE	DATE COMPLETED
4	last refueling outage. These brakes should be checked for proper operation.					
5	Verify number of turns on the handwheel of the valve from fully closed position the limit switch contact 33/AC bypass the torque switch contact 33/T0.	J. Long				
6	With valve in midposition (spring pack relaxed) verify that the torque switch is not preloaded.	J. Long				
7	Verify by visual inspection ¹ the spring pack model number. If the heavy spring number 60-600-0068-1 is used - no problem. However, if light spring number 60-600-0062-1 is used, the torque switch should prevent valve opening.	J. Long				

ACTION PLAN

ED 6408

TITLE

AFW SYSTEM VALVE PROBLEM ANALYSIS (AF 599 and 608)

SPECIFIC OBJECTIVE

PLAN NUMBER	PAGE
12	3 of 3
DATE PREPARED	PREPARED BY
6/14/85	M. Bajestani

To determine the root cause of motor operated valves AF 599 and 608 failure to open.

STEP NUMBER	ACTION STEPS	PRIME RESPONSIBILITY	ASSIGNED TO	START DATE	TARGET DATE	DATE COMPLETED
*8	Motor horse power calculations should be performed in order to determine if the motor is capable of providing enough torque.	J. Long				
*9	Actuator size should be checked to determine if it is capable of operating against a 1050 psi differential pressure.	J. Long				
*10	Tortional stem stress and tensile stress should be checked to verify that these stresses do not exceed the ASME design allowable values.	J. Long				
*11	Torque dial settings should be established by opening and closing positions based on the extreme stem operation loads expected during the hot and pressurized condition.	J. Long				
	NOTE: ¹ Follow guidelines for troubleshooting/investigative work.					

*Steps 8-11 are not dependent on Steps 1-7 and can be performed in any order.

44 16 of ^{all} potential ~~problems~~ hypotheses. and
44 17 The instructions to them in developing ^{the}
44 18 action plans is for just that purpose
44 21 ... to be able to be tested if I
44 22 do it that way. This is done so
that they . . .

3	4	delete "Supply" (Steno error)
28	1	"blink" should be "NRC" (Steno error)
31	20	first "with" should be deleted (Steno error)
33	4	"phrase" should be "phose" (Steno error)
33	9	"circumstance" should be "circuit board" (Steno error)
33	9	delete "cut board" (Steno error)
33	22	"adapt" should be "adopt" (Steno error)
36	9	"When" should be "then" (Steno error)
37	18	"engineer" should be "engineering" (Steno error)
38	5	"qualms" should be "exceptions" (Steno error)
39	23	"or" should be "our" (Steno error)
42	23	"hone" should be "home" (Steno error)
45	23	"Covered" should be "covers" (Steno error)
48	21	"over" should be "order" (Steno error)
49	13	"pin" should be "Pines" (Steno error)
52	24	"thousands" should be "thousandths" (Steno error)
53	19	"rest" should be "reset" (Steno error)
53	20	insert "signal for the" before "valve" (Steno error)
55	12	"steam air" should be "system" (Steno error)
57	5	"strokes" should be "stroked" (Steno error)
60	3	"air" should be "error" (Steno error)