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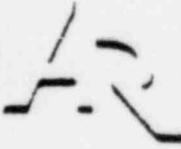
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of: :
METROPOLITAN EDISON COMPANY : DOCKET NO. 50-289
(Three Mile Island Unit 1) : (Restart)

DATE: March 18, 1982 PAGES: 27,008 - 27,208
AT: Bethesda, Maryland

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1 UNITED STATES OF AMERICA
2 NUCLEAR REGULATORY COMMISSION

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4 In the Matter of: :
5 METROPOLITAN EDISON COMPANY :
6 [Three Mile Island Unit 1] :
7 - - - - - x

Docket No. 50-289
[Restart]

8 East-West Towers
9 4350 East-West Highway
Bethesda, Maryland

10 Thursday, March 18, 1982

11 The hearing in the above-entitled matter
12 convened at 9:10 a.m., pursuant to notice.

13 BEFORE: IVAN SMITH
14 LINDA LITTLE
WALTER JORDAN

15 APPEARANCES:

16 On behalf of the Licensee,
Metropolitan Edison Company:

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JAMES M. CUTCHIN, IV, ESQ.
and RICHARD JACOBS
Office of the Executive Legal Director
U. S. Nuclear Regulatory Commission,
Washington, D.C.

C O N T E N T S

WITNESS:

DIRECT CROSS REDIRECT RECROSS BOARD CROSS
ON BOARD

Robert D. Martin,
Thomas T. Martin,
Dorwin R. Hunter,
Anthony N. Fasano and
Donald C. Kirkpatrick

By Mr. Cutchin 27,054
By Ms. Weiss 27,060
By Mr. Pollard 27,085

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Robert D. Martin,
Thomas T. Martin,
Dorwin R. Hunter,
Anthony N. Fasano, and
Donald C. Kirkpatrick (Resumed)

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P R O C E E D I N G S

1
2 CHAIRMAN SMITH: Good morning. Yesterday Mrs.
3 Moran called the parties who have indicated an interest
4 in the Board's order with respect to the Staff's
5 enforcement plan and warned them or advised them that
6 the Board would be having some questions on the
7 enforcement plan consideration. I thought we could take
8 advantage of the same parties being assembled today to
9 clear up a few matters that the Board has.

10 What I propose to do is identify the questions
11 that we have. And if the parties believe that they need
12 some time to come back with the answers, we will provide
13 for that. If it can be discussed immediately, that is
14 what we will do.

15 Our first question relates to the system
16 interaction studies which is discussed by the Staff in
17 its response to our order to reports of the enforcement
18 plan on pages 8 and 9. The subject matter had been
19 discussed by the Board in paragraphs 1000, 1003(f) of
20 the partial initial decision on December 14. In
21 paragraph 1000 we stated that the Board tends to side
22 with the Union of Concerned Scientists on this matter.
23 We specify that TMI-1 shall be included by the Staff in
24 generic reviews of systems interactions, and that, as we
25 state in section (u) below of our partial initial

1 decision, application of IREP or IREP follow-on studies
2 could lead to an enhancement of safety at TMI-1.

3 At paragraph 1003(f) we stated, "TMI-1 shall
4 be included by the Staff in generic reviews of systems
5 interactions. Application of IREP or IREP follow-on
6 studies could reasonably lead to enhancement of safety
7 in TMI-1."

8 Now, the Staff tells us in its response that
9 it is still formulating and testing methodologies and
10 guidance for the conduct of systems interactions studies
11 and is presently not imposing a requirement to conduct
12 such studies generically.

13 But the Staff goes on to say that the Licensee
14 is committed to performing probabilistic risk assessment
15 for TMI-1 in response to ACRS recommendations. But the
16 ACRS recommendation that we are aware of, which is set
17 out in paragraph 1184 of our partial initial decision,
18 did not use the term "probabilistic risk assessment."
19 ACRS recommended reliability assessments and recommended
20 that the Licensee examine the plan from the standpoint
21 of systems interactions.

22 So our basic question is: Just what is that
23 the Licensee is committed to?

24 UCS, in its response to the Staff's response
25 to our order, says that the Staff gave the impression

1 that they would conduct generic reviews of systems
2 interactions. Well, from the papers we have before us,
3 we do not necessarily see the Staff reneging on whatever
4 impression it gave. It is, as we see it, a proceeding
5 with methodologies and guidance.

6 But the Staff's response is vague in another
7 respect. When it does, and if it does, require such
8 studies generically, will TMI-1 be included? This was
9 our order, and we did not invite modifications of our
10 order in their response. We only invited the planned
11 implementation.

12 So we are asking the parties to please explain
13 what the Licensee's commitment is and what the Staff's
14 view of its responsibilities of implementing our order
15 is.

16 Now, would you like to have time to address
17 that question, or would you like to answer questions
18 now?

19 MR. CUTCHIN: Mr. Chairman, from the Staff's
20 view, we will attempt to go as far as we can in
21 answering your questions. Now, if it turns out that we
22 cannot answer them to your satisfaction, we will go away
23 and try to come back with some information.

24 But for starters, it is my understanding --
25 and I can defer to Mr. Jacobs, the project manager, who

1 is here, if necessary -- but it is my understanding that
2 at present, as the Staff said, it is not imposing
3 generic studies on plants in general.

4 However, it is the Staff's intent if, after
5 the initial studies on the five plants that are underway
6 indicates that generic studies are useful, necessary,
7 what have you, then the Staff would intend to impose a
8 similar requirement on this Licensee.

9 But it is still in the exploratory stage of
10 development of methodology and determining whether it is
11 really worthwhile to do these studies for everyone, as
12 was indicated at the hearing, until they are satisfied
13 that they have the methodology that will give useful
14 answers on all the plans.

15 CHAIRMAN SMITH: That reduces the importance
16 of our first question. And that is, what is it that the
17 Licensee committed itself to? But we still would like
18 to have it.

19 MR. CUTCHIN: I think for starters maybe the
20 Licensee could give a better answer.

21 MR. JACOBS: The only written commitment we
22 have from the Licensee on the specific subject is just
23 the words "will commit to go to probabilistic risk
24 assessment." We have no description of how they intend
25 to proceed with that.

1 DR. JORDAN: Do you know whether that
2 probabilistic risk assessment will include systems
3 interactions studies?

4 MR. JACOBS: We do not know that specifically,
5 no, sir.

6 CHAIRMAN SMITH: The Licensee?

7 MR. BAXTER: Mr. Chairman, to my left is Mr.
8 Edward G. Wallace, Jr., who is with the licensing
9 department of GPU Nuclear. I would like to have him
10 amplify to the extent he can about Licensee's current
11 plans.

12 MR. WALLACE: What we committed to do to the
13 ACRS was to do a probabilistic risk assessment study.
14 What we had in mind at that time was a study following
15 similar methodologies that had evolved from the
16 WASH-1400 type work. That work did not focus as a
17 principal effort on systems interactions studies as they
18 are now reviewed. It was a fault tree-oriented
19 methodology.

20 We are aware of this different terminology and
21 think that there is a clear -- not a clear difference or
22 a separable difference, but a substantive difference
23 between systems interactions studies and probabilistic
24 risk assessments. And I think, as the Staff has
25 indicated, the methodology development on the systems

1 interactions portion of that and how you couple it to
2 the PRA is not yet worked out.

3 We have some experience within the company in
4 the PRA portion of that study and felt comfortable with
5 making that type of commitment. So the scope of the
6 work that we had envisioned was along the lines of the
7 PRA-type study, not necessarily systems interactions
8 included.

9 CHAIRMAN SMITH: Ms. Weiss, do you have any
10 comments?

11 MS. WEISS: I think what we have heard
12 confirms basically how we read how the Staff responded
13 to the Board. What I understand the Licensee to be
14 saying today is that there is no intention to do a
15 systems interactions study for TMI. I think that is
16 inconsistent with your order.

17 CHAIRMAN SMITH: Our next question relates to
18 item E of the Staff's report, which is to be found on
19 page 9 of the report. And I will read it into the
20 record:

21 "The Staff does not propose to implement any
22 special enforcement procedures for TMI-1 after it
23 restarts. The normal enforcement procedures relied on
24 by the Staff to assure compliance by all Licensees with
25 items not specifically addressing technical

1 specifications or other license conditions, will be
2 relied on by the Staff to assure that the Licensee for
3 TMI-1 operates TMI-1 safely."

4 The Board has not had an opportunity to
5 analyze our entire initial decision, the portions of our
6 initial decision which were subject to this order to
7 report to implementation plan to determine whether any
8 items in our initial decision where we depend upon
9 special Staff surveillance, audits, inspections, or any
10 other type of observation not routinely required but
11 also not significant enough to be, in the Staff's view,
12 a license condition or technical specification.

13 We need further explanation as to what is
14 meant by compliance by Licensees with "all items" not
15 specifically addressed in the tech specs.

16 Our question then would be: One, has the
17 Staff analyzed our partial initial decision to determine
18 whether we have required any particular Staff
19 inspection, surveillance, auditing, or anything else
20 which has not -- on a subject matter which has not risen
21 to the level of importance of the license condition or
22 tech spec. If not, we have a possibility of a void
23 here, and we want to avoid that if we can.

24 Would you like to have time to answer that?

25 MR. CUTCHIN: I understand we would like some

1 time, Mr. Chairman, because as we indicate, after
2 restart, absent some special indication, the Staff
3 intends to use its normal enforcement inspection
4 procedures. And I think we have to discuss it.

5 CHAIRMAN SMITH: That is the key right there.

6 MR. CUTCHIN: I think we would have to discuss
7 it further with the appropriate persons, in light of the
8 remarks the Board has just made.

9 CHAIRMAN SMITH: It would be our intention
10 with nothing further from the Staff to say absent any
11 special indication, the words you have just suggested
12 right there. So we would like to confirm that that
13 would be an appropriate approach or not.

14 MR. CUTCHIN: You are saying the Board would
15 like to satisfy itself after it completes its review,
16 whether it believes there are any special
17 circumstances?

18 CHAIRMAN SMITH: If we do nothing further, if
19 we do not look again at our partial initial decision, we
20 would amend this method of assuring compliance with
21 perhaps the very words that you used, even though it is
22 not a license condition or a tech spec. But if in our
23 partial initial decision we required some special
24 surveillance or inspections, we would expect that to be
25 carried out even if it required some activity outside

1 your normal routine inspection activity.

2 MR. CUTCHIN: This is, of course,
3 post-restart, because there is no problem with restart.

4 CHAIRMAN SMITH: That is right, post-restart.
5 I am not even aware right now that there is any such
6 subject matter which was not picked up by the
7 conditions.

8 MR. CUTCHIN: I believe nor are we. But let
9 me have the project manager address that further,
10 because it was our intent to pick up all of those things
11 somehow.

12 MR. JACOBS: We have done a review of the
13 partial initial decision. I cannot recall at this time
14 whether we identified anything specifically that would
15 relate to inspection following restart. However, we
16 would have captured it, and that is not what we meant by
17 "normal enforcement procedures." Anything within the
18 grounds of the Board decision would be picked up.

19 CHAIRMAN SMITH: All right. If you do not
20 want to go back to the partial initial decision, in my
21 view, that commitment in itself would probably satisfy
22 our question right there. So you come back to us and
23 tell us whichever way you want to do it, either go back
24 through the partial initial decision and report to us
25 that there are no such requirements or report to us that

1 you do not intend to eliminate from your enforcement
2 such requirements.

3 MR. CUTCHIN: We can commit to that right now,
4 Mr. Chairman. We do not intend to leave out any special
5 provisions that we are aware of in our detailed review
6 of this decision. That was not our intent on this
7 enforcement plan either. It was our intent to have
8 picked them all up. And I understand the project
9 manager to say now we will look again, and if there are
10 any, we will pick them up.

11 CHAIRMAN SMITH: Suit yourself. You do not
12 have to look again, if you do not want to. If we do not
13 hear from you again on it, we will just modify this
14 provision in accordance with this discussion.

15 MR. CUTCHIN: That is satisfactory to us.

16 CHAIRMAN SMITH: Does anybody else have a
17 comment on that?

18 [No response]

19 CHAIRMAN SMITH: The final question the Board
20 has is the motion on the ESF in the fuel handling
21 building. I have not read it; it has been explained to
22 me by the technical members of the Board.

23 First, we think that the time for reply to the
24 motion should be shortened, because of the
25 representation that the need for the relief is right

1 down the road, in April, as I recall, April 2.

2 So our first question is: Do the parties
3 present intend to respond to the motion? Can you tell
4 us that?

5 MS. WEISS: UCS has no intention of
6 responding, Mr. Chairman.

7 CHAIRMAN SMITH: Then we asked the parties
8 present because you are here and you are almost certain
9 to be the only parties, from our previous experience, to
10 take an interest other than the Commonwealth. We will
11 check with them specially.

12 Mr. Cutchin.

13 MR. CUTCHIN: The Staff does intend to reply,
14 Mr. Chairman. And if the Board would like the flavor of
15 that response, I would be happy to try to give it at
16 this time.

17 CHAIRMAN SMITH: As a matter of fact, if you
18 wish, you can save yourself a paper and respond. Are
19 you able to do that?

20 MR. CUTCHIN: We are able to respond with
21 respect to movement of the fuel prior to restart. I am
22 not at this moment able to respond completely to the
23 request for modifications of the post-restart
24 condition. But as I understand it, it is with respect
25 to the movement of fuel within the next few weeks, that

1 there is a need for immediate relief.

2 The other is not quite that urgent. But with
3 respect to movement of fuel prior to restart, I think I
4 would like to suggest to the Board that perhaps they
5 could view it as follows: that their charter is
6 primarily with respect to actions that take place from
7 restart forward and that matters of this sort that were
8 not within anyone's contemplation at the time of the
9 hearing or at the time of the issuance of the
10 Commission's order be left to the Staff initially to
11 evaluate and decide and, under the provisions of 2717,
12 if you will, pass by the Board for a review.

13 I believe that out of an abundance of caution
14 and the shortness of time, the Licensee went after it
15 with a shotgun, if you will, to make sure they covered
16 all the bases.

17 But it is the Staff's view, and they have no
18 problem with the fact that this fuel, previously
19 irradiated or no, has been sitting there so long that
20 there are no radioisotopes that are of concern. And so
21 it is immaterial as to whether those filter systems or
22 even installed or operating, not even the new ESF
23 system, but the ones that are already there that were
24 not ESF.

25 So the Staff would have no objection to the

1 granting of the relief requested, if that is what the
2 Board believes it must do with respect to the movement
3 of the fuel prior to restart.

4 If you wish some further technical discussion,
5 we have with us here today the technical members of the
6 Staff who could address that in more detail.

7 DR. LITTLE: We would be interested in a brief
8 explanation of what the cause is of the possible
9 chemical attack which will necessitate possible movement
10 of the fuel.

11 MR. CUTCHIN: I am not sure, Dr. Little, if we
12 will attempt to address that. I am not sure that is
13 something the Board -- I do not believe that is
14 necessarily within the purview of the restart
15 proceeding, but we will be happy to try to address it.

16 CHAIRMAN SMITH: That is entirely correct, Mr.
17 Cutchin. It is a matter of curiosity. You are not
18 required to respond.

19 MR. CUTCHIN: We will attempt to, to the
20 extent we can. I am not sure anybody has the answers.
21 That is the real purpose of moving the fuel.

22 DR. LITTLE: We had this very discussion
23 shortly before we came up here. And the main reason for
24 our curiosity is the fact that this appears to have such
25 urgency and evidently is coming before us for a very

1 quick decision.

2 MR. JACOBS: As you are aware, TMI-1 has
3 problems with their cracking in the steam generator
4 tubes, and it appears from their analyses or from their
5 metallographical and chemical work that the attack is
6 from the primary side and related to sulfur impurities
7 in reduced form. And, of course, that would open up the
8 susceptibility of other materials elsewhere in the
9 primary system.

10 The Licensee is reviewing to determine whether
11 the susceptible materials in the primary system might be
12 susceptible to this type of attack. But, of course,
13 prudence dictates to at least inspect to see if any
14 damage exists. And that is the reason for primary head
15 removal and at least partial defueling.

16 DR. JORDAN: But you do know that there was
17 sulfur in the primary?

18 MR. JACOBS: Yes, sir.

19 DR. JORDAN: And do you know why that came
20 about?

21 MR. JACOBS: For that particular response I
22 would like to let the Licensee address it. We have some
23 thoughts, but they have not formally presented where
24 they think it came from.

25 DR. JORDAN: It is just a matter of

1 curiosity. If you do not know, it does not concern us.

2 MR. WALLACE: Dr. Jordan, there are several
3 candidate sources: oil, resins, chemicals that exist in
4 other portions of the supporting systems may have
5 migrated into the primary system. We are not at the
6 point right now where we can definitively say this is
7 the source. We are evaluating all the various pathways
8 of all these contaminants that might have gotten into
9 the system.

10 DR. JORDAN: Fine. Back to the original
11 question. You are saying that the fuel is now three
12 years old, and therefore the fission products of concern
13 have well decayed -- and by that, I presume you mean the
14 volatile fission products, such as the krypton, zenons,
15 iodine, cesiums, and things like that -- and the only
16 ones left are essentially the solid ones. Is that the
17 reason?

18 MR. CUTCHIN: Iodine is normally the isotope
19 of greatest concern. But if you want those kinds of
20 details --

21 DR. JORDAN: No. I just wanted to know the
22 basis for your statement.

23 MR. CUTCHIN: It is the iodine primarily that
24 would be affected by the presence of these filters, and
25 that has decayed away, the 131s and above. And I think

1 the Licensee addressed 129, just to demonstrate there is
2 really nothing there.

3 DR. JORDAN: I would not think 129 would be a
4 matter of concern. Thank you.

5 CHAIRMAN SMITH: I could see our order in this
6 could possibly take several different routes. One would
7 be that jurisdiction is past. The other that we can
8 certainly have jurisdiction always to determine whether
9 we have jurisdiction and we could clarify that we do not
10 have jurisdiction prior to restart. Or we could say
11 that you interpreted the condition correctly but there
12 was an unintended result and we have continued to have
13 jurisdiction to clarify the consequences of our order.

14 If our ruling was that we have no jurisdiction
15 to control the activities of Unit 1 prior to restart,
16 what effect would that have upon your problem?

17 MR. CUTCHIN: It then would enable the Staff
18 to deal with this as it would normally with any request
19 for licensing approvals, and it could make the paper
20 perhaps faster.

21 MR. ZAHLER: Mr. Smith, there is, however, a
22 residual aspect of our motion, which is that we have
23 requested in three respects that the wording of the
24 Staff's condition be altered. And while as Mr. Cutchin
25 pointed out, that is not of immediate concern right now,

1 in terms of removing the head on April 2, we would think
2 that the Board does have jurisdiction to clarify that
3 part of its order pursuant to its continuing
4 responsibility over the Staff's enforcement plan.

5 And we would ask the Board to rule or pass on
6 those requests to modify the Staff's enforcement
7 proposal condition in three respects.

8 CHAIRMAN SMITH: And that, of course --

9 MR. CUTCHIN: I said we were not prepared to
10 address that this morning. We are only prepared to
11 address the portion that is of immediate concern. And
12 we would like the normal timespan. In fact, we are
13 working on a schedule of replying by next Friday to that
14 portion of the request as well.

15 CHAIRMAN SMITH: All right. So can we take,
16 for our purposes -- perhaps we can divide this issue and
17 we can take this as your response or answer to the
18 motion with respect to pre-restart jurisdiction and the
19 consequences.

20 MR. CUTCHIN: Correct.

21 CHAIRMAN SMITH: And then allow you to reply
22 in the normal time as to post-restart conditions.

23 MR. CUTCHIN: That would be our preference,
24 Mr. Chairman.

25 CHAIRMAN SMITH: Okay. So then we will divide

1 the motion into those two aspects, and we will permit
2 the parties and the Staff to divide their answers, and
3 we will make a separate ruling for the parties not
4 present as to the time for answering the motion with
5 respect to the pre-restart jurisdiction aspect of it.

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1 Now we are ready to begin with the business
2 schedule for this prehearing conference. As we
3 indicated in our order setting this prehearing
4 conference, this aspect of it, the testimony produced,
5 and the exhibits, if any, produced as a consequence of
6 this prehearing -- preliminary hearing will not be
7 evidence or part of the evidentiary record until and
8 unless we make it that by order.

9 We will, however, continue the same sequential
10 numbering, and this morning I met Ms. Weiss at the
11 coffee shop, and I asked her if there was any progress
12 yesterday afternoon, and she told me generally negative,
13 and I just wonder if any party would like to report on
14 behalf of all the parties what your success or lack of
15 it was yesterday.

16 MS. WEISS: I would like to report, Mr.
17 Chairman.

18 CHAIRMAN SMITH: All right.

19 MS. WEISS: I don't know whether it will be on
20 behalf of all the parties. We had requested to see all
21 of the authors of the Martin report one at a time, and
22 meetings were scheduled -- the meeting was scheduled to
23 begin at 1:00 o'clock yesterday, and we were there. We
24 spoke to Mr. R.D. Martin, the head of the report team,
25 and we spoke to Mr. Hunter. At 4:00 o'clock we finished

1 with those two and indicated that we wanted to talk to
2 Mr. Kirkpatrick next, and we believed that would be all
3 we would probably be able to get to.

4 Mr. Cutchin announced that he was not willing
5 to continue, and we reasserted our desire to see Mr.
6 Kirkpatrick, and he wouldn't produce him, so we all went
7 home.

8 MR. CUTCHIN: Could I add to that, Mr.
9 Chairman??

10 CHAIRMAN SMITH: Certainly.

11 MR. CUTCHIN: As the Board had suggested in
12 its last paragraph of the order setting down this
13 hearing on motions, we produced these persons yesterday
14 afternoon in the hope that by so doing we could either
15 dispense with the need for this hearing or see that it
16 was likely to shorten the hearing.

17 It became apparent to me during the
18 questioning of the first two witnesses that we were not
19 making progress toward that goal, and I felt that there
20 was no use to pursue it further, it then being 4:00
21 o'clock in the afternoon. I presumed that at best we
22 would probably lengthen the hearing by no more than an
23 hour, and I did indeed cut off the questioning and say,
24 we will see you in the hearing room in the morning, and
25 here we are.

1 CHAIRMAN SMITH: All right. Before we begin
2 with the opening statements, is there any preliminary
3 matter or motion with respect to the preliminary hearing?

4 (No response.)

5 CHAIRMAN SMITH: All right, Mr. Cutchin.

6 MR. CUTCHIN: As was indicated in your order,
7 Mr. Chairman, the staff does have a fairly brief opening
8 statement, and the purpose of that statement is to
9 attempt to put how we got here in perspective as the
10 staff sees it.

11 Let me ask a question, if I may, first. I
12 presume that for the purpose of the record within this
13 mini-hearing, if you will, all of the documents that
14 have been previously filed are a part of this record and
15 need not be made exhibits as such.

16 CHAIRMAN SMITH: Yes, we will follow the
17 traditional standards in the Commission and elsewhere
18 that for the purpose of the motion to reopen we will
19 consider the affidavits and the statements and the
20 testimony and any exhibits that you might offer.

21 MR. CUTCHIN: In that case, the staff will be
22 offering no further exhibits beyond what have already
23 been filed in the form of attachments to its filing on
24 these motions.

25 Back in September of 1981, the intervenors,

1 UCS and Sholly, moved this Board to reopen the
2 evidentiary record and to compel depositions and
3 testimony by the authors of the so-called Martin report
4 about recommendations in that reported alleged by the
5 intervenors to differ with staff positions at the
6 hearing, and to support intervenors' positions.

7 Only the staff and the licensee answered the
8 motions. Both opposed. The staff presented the
9 authors' affidavits to support the staff's argument that
10 the Martin report recommendations were not based on a
11 detailed analysis but were a consensus judgment on
12 matters the authors believed warranted consideration,
13 and to show that the authors did not disagree with the
14 actions taken by the staff on those matters.

15 Staff also argued that a motion to reopen may
16 be disposed of in a summary fashion without what the
17 staff viewed to be the discovery requested by UCS,
18 because in the staff's view discovery would be
19 permissible only if the proponent of the motion to
20 reopen could demonstrate with some particularity that
21 discovery is likely to develop a basis for avoiding
22 summary disposition, and two, that the UCS request was,
23 in the view of the staff, an attempt to obtain what
24 again in the view of the staff was statutorily
25 prohibited financial assistance in the preparation and

1 presentation of its case to reopen.

2 After reviewing the motions and the answers,
3 this Board, in a memorandum and order dated October
4 13th, asked UCS and Sholly to reconsider their motions
5 in light of the answers provided by the staff and the
6 licensee, particularly any factual information in the
7 answers that they could not have known about when they
8 originally filed their motions.

9 In their responses to the Board's memorandum
10 and order, the intervenors continued to press their
11 motions. Due to the press of other matters, the Board
12 took no further action on the UCS and Sholly motions
13 other than stating in its PID of December 14th, 1981, in
14 deferring the ruling for the present, that the issues
15 involved in the motions have a very low probability of
16 affecting its decision on short-term safety items, and
17 it did not, like I say, initiate any further action
18 until the conference call that was held with the parties
19 on the 9th of February.

20 In the February 11th memorandum and order of
21 that conference call, the Board stated that in its view
22 no party was at fault for intervenors' failure to
23 discover the Martin report, and that the intervenors had
24 had a fair hearing even though they had not had access
25 to the information in the Martin report or to the

1 information that their follow-up on that report may have
2 led them to.

3 However, the Board did not deny the
4 intervenors' motions to reopen based on their failure to
5 demonstrate with some particularity that discovery was
6 indeed likely to develop a basis for avoiding summary
7 denial of their motion, as Vermont Yankee would appear
8 to the Staff to have required.

9 Instead, because its views differed with those
10 of the staff, the Board has in fact shifted the burden
11 from intervenors to the Commission, but primarily to the
12 staff, and because staff and intervenors were not able
13 to agree on less formal means, and because the Board did
14 not agree with the staff's view regarding financial
15 assistance, it has scheduled this hearing on the motions
16 to reopen.

17 Rather than attempting to challenge the
18 Board's ruling or to delay matters further, the staff
19 did reluctantly agree to produce the Martin report
20 authors by way of special appearance to enable the Board
21 to obtain information that the Board believes it needs
22 to rule on these motions. However, the staff wishes to
23 emphasize that by producing the witnesses at the hearing
24 on the motion, it does not waive its right to resist any
25 attempt to compel their appearance at a reopened hearing

1 should that event occur.

2 As has already been discussed, we attempted
3 yesterday or we met yesterday with intervenors in the
4 hope that we could either shorten or dispense with the
5 hearing. That did not happen.

6 The staff views the scope of this hearing on
7 the motions to reopen to be a narrow one, that being to
8 determine whether the Martin report recommendations that
9 are the subject of the motions to reopen were supported
10 by factual or analytical bases that, had they been made
11 known to this Board, would have caused this Board to
12 decide differently on the validity of the contentions
13 cited by the intervenors as being supported by the
14 Martin report recommendations.

15 At this point, I would like to put into the
16 record just to refresh persons' memories that there are,
17 as I can determine, only ten I&E recommendations which
18 were cited by either of the intervenors as being
19 supportive of their contentions. Those recommendations
20 are as follows.

21 That numbered C.1.a1 on Page 12 of the
22 recommendations, and the subject matter of that is
23 safety grade in core thermocouples, and that was cited
24 by UCS as supportive of it Contention 14.

25 C.1.a4 on Page 13, control room recording

1 system, cited as supportive of Sholly Contention 15.

2 C.1.a15, on Page 16, instrument failure at
3 non-normal position, cited as supportive of Sholly 6A
4 and 15.

5 C.1.a16, on Page 17, continuous multipoint
6 recorders, cited as supportive of Sholly 15.

7 C.1.a17, on Page 17, safety grade pressurizer
8 level and temperature instrumentation, cited as
9 supportive of UCS Contention 14.

10 C.1.b3, on Pages 18 and 19, safety grade ICS,
11 cited as supportive of Sholly 6A.

12 C.1.b6, on Pages 19 and 20, lock in feature on
13 engineered safety features actuation system, cited as
14 supportive of UCS 10.

15 C.1.c2, on Pages 21 and 22, safety grade PORV,
16 that being power operated relief valve, or pilot
17 operated relief valve, cited as supportive of UCS Number
18 5.

19 C.1.c3, on Pages 22 and 23, safety grade block
20 valve, cited as supportive of UCS 5.

21 And finally, C.1.c4, on Page 23, safety grade
22 pressurizer heaters, cited as supportive of UCS 3.

23 At this point, Mr. Chairman, that completes my
24 opening statement. Does the Board wish to hear
25 statements from other parties before we have the

1 witnesses take the stand?

2 CHAIRMAN SMITH: Yes, everybody will have an
3 opportunity.

4 Mr. Baxter, you seem to be like a guest in a
5 domestic dispute here.

6 MR. BAXTER: Well, Mr. Chairman, it is true
7 that the dispute is mainly between the staff and the
8 intervenors UCS and Mr. Sholly, but licensee has an
9 obvious and vital interest in the Board's ruling on this
10 motion to reopen, and that was recognized in the Board's
11 order setting this preliminary hearing, in which it
12 remarked that both the public and in particular the
13 licensee are entitled to an expeditious and final
14 decision in this proceeding, and licensee will not be a
15 silent bystander in the proceedings today.

16 My brief opening statement largely is inspired
17 by my experience yesterday afternoon. We did attend the
18 interviews. We asked only one question, and we are
19 interested in giving the intervenors the maximum
20 opportunity to interview the Martin Report authors, but
21 I would like to briefly review our position on what the
22 scope of the preliminary hearing is, based on what I
23 heard yesterday.

24 As background, licensee did answer the two
25 motions back on October 5th, 1981. We opposed them

1 both, arguing that they were untimely, given the notice
2 in the May, 1980, action plan of the Martin Report, and
3 secondly, arguing that the Martin Report did not
4 represent significant new evidence that would materially
5 affect the Board's decision.

6 Our views in the latter regard are even
7 stronger, now that the partial initial decision has
8 subsequently been issued. The Board has decided,
9 however, that the discovery process failed in this case
10 through no fault of the staff or the intervenors, and
11 that affidavits filed by the staff in answer to the
12 motions did not provide enough information for the Board
13 to decide whether or not there is significant new
14 evidence that materially affects the decision.

15 While we do not agree with those decisions,
16 given them, we appreciate the Board's diligence in
17 pursuing the prompt resolution of these motions, and
18 making the effort to do that through this preliminary
19 hearing today in Bethesda. As the Board observed, in
20 the March 2nd order setting this preliminary hearing, we
21 are entitled to an undelayed final decision in the
22 proceeding, and we are hopeful that the Board will be
23 able to consider the evidence presented today in the
24 preliminary hearing and to make its ruling as promptly
25 as possible.

1 In our view, the granting of discovery on a
2 motion to reopen the record after the initial decision
3 has issued is an extraordinary step, especially in the
4 absence of any licensing board finding of sua sponte
5 interest and concern. We understand that this path is
6 dictated by the Board's finding that the discovery
7 process failed through no fault of the parties, and the
8 Board deserves this confrontation of the parties in
9 order to provide it with the information it needs to
10 rule on the motions.

11 We would like to emphasize, though, that the
12 purpose of the preliminary hearing today is not to
13 satisfy UCS or Mr. Sholly, but rather to explore whether
14 or not adding to the record in this case on their
15 contentions with additional evidence would cause the
16 Board to -- materially cause an effect on the Board's
17 decision.

18 So, it is the Board that needs to be satisfied
19 here today, and not the intervenors.

20 The Board stated on Page 3 of its February 11,
21 1982, memorandum and order on telephone conference, and
22 I quote, "We stress it was the technical bases
23 underlying the Martin report conclusions that would
24 determine whether the record should be reopened, and
25 that it would be virtually impossible that the authors'

1 conclusions alone could justify reopening. We stated
2 that we were interested in material facts and analyses
3 that were not included in the facts and analyses
4 underlying the staff positions on the respective issues
5 presented during the hearing."

6 In the Board's more recent order of March 2nd,
7 1982, setting the preliminary hearing, this is repeated
8 essentially where the Board states that, "It is the
9 technical bases for the Martin Report conclusions that
10 we view to be relevant to the motions to reopen.
11 Unsupported conclusions could not carry the day for the
12 moving intervenors."

13 It is my expectation that we are going to run
14 up against that important distinction that the Board has
15 made in deciding to pursue this preliminary hearing, the
16 difference between technical analyses and analytical
17 bases and mere opinion. I can understand why the
18 intervenors may be interested in opinions, but I don't
19 think given the opinions the Board has made we are in
20 the business of polling the NRC staff personnel in
21 deciding how many vote one way or the other in the
22 intervenors' contentions, nor are we here to critique
23 the process by which the TMI action plan was drafted and
24 put together, even though that may be a matter also of
25 independent interest to some of the intervenors.

1 The staff in the affidavit it filed in answer
2 to the motions did not establish the scope of this
3 proceeding, either. Each of the affidavits to one
4 extent or another expresses some degree of satisfaction
5 with the consideration or resolution of the items of
6 concern as they were treated by the TMI action plan
7 steering group. It is our impression that the staff
8 advanced that kind of information mainly to respond to
9 the UCS allegation that the staff had been negligent in
10 responding to a discovery request that asked them to
11 identify dissident staff opinions. The Board has
12 already decided that question, and decided that the
13 discovery process failed, not through the fault of
14 either the staff or intervenors.

15 Therefore, we don't feel that an exploration
16 further into what those affidavits say about the
17 particular author's satisfaction with the action plan is
18 relevant to the question the Board needs to have an
19 answer to, are there technical bases or analyses which
20 underlie their recommendations which were not available
21 to the other witnesses who testified here.

22 We think you are going to find there are none,
23 that these gentlemen, who did a very fine job in
24 producing NUREG 0600, and established the facts of the
25 accident, simply have advanced, as Mr. Robert Martin

1 said in his initial affidavit, the views and
2 considerations and opinions that they had which were not
3 the result of detailed analyses, but consensus judgment
4 of issues which were believed to warrant further
5 consideration, and while they did a good job
6 investigating the accident, that information has been
7 available to everybody and utilized extensively by the
8 Rogovin group, the Kemeny Commission, and, we presume,
9 all the staff witnesses who have already testified
10 before the Board.

11 Thank you.

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1 CHAIRMAN SMITH: How will the Intervenors
2 proceed?

3 MS. WEISS: I have an opening statement for
4 UCS, and Mr. Sholly will speak very briefly for himself.

5 Mr. Chairman and members of the Board, we are
6 here because in September 1979 a group of qualified
7 technical people from the Division of Inspection and
8 Enforcement, operators, inspectors and specialists and
9 systems engineering people with many years of experience
10 in the field, completed four months of intense
11 investigation of the TMI-2 accident, and they wrote
12 portions of a report designated as NUREG-0600.

13 After that report was completed, they wrote
14 another report, the Martin Report, containing
15 recommendations for design-related changes in nuclear
16 power plants. In many cases those recommendations
17 agreed with the contentions that UCS has brought forward
18 in this proceeding.

19 In particular they recommended that the PORV
20 should be safety grade, that the pressurizer header
21 should be safety grade, that certain equipment used
22 during the mitigation of the accident, including in-core
23 thermocouples, pressurizer level and temperature
24 instruments should be safety grade, and they recommended
25 a lock-in feature for the engineered safety features so

1 that they could not be prematurely terminated by the
2 operator.

3 These men had no direct power to implement
4 their recommendations. They ranged in seniority and
5 they are generally technical people and not management
6 personnel, but they came to the task because, as the two
7 of them whom we did talk to yesterday expressed it, they
8 felt they had to translate what they had learned into
9 design-related recommendations.

10 The basis for their recommendations was their
11 experience and the problems which they determined to
12 have occurred during the course of the TMI-2 accident.
13 These men have much more direct knowledge of the
14 accident and of the day-to-day operations of reactors
15 than virtually any of the staff witnesses who testified
16 on the UCS contentions.

17 Those witnesses almost without exception were
18 not particularly familiar either with the accident or
19 with the particular plant equipment, and they did not
20 base their testimony on that. They based their
21 testimony in some cases on computer calculations and on
22 others in theoretical analysis of plant performance.

23 So in our view the I&E people who appear
24 before you today had a different basis, a different
25 technical basis, a different perspective, and I would

1 say that is almost by definition, than did the staff
2 witnesses because their recommendations come from a
3 group which is familiar on a daily basis in the manner
4 with which design influences operational safety, and
5 whose recommendations come directly out of their
6 investigation of the accident and the manner in which
7 the operators and the equipment together functioned
8 during the TMI-2 accident.

9 We are having this preliminary hearing because
10 the existence of the Martin Report recommendations was
11 never revealed to UCS during discovery, and more
12 directly because the NRC staff refused to make those
13 people available for face-to-face depositions, which is
14 what our motion requested. So the Board ordered this
15 preliminary hearing.

16 I would characterize this as essentially the
17 conducting of depositions under the supervision of the
18 Board to allow UCS to confront these people for the
19 first time, in most cases, in order to provide a basis
20 for the Board's decision on whether the proceedings
21 should be reopened.

22 I hope the Board will allow us the appropriate
23 latitude to put these issues to rest on their merits.
24 We will be asking questions to determine the bases for
25 these recommendations, the problems which they were

1 intended to address, and whether or not those problems
2 have been resolved by anything in the Board's order or
3 in the short or long-term Action Plan items.

4 We will show that in a number of cases the
5 concerns which parallel the UCS contentions were not
6 resolved by any Action Plan item or any order of this
7 Board. We will also show that when the witnesses state
8 in their affidavits that an issue was addressed in the
9 Action Plan, they mean only that their report was sent
10 to those people who were assembling the Action Plan.

11 We have already filed papers showing that the
12 substance of the I&E recommendations were never included
13 in any drafts of the Action Plan, and we have uncovered
14 no information to contradict that. Those whom we spoke
15 to yesterday, including the team leader, Mr. Martin, had
16 never had any communication with anyone on the Action
17 Plan steering group, either about the technical reasons
18 why the I&E team made their recommendations, or the
19 technical reasons, if any, why they were not accepted.
20 All they know is that this was put into the bureaucratic
21 hopper.

22 These witnesses are now understandably
23 disinclined to challenge what has become a management
24 decision. That is the nature of a bureaucracy. It is
25 particularly exacerbated in this case.

1 CHAIRMAN SMITH: Do you intend to demonstrate
2 this in your cross examination?

3 MS. WEISS: Yes, Mr. Chairman, these are
4 issues that will be discussed. That is particularly
5 exacerbated in this case where this is an adversary
6 proceeding and UCS is the enemy. That makes it
7 difficult for us at this point because the Staff has
8 made the issue and would like to characterize the issue
9 as do you disagree or agree with your management.

10 That is not the issue. The issue is is there
11 sufficient technical merit to the positions reflected in
12 the Martin Report that this Board should accept them.

13 The question we ask this Board to decide is:
14 Given the basis for this recommendation, which we will
15 establish today, and given that none of the Staff
16 witnesses was even aware of this report at the time they
17 gave their testimony -- and that is already clearly
18 established in the record -- should these
19 recommendations have been adopted?

20 In other words, was UCS correct when it
21 contended that certain actions were necessary to assure
22 the safety of TMI-1? And if this group's basis was the
23 same as UCS', we believe that is significant,
24 significant that we were not alone in our technical
25 judgment, particularly in cases where the Board has

1 acknowledged in its partial initial decision that the
2 UCS position had technical merit but that the Staff
3 nonetheless should hold sway.

4 An example is the interpretation of General
5 Design Criterion 14, as it applies to the PORV and the
6 question of whether or not it should apply.

7 We discussed what happened yesterday and I
8 will not go over it again. I will just mention that I
9 believe that it is continuing evidence that the Staff is
10 engaged in gamesmanship with UCS and this Board. I want
11 it on the record that they have frustrated our attempt
12 to pursue this matter in every opportunity they could,
13 raising objection after objection, and we believe,
14 particularly after discussions yesterday, that this has
15 resulted in some prejudice which probably cannot be
16 overcome.

17 It has now gotten to the point where some of
18 the witnesses cannot even remember why they wrote what
19 they wrote in their September affidavits in response to
20 the UCS motion. When I asked one of them yesterday if
21 he could check something overnight to be prepared to
22 answer a question today, he was virtually instructed by
23 his counsel not to do so. At least a very heavy
24 suggestion was dropped.

25 You have to make your decision on the record,

1 and that is the testimony of the Staff witnesses who
2 purported to justify a failure to require the actions
3 which UCS claims are necessary, failure to require the
4 PORV and the heaters to be safety grade, failure to
5 provide an ESFAS lock-in feature.

6 The fact that the Action Plan did not include
7 these items does not by itself prove anything. To the
8 degree that it is challenged by Intervenors, the Action
9 Plan stands or falls on the testimony presented in this
10 case.

11 What we have is two hermetically-sealed groups of
12 Staff witnesses who never communicated with each other.

13 DR. JORDAN: Ms. Weiss, there is one thing you
14 said I am not clear on, and that is the matter of which
15 came first, the Martin Report or 0600.

16 MS. WEISS: 0600 came first, Mr. Jordan.
17 After these witnesses completed their input to 0600,
18 they had a series of meetings afterwards where they
19 decided that they ought to take what they had learned
20 during the investigation that culminated in 0600, and
21 they felt that they had to put these down into
22 recommendations for design-related changes and pass it
23 on to those people who might have the ability to
24 implement.

25 DR. JORDAN: So the Martin Report was

1 published after 0600.

2 MS. WEISS: It was certainly written after
3 0600. My understanding is it was published after 0600.

4 We have two hermetically sealed groups of
5 staff witnesses.

6 CHAIRMAN SMITH: Excuse me. I am confused by
7 your last statement. Could there be any doubt that it
8 was published after it was written? I mean --

9 MS. WEISS: No. The only qualification was I
10 am not sure when 0600 was published off the top of my
11 head. I know these men wrote their part of 0600 before
12 they wrote the so-called Martin Report, but I don't know
13 the publication dates.

14 These two groups never communicated with each
15 other. We know that the early Staff witnesses presented
16 by the Staff never read and were never aware of the
17 existence of the Martin Report without exception until
18 the Union of Concerned Scientists motion was filed, and
19 we know that the I&E Operations people, at least so far
20 as we have been able to determine, never read the Staff
21 testimony or communicated in a substantive way with the
22 people putting the Action Plan together. So they were
23 sealed off from each other.

24 What you have heard throughout this hearing
25 was the views of only one of those groups, the group

1 that opposed the UCS contentions. Since then, the Staff
2 has been laboring to keep you from hearing the views of
3 equally or better-qualified Staff members who in some
4 cases support the UCS contentions, or support the UCS
5 contention.

6 Today pursuant to this Board order we will
7 hear them, and we ask this Board not to focus on whether
8 these witnesses now agree or disagree with management,
9 but on the reasons why they made the recommendations on
10 the pertinent issues, and we hope we can persuade you
11 that those were and are correct.

12 Thank you.

13 CHAIRMAN SMITH: Mr. Sholly.

14 MR. SHOLLY: Just very briefly, I would ask
15 the Board to keep in mind the difference in the focus of
16 the witnesses that they have already heard and the
17 difference in the focus of the witnesses who will be
18 heard today. Previously we have heard from the
19 witnesses, to the best of my recollection, exclusively
20 from the Office of NRR.

21 Today we will be hearing from people who are
22 from I&E, people who are out in the field who interact
23 more directly with Operations and with operators, and
24 who have the opportunity, therefore, to more directly
25 observe what goes on in plant operations. I think they

1 carry an entirely different level of experience and
2 bring an entirely different perspective to the issues we
3 will be addressing.

4 CHAIRMAN SMITH: What is your plan for
5 cross-examination? I would suggest and require that you
6 consolidate everything that can be consolidated, that
7 is, the general cross-examination, and leave for
8 independent cross-examination only that which relates to
9 the difference in the contentions at interest.

10 MS. WEISS: That is what we intend to do, Mr.
11 Chairman, and I expect that in some of these more
12 technical questions the questioning will be done by Mr.
13 Pollard. As far as the preparation of the report, I
14 expect that to come out on direct and I don't expect to
15 have much cross on that.

16 CHAIRMAN SMITH: I think you have probably
17 characterized correctly the posture of this preliminary
18 hearing as a deposition presided over by the Board, but
19 it is going to be more than that potentially. If it is
20 simply a preliminary hearing, we can be much more
21 liberal in our ruling as far as scope of
22 cross-examination, I believe, and just generally more
23 relaxed, as could the parties.

24 However, I think that it would be prudent to
25 approach this as a deposition for the dual purpose of

1 inquiring into whether the record should be opened and
2 of preserving this testimony, because if you should
3 prevail and if we should decide the record would be
4 reopened, we would approach this testimony as itself
5 being evidence.

6 Therefore, it would be your obligation to make
7 your case with respect to their questions now to the
8 extent that you can. If that means perhaps that we will
9 expand this preliminary hearing too wide, then we will
10 change this ruling. If it means that we will go
11 somewhat farther than we would in a preliminary hearing
12 just to preserve a record which is useful as an
13 evidentiary record upon hearing objections and arguments
14 of the parties, we might do that.

15 But the point I am trying to make is the
16 parties should now examine on direct examination and
17 cross-examination as if the matter is being heard on the
18 merits where that is appropriate so that if the movants
19 prevail, we would not have to necessarily bring these
20 witnesses back for testimony on the evidentiary record.

21 Do you understand that?

22 MR. CUTCHIN: I understand it, Mr. Chairman,
23 but I guess I have to candidly say it is somewhat
24 troublesome to me, for the following reasons. It was
25 the Staff's understanding that we were here to allow the

1 Board to determine whether there were any factual or
2 analytical bases for the recommendation of the specific
3 ones that I read into the record this morning of these
4 authors, and I think it is very awkward to try to define
5 a scope that narrowly and at the same time be making a
6 record that wanders much further afield, and in effect
7 it would deprive the staff of any opportunity to attempt
8 to resist the production of these people at a reopened
9 hearing were that to occur.

10 For that reason it troubles me, but I guess
11 the best way to approach it is go ahead and start and
12 let's see how the objections come out and let the Board
13 rule as we go.

14 CHAIRMAN SMITH: I am also troubled by some of
15 the problems that a ruling could bring up. I am just
16 saying that in any one subject matter on any one
17 question, you should exercise your opportunity today to
18 develop the record with a view in mind that it might
19 save an evidentiary session. If it presents problems
20 which we had not foreseen or that impose unfairness on
21 the Staff or any party, then we will reconsider that.

22 MR. CUTCHIN: We will be happy to proceed
23 along those lines.

24 CHAIRMAN SMITH: All right.

25 Mr. Cutchin, would you call your witnesses,

1 please, or the Board's witnesses?

2 MR. CUTCHIN: Mr. Chairman, I would call
3 Robert D. Martin, Thomas D. Martin, Dorwin R. Hunter,
4 Anthony N. Fasano, and Donald C. Kirkpatrick to the
5 stand.

6 Whereupon,

7 ROBERT D. MARTIN,

8 THOMAS T. MARTIN,

9 DORWIN R. HUNTER,

10 ANTHONY N. FASANO and

11 DONALD C. KIRKPATRICK,

12 called as witnesses by the Atomic Safety and Licensing
13 Board, after being duly sworn by the Chairman, were
14 examined and testified as follows:

15 DIRECT EXAMINATION

16 BY MR. CUTCHIN:

17 Q Would you identify yourselves for the
18 reporter, starting with left to right?

19 A (WITNESS THOMAS MARTIN) Tim Martin, known as
20 Thomas T. Martin.

21 A (WITNESS HUNTER) I am Dorwin Hunter.

22 A (WITNESS ROBERT MARTIN) I am Robert Martin.

23 A (WITNESS FASANO) Anthony Fasano.

24 A (WITNESS KIRKPATRICK) Donald Kirkpatrick.

25 MS. WEISS: Mr. Kirkpatrick is blocking Mr.
Fasano.

1 VOICE: Thank you.

2 MR. CUTCHIN: Gentlemen, to begin with, I will
3 address a number of questions to the panel. I would ask
4 that Mr. Robert Martin first answer the question and
5 then if the rest of you have anything you would like to
6 add, please chime in and do so.

7 Mr. Martin, could you tell us why the I&E team
8 made the recommendations included in the so-called
9 Martin Report and how the team went about developing
10 those recommendations?

11 A (WITNESS ROBERT MARTIN) At the conclusion of
12 the investigation when we completed the writing of the
13 investigation report in mid-July of 1979, we felt that
14 as a consequence of being intensely focused on the
15 events that transpired during that accident and the
16 actions and complications that the operating staff faced
17 in coping with that accident, that we had developed
18 certain views, thoughts, conclusions, recommendations
19 regarding the methods by which problems of the kind that
20 they faced and that we faced in conducting our
21 investigation that we felt could be addressed by doing
22 things differently. We had formulated views on that
23 matter.

24 I must try to stress to you that under the
25 circumstances that we were in in July and August of '79

1 was that we had been in a fairly cloistered environment
2 for about four months, concentrating totally on the
3 first 16 hours of that accident, and literally we did
4 not have any substantive understanding -- to some extent
5 we had no understanding of what else the Agency and the
6 industry was in parallel doing to eliminate or resolve
7 difficulties with design and other matters, operational
8 matters to preclude any such further accidents in the
9 future.

10 But from our perspective we felt that on
11 focusing on that one accident, we had some information
12 that we should offer up to our management because with
13 certainty there would be review organizations formed to
14 try to identify how to keep problems like this from
15 occurring again in the future.

16 That was the environment in which we
17 formulated that memorandum. It is not a formal report.
18 It is a memorandum from the team to the investigations
19 director, who at that time was the deputy director of
20 Region I in King of Prussia.

21 So we formulated that memorandum by virtually
22 sitting around and addressing a wide spectrum of areas,
23 part of which included design but also included training
24 of inspectors, included a wide spectrum of things that
25 we felt were pertinent that should be considered by

1 management -- NRC management during any subsequent
2 reviews of what actions were appropriate for the
3 industry and the Agency to take to try to prevent future
4 things of that sort from happening.

5 We then formulated those recommendations, put
6 them together in the package that you have become aware
7 of and forwarded them by memo to Region I.

8 Q Do any of you gentlemen have anything you
9 would like to add?

10 CHAIRMAN SMITH: Is it your testimony, then,
11 Mr. Martin, that your recommendations were
12 recommendation for consideration rather than absolute
13 recommendations?

14 WITNESS ROBERT MARTIN: That was the context
15 in which we offered them. We knew there would be review
16 groups. We felt confident, and in fact we already knew
17 of the existence of certain review groups being
18 formulated within the Agency to learn what lessons could
19 be learned, and what we wanted to do was feed our views
20 and our recommendations because we had developed a
21 particular perspective in analyzing in great depth the
22 events that transpired during the course of that
23 accident.

24 CHAIRMAN SMITH: Would you focus on the words
25 that I have used there? I have asked you to distinguish

1 between whether what you have referred to as
2 recommendations in your report in testimony were
3 recommendations for consideration or was it your group's
4 position at that time that you were prepared to make
5 those as recommendations, as recommendations for changes?

6 WITNESS ROBERT MARTIN: I would have to say
7 that they were offered as recommendations for
8 consideration by whatever group was going to take Agency
9 action or promote Agency action.

10 DR. JORDAN: Were you aware at that time that
11 there was an Action Plan that, according to Ms. Weiss,
12 had already been published?

13 MS. WEISS: What I said was 0600.

14 DR. JORDAN: But not the TMI Action Plan. That
15 was what was confusing me. All right.

16 MR. CUTCHIN: NUREG-0660 is the Action Plan.

17 DR. JORDAN: Thank you. That was my confusion.

18 MR. CUTCHIN: May I proceed, Mr. Chairman?

19 BY MR. CUTCHIN: (Resuming)

20 Q Were the recommendations that were offered for
21 consideration based on any detailed technical analyses
22 or studies or were they issued just representing -- I
23 want to make that point very clear -- were there any
24 particular special studies that were done by your group
25 to develop the recommendations that went forward, or did

1 they merely grow out of your investigation?

2 A (WITNESS ROBERT MARTIN) No analytical studies
3 or special studies were conducted by the group. They
4 were our judgments based on our experience during the
5 course of the investigation of the accident.

6 Q Are you aware as a group of any technical
7 facts that you had available to you at the time you made
8 your recommendations that would have mandated that the
9 Staff in NUREG-0660 or at the hearing agree with your
10 position rather than the position taken by the Staff at
11 the hearing?

12 MS. WEISS: I don't understand that question.
13 I object on the grounds that it is incoherent.

14 CHAIRMAN SMITH: I feel uncomfortable because
15 I do understand it but neither of my colleagues does. I
16 question the value of it.

17 MR. CUTCHIN: Let me approach it from a
18 different direction, Mr. Chairman.

19 BY MR. CUTCHIN: (Resuming)

20 Q Are you aware of any technical facts that you
21 may have had yourself that would not or could not have
22 been available to those coming after you?

23 A (WITNESS ROBERT MARTIN) No.

24 CHAIRMAN SMITH: Sir, the previous question is
25 withdrawn?

1 MR. CUTCHIN: It is, Mr. Chairman, and the
2 witnesses are now available for cross-examination.

3 CHAIRMAN SMITH: Is there a preference for
4 order of procedure? Do you have a preference?

5 MS. WEISS: I would just as soon that we would
6 go first. I would prefer that.

7 MR. BAXTER: So would I.

8 Q MS. WEISS: I don't think I have ever been in
9 a hearing where you have gone first.

10 [Laughter.]

11 DR. JORDAN: Were all of these gentlemen part
12 of the team and did you all have input into the
13 so-called Martin Report?

14 WITNESS ROBERT MARTIN: All of the gentlemen
15 here at the table were part of the team. They are not
16 the total of the team. There were two additional
17 members of the team, both of which are no longer with
18 the federal service -- are no longer with the NRC. Only
19 one of those two gentlemen contributed any input to the
20 recommendations, but everyone here did contribute to one
21 degree or another input to those recommendations.

22 DR. JORDAN: Thank you.

23 CROSS EXAMINATION

24 BY MS. WEISS:

25 Q Mr. Martin, how were the members of the team

1 selected?

2 A (WITNESS ROBERT MARTIN) A portion of the team
3 was designated by headquarters, and three additional
4 members of the team were added to the team at my request
5 when I was designated as supervisor for that team.

6 Q Who were those, and why did you designate?

7 A (WITNESS ROBERT MARTIN) I requested Mr.
8 Hunter to be added to the team. He was not a designated
9 member. I asked for him to be added because Mr. Hunter
10 had experience in actual plant operations and I knew him
11 to be talented in the area of plant dynamics, plant
12 transients, and I wanted to tap that experience.

13 I asked for an inspector who had shown great
14 skills in the area of presumed difficulties with
15 mechanical components to a greater extent than I was
16 familiar with as far as the other team members are
17 concerned, and thankfully, Mr. Fasano was assigned from
18 Region I to serve that function.

19 Those were the two individuals that were added.

20 Q The team, then, represents a spectrum of
21 talent a spectrum of strength; is that accurate?

22 A (WITNESS ROBERT MARTIN) Yes.

23 Q Could you give me, and I don't want to place
24 you in an embarrassing situation, but could you just
25 summarize for us the strengths of each of the members,

1 what they brought to the study?

2 MR. CUTCHIN: Mr. Chairman, I am going to
3 object to the pursuit of this line of questioning much
4 further in that in line with the scope of the
5 proceeding, which was to determine whether or not there
6 are any facts that these people had available that
7 others may not have had available, that if the Board
8 knew of them they might have decided differently on
9 these contentions.

10 I do not see, in light of the direct
11 examination indicating that in their view they had no
12 technical facts that were not available to others, I
13 don't see where this is getting us. This sort of thing
14 would go to the weight if indeed they had come forward
15 with something that others did not.

16 CHAIRMAN SMITH: Do I understand from your
17 remarks that you believe the cross-examination is
18 limited to your direct?

19 MR. CUTCHIN: That was my -- if the Board does
20 not disagree with the scope of this proceeding, which as
21 I understood was to determine whether or not there were
22 technical facts that these people had available to them
23 that were not made available to those coming after them
24 or to the Board which would have caused the Board to
25 decide differently, yes, sir.

1 CHAIRMAN SMITH: So your point is that you
2 believe in your direct examination you established what
3 you believe to be the scope of today's inquiry?

4 MR. CUTCHIN: That was certainly my intent,
5 Mr. Chairman.

6 CHAIRMAN SMITH: We did indicate wherever it
7 was possible that we were primarily interested in the
8 technical bases, analyses and facts; that it would be
9 difficult --as a matter of fact, we used the words
10 "virtually impossible" -- for their conclusions to be
11 controlling.

12 However, we did not totally close the door on
13 the possibility, as we discussed in our telephone
14 conference call, that a showing could be made that a
15 superior qualification, for example, could be relevant
16 to our inquiry. We do not ourselves put much stock in
17 that possibility but we are not going to close the door
18 to a reasonable opportunity to inquire.

19 MS. WEISS: I would like to add --

20 CHAIRMAN SMITH: Wait a minute, Mr. Cutchin
21 had a remark. Which reminds me -- Mr. Cutchin, go ahead
22 with your remarks.

23 MR. CUTCHIN: Of course I will be bound to
24 follow the Board's rulings, but it is going to make it
25 very difficult to advance objections without some fairly

1 clear definition of what the Board believes the scope --
2 the limits on the scope of this hearing are.

3 CHAIRMAN SMITH: We had indicated before that
4 we wanted a reasonable opportunity in a fair setting for
5 the intervenors to address any recognized basis which
6 reposes in information held by these people which could
7 materially affect our decision. And of course, we have
8 strongly emphasized, as have the intervenors, that the
9 technical bases, the technical facts and the scientific
10 analyses which they may have employed in arriving at
11 their conclusions would be of paramount importance.

12 However, when you have adjudicative hearings, there
13 are other aspects. Today, it was brought to our
14 attention I think for the first time that intervenors
15 are going to argue that they had an enhanced opportunity
16 to observe the facts. That is a traditional standard by
17 which testimony is weighed and conclusions. And now
18 apparently, they are going to inquire into their
19 qualifications vis a vis the qualifications of those
20 people who may have testified.

21 Now, we will not allow it to go very far. I
22 think we know what their qualifications are. They were
23 attached to their affidavits. We will not allow it to
24 be cumulative but we will allow a reasonable inquiry
25 into it.

1 I think that you should be aware, if you are
2 here voluntarily under some mis-impression I think we
3 ought to work it out right now. You should feel free to
4 ask the Board how we view the scope of this hearing
5 before we proceed any further.

6 MR. CUTCHIN: That was the intent of my
7 objection and the question that followed it, Mr.
8 Chairman.

9 CHAIRMAN SMITH: Nothing else occurs to me
10 that could be germane.

11 MR. CUTCHIN: I would agree that if, indeed,
12 there are some facts that these people had available to
13 them and it is demonstrated that they are facts that
14 they had available to them that no one else did, then we
15 get to the weight of their judgment.

16 CHAIRMAN SMITH: Everybody agrees on that.

17 MR. CUTCHIN: Let us proceed then, Mr.
18 Chairman.

19 MS. WEISS: I just did not want to make my
20 failure to speak up -- allow that to be interpreted as
21 agreement on the scope or the motion of the hearing.
22 But I do not have anything to say to add to that,
23 considering what the Board has said.

24 BY MS. WEISS (Resuming):

25 Q The question on the table, gentlemen, is Mr.

1 Martin's assessment of the various strengths and
2 background of the expertise which the ten members
3 brought to the investigation and to the Martin Report.

4 A (WITNESS ROBERT MARTIN) I must answer that
5 based on the perspective with which I used them and does
6 not constitute really a summary of their particular
7 total backgrounds.

8 Mr. Martin's background and skills I wanted to
9 use primarily in the area of certain aspects of
10 management controls and his training and expertise in
11 the area of accident analysis, and his familiarity with
12 large plant operations.

13 Mr. Kirkpatrick, Mr. Hunter and Mr. Fasano I
14 have already mentioned. Mr. Kirkpatrick primarily to be
15 utilized in the area of reactor physics, reactor core
16 engineering, from that aspect, and as engineering
17 support for general engineering support as various
18 technical issues would arise.

19 There were two other members of the team. One
20 was an investigator, so he brought that investigatory
21 skill. And the last member of the team was also a
22 reactor engineer/nuclear engineer type. That was the
23 balance.

24 Q You have left somebody about. What about your
25 own background?

1 A (WITNESS ROBERT MARTIN) My experience is
2 primarily in the area of reactor engineering and
3 familiarity with the B&W design, and my supervisory
4 responsibilities when I was in Region 2 at the time had
5 to do with tests and startup activities. So I think if
6 I were to categorize myself it is probably in the plant
7 dynamics area.

8 Q You told me yesterday a little bit about how
9 you actually put this report together. I wonder if you
10 could repeat it for the Board.

11 A (WITNESS ROBERT MARTIN) You are speaking of
12 the so-called Martin Report?

13 Q Yes. And actually, you reminded me of a
14 question that I wanted to ask. When you were questioned
15 on direct you said that when we finished the
16 investigation report, we then wrote the Martin Report.
17 And I wonder if you would clarify for the record what
18 you meant by the investigation report in that context?

19 A (WITNESS ROBERT MARTIN) We wrote NUREG-0600,
20 we wrote that portion of NUREG-0600 associated with the
21 operational events, as did the other team write the
22 radiological events at TMI. In mid- we actually
23 delivered the final draft to Region 1, which ultimately
24 turned into a NUREG and was published I think early in
25 August, August 4 or something of that sort.

1 At that point, we then decided to -- we did
2 not decide at that point, but at that point we set about
3 to start collecting together our recommendations for
4 consideration. That was accomplished primarily by
5 sitting in a collegial group, not substantially
6 different than we are right now, and discussing various
7 issues on which different people had different views,
8 and we would try to -- each of us would try to document
9 that in some sort of systematic fashion.

10 We spent, as I recall, several days doing
11 that. Then in early August, our responsibilities as far
12 as the team were concerned were to brief the
13 commissioners and our formal duties with the
14 investigation ended then, and quite frankly I think the
15 majority of us took some vacation time. We got back
16 together, as best I recall, in late August/early
17 September in Region 2 in Atlanta because that is my home
18 region. We met together again for a day or two as I
19 recall, took these various drafts, cut and pasted them
20 together and finally put it into final typing in the
21 form that you see it.

22 On a telephone call we generally concurred in
23 the statements that were made in those recommendations,
24 and I attached a cover letter and sent it on to Region
25 1. That, if you will, is the history of the generation

1 of those recommendations.

2 Q You mentioned the four months of intense
3 involvement that you all had in investigating the TMI-2
4 accident. If you could just briefly describe what was
5 involved in that investigation for me.

6 A (WITNESS ROBERT MARTIN) Well, for that period
7 of time, we were located on the island, at Three Mile
8 Island. We were conducting interviews of the people
9 involved. I think between the two teams we interviewed
10 some -- we conducted some 400 interviews, each of
11 anywhere from one to five hours long.

12 So the team members would be tied up in taking
13 oral statements and others of us would be reviewing the
14 technical information that was available, the computer
15 printouts, the strip chart recorders, looking at the
16 plant design and trying to take all available data to
17 the extent we could in terms of hard data and the
18 statements made in the interviews and trying to piece
19 all of this together with a detailed sequence of events
20 as to what transpired in those first 16 hours of the
21 accident. And that took us the four-month period.

22 Q Is it true that -- I want to move now to what
23 happened after you completed the report and sent it on.
24 Is it true that the substance of your recommendations --
25 and by that I mean what you actually said and not just a

1 reference to the document -- that the substance of your
2 recommendations does not appear in any draft of the
3 Action Plan?

4 A (WITNESS ROBERT MARTIN) I --

5 MR. CUTCHIN: Mr. Chairman, I am going to
6 object because I guess I fail to see the relevance to
7 the issue that the Board has to decide here, and that is
8 whether, if this information were available to the
9 Board, it would come down differently. What relevance
10 that has to whether it was included in the task action
11 plan.

12 MS. WEISS: Well, perhaps we can stipulate it
13 was not included in any draft of the action plan. We
14 have always believed there are two parts to the
15 question; one is what did these gentlemen recommend, and
16 the second is, to what degree was the testimony of the
17 witnesses and the preparation of the action plan
18 responsive to the problems which are identified in that
19 report and recommendations that were made in that report.

20 And their opening statement indicated to you
21 that from what we have discovered, these were two
22 hermetically sealed groups of staff witnesses, and I do
23 not intend the line of questioning -- it is just two or
24 three questions to establish that they are hermetically
25 sealed.

1 MR. BAXTER: May I ask one question of
2 clarification? When we talk about the group's
3 recommendations are you referring to the ten only that
4 Mr. Cutchin enumerated at the beginning?

5 MS. WEISS: Yes, thank you.

6 CHAIRMAN SMITH: I do not think we have to
7 resolve this on the basis of the scope of this
8 particular preliminary hearing. I think on a
9 representation that a few questions will resolve it will
10 save it for the other purpose I mentioned, and that is,
11 for having a full record on it.

12 WITNESS ROBERT MARTIN: As I recall your
13 question, you asked was I aware of the substance; that
14 is, the detail, of the recommendation appeared in any
15 draft of the action plan.

16 BY MS. WEISS (Resuming):

17 Q Or the final.

18 A (WITNESS ROBERT MARTIN) I can address the
19 final. I do not believe they appear in the final in the
20 substance that we provided them. I do not know about
21 any draft.

22 Q Can anybody else on the panel add to that
23 answer, or does anybody disagree with any part of that
24 answer?

25 (No response.)

1 Has anybody on this panel at any time had any
2 discussion with any person involved in assembling the
3 action plan, preparing the action plan, about the
4 technical bases for your recommendations?

5 A (WITNESS ROBERT MARTIN) Allow me to start.

6 Q Remember I am asking about --

7 A (WITNESS ROBERT MARTIN) Yes, you asked with
8 regard to the discussion of the technical bases for our
9 recommendation. I have not. Tim?

10 A (WITNESS THOMAS MARTIN) I have not.

11 A (WITNESS HUNTER) No discussion.

12 A (WITNESS FASANO) No.

13 A (WITNESS KIRKPATRICK) No, I have not had any.

14 Q Has any of you at any time had any discussion
15 with any person responsible for putting together the
16 action plan in any way about the reasons why your
17 recommendations were not accepted, to the extent they
18 were not accepted?

19 MR. CUTCHIN: I am going to object again. I
20 think we are going further and further down here. I
21 think we could get to a much more productive approach if
22 any of these individuals know with respect to which of
23 any of these ten recommendations the Martin Report is
24 even referenced. And that could be a starting point.
25 And I think the fact that the report is referenced

1 indicates an awareness at least on the part of the task
2 action authors that the report existed, and that is what
3 started this whole exercise -- the discovery of the
4 existence of that report.

5 And I do not think we need to go too far down
6 this path because, again, I do not think it is
7 productive for the Board's use as to what other people
8 did or did not discuss. If there are any facts, the
9 Board can decide if they change their decision.

10 CHAIRMAN SMITH: Would you restate the
11 question?

12 MS. WEISS: This is, by the way, Mr. Chairman,
13 the last question along the line.

14 BY MS. WEISS (Resuming):

15 Q The question was have you any of you gentlemen
16 at any time had any discussion with any of the people
17 responsible for putting together the action plan about
18 the reasons why your recommendations were not accepted,
19 to the extent that they were not?

20 CHAIRMAN SMITH: We are going to permit the
21 answer, but bear in mind in your answer -- well, just
22 answer it.

23 WITNESS ROBERT MARTIN: As the question was
24 phrased, the answer is no for me. Tim?

25 WITNESS THOMAS MARTIN: Not that I remember.

1 WITNESS HUNTER: Again, to the best of my
2 recollection, if there were any discussions I could not
3 say yes; it would be no. It was not formal or I cannot
4 -- I don't recall at all.

5 WITNESS FASANO: You are talking to the
6 timeframe prior to --

7 BY MS. WEISS (Resuming):

8 Q No. Any timeframe prior to the filing of this
9 motion, let us say.

10 A (WITNESS FASANO) No, I did not.

11 A (WITNESS KIRKPATRICK) No, I did not.

12 CHAIRMAN SMITH: Would your answer be the same
13 if the question were modified to read, did you have any
14 discussion with any persons with respect to your
15 recommendations being considered?

16 WITNESS ROBERT MARTIN: No, my answer would
17 not be the same. I had a number of occasions where I
18 had conversations with people who were either on the
19 steering group for the task action plan or staff members
20 working with that steering group that made it very clear
21 to me that our recommendations were amongst the
22 population of recommendations that were being considered
23 by the steering group in moving towards the task action
24 plan.

25 BY MS. WEISS (Resuming):

1 Q Tell us how you knew that, please, from these
2 discussions.

3 A (WITNESS ROBERT MARTIN) Well, the exchange
4 would be either that the individual I was speaking to
5 would make reference to the fact that they were going
6 over one or more of our recommendations at that
7 particular time, or had during the last meeting of the
8 steering group. Or I recall one instance where looking
9 at a matrix that the staff member was working on that
10 had tabulated along with recommendations of other groups
11 that they were working with the recommendations of the
12 I&E investigation team.

13 Q You mentioned the matrix yesterday when we
14 were talking and I believe you said there was a big
15 graph-like piece of paper that seemed to have a list of
16 everybody's documents and that this person -- you saw
17 this matrix being prepared, is that correct?

18 A (WITNESS ROBERT MARTIN) Yes.

19 Q You did not mention it to me yesterday, at
20 least I don't recall any other discussions that would
21 indicate that your recommendations were actually under
22 consideration, so I would like you to elaborate. This
23 is the first time I believe I have heard you mention
24 that.

25 A (WITNESS ROBERT MARTIN) I thought I had

1 mentioned it yesterday as well. But the point was that
2 my regional director at that point -- and still is --
3 was the IE member of the task action steering group.
4 The region, Region 2 in Atlanta, to support his
5 activities provided staff members to work with him as
6 working staff.

7 And so, it would be conversations with that
8 staff member or a conversational exchange with the
9 regional director that would be of the nature that I
10 characterized. That is, we were looking at that
11 recommendation, or your recommendations, or just
12 something -- whatever the exchange was. The details I
13 cannot remember, but they were instances which led me to
14 believe that the steering group was actively considering
15 the recommendations we made.

16 Q Is it true that you never at any time
17 discussed any of the specific items or the bases for
18 them, but you inferred from discussions that this group
19 had the Martin Report?

20 A (WITNESS ROBERT MARTIN) Had it and --
21 everything you said I agree with. But I have to expand
22 that they had it and were discussing it or working with
23 it.

24 Q But they never asked you about specific
25 recommendations and you never volunteered information

1 about specific recommendations?

2 A (WITNESS ROBERT MARTIN) Yes, that is correct.

3 Q Did any of the witnesses in this case, the
4 staff witnesses -- no strike that, it is on the record,
5 and I don't think you could know it anyway.

6 On the designations in the report, you
7 characterized your recommendations into three
8 categories. You put them into three categories; prompt,
9 near term and long term. Could you explain to me how
10 they were put into those categories? What were the
11 criteria for being either prompt, near term or long term
12 items?

13 A (WITNESS ROBERT MARTIN) As best I can recall,
14 those which we put into prompt we either felt were so
15 important that something ought to be done promptly or
16 they were relatively easy things to accomplish and
17 therefore could be done promptly. Those things which
18 were long term were those that appeared to us that
19 either would require large resources, were nice to have
20 but not necessarily critical. They would require
21 substantive analyses by other groups, things that were,
22 in our judgment -- clearly would take substantial
23 periods of time to complete, and therefore, they went
24 into the long-term category.

25 And as I recall, sort of everything else fell

1 into the other category, the intermediate category.

2 Q Did you say yesterday that another criteria
3 for being placed in the prompt category was that the
4 action involved something which was a strong contributor
5 or direct contributor to the accident, or the
6 circumstances involved in the accident I believe is
7 exactly what you said.

8 A (WITNESS ROBERT MARTIN) Yes, I think I did
9 phrase it that way, and in answering your question just
10 now I meant to include in my comment that ought to be
11 done promptly, those things that came from that source,
12 if you will. That is, that we felt were strong
13 contributors and really ought to be done promptly, from
14 our view at that time.

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1 DR. JORDAN: May I ask, is this categorization
2 that you have just described prompt, long-term, and
3 intermediate, that those categories are pointed out in
4 the report itself? Could I in looking at the report
5 decide which ones were prompt?

6 WITNESS ROBERT MARTIN: Yes, I think we
7 labeled those.

8 MS. WEISS: The ABC's, Dr. Jordan, appear on
9 the cover letter from -- it's a memorandum form from
10 R.D. Martin to J.M. Allen, Subject, Operations Team
11 Recommendations.

12 DR. JORDAN: Yes. Thank you.

13 MS. WEISS: And then, under each one, a text
14 appears.

15 DR. JORDAN: I see. Thank you.

16 MS. WEISS: And then under each one a text
17 appears.

18 DR. JORDAN: I see. Thank you.

19 BY MS. WEISS: (Resuming)

20 Q Have any of you gentlemen read the testimony
21 of the staff witnesses on the UCS contentions?

22 A (WITNESS HUNTER) Yes, when it was provided as
23 a package, and I had in fact read the portion of the
24 testimony.

25 Q When was that?

1 A (WITNESS HUNTER) Prior to issuing the
2 affidavit in September of last year.

3 Q After the UCS motion to reopen this
4 proceeding, you were sent a copy of the pertinent
5 portions of the testimony for use in preparation of your
6 affidavit? Is that correct?

7 A (WITNESS HUNTER) I was given information.
8 That is correct.

9 Q And you read the testimony at that point?

10 A (WITNESS HUNTER) Yes, so that I might
11 understand the testimony that had been given.

12 Q What about the other witnesses?

13 A (WITNESS FASANO) The same.

14 A (WITNESS KIRKPATRICK) I don't recall having
15 read that testimony.

16 A (WITNESS THOMAS MARTIN) Nor do I.

17 Q At any time?

18 A (WITNESS ROBERT MARTIN) That's correct.

19 Q One more question about the form of the Martin
20 report. Asterisks appear in certain places. Could you
21 explain to us what they were intended to mean?

22 (Whereupon, the panel conferred.)

23 A (WITNESS ROBERT MARTIN) As I recall -- we
24 asterisked -- remembering the circumstances under which
25 we put those recommendations together, we were not aware

1 substantively of all that was going on in the agency and
2 the industry to a great extent. We knew very little
3 about what was going on in the agency and the industry,
4 but we had had enough contact with various individuals
5 that we thought work was progressing along the same
6 lines or at least related to the subject matter of
7 several of our recommendations, and I think to
8 characterize it as at least to demonstrate that we
9 recognized the potential for redundant recommendations
10 in our memorandum, we tried to identify by asterisk
11 those items which we believed already were being worked
12 on, due to the prompting or by action of other groups.

13 Q Did you ever check to see if in fact there was
14 work ongoing, under way in each of these asterisked
15 areas?

16 MR. CUTCHIN: I am going to object again. I
17 think we are getting further and further away. Now we
18 are trying to make these people the reviewers of whether
19 or not their recommendations were followed through to a
20 final conclusion to their satisfaction. Maybe we could
21 get directly there by asking that question.

22 MS. WEISS: We are simply trying to find out
23 what a mark means when it appears in a document. That
24 is all this questioning is about, to understand what the
25 asterisk is intended to signify.

1 CHAIRMAN SMITH: If that is the sole purpose
2 of your question, it doesn't go to that at all. The
3 asterisks were put there at the time the recommendation
4 was issued, and you are asking about activities
5 subsequent. Sustained.

6 MS. WEISS: No, I mean, before -- What I
7 understand Mr. Martin to have said is that when we sat
8 around the table and we prepared our recommendations, we
9 put an asterisk if somebody suggested there may have
10 been something else under way, and I just want to know
11 whether you made an effort before you published the
12 document to find out whether there really was something
13 under way.

14 WITNESS ROBERT MARTIN: No, we did not.

15 BY MS. WEISS: (Resuming)

16 Q And so you don't vouch for the accuracy, then,
17 of the --

18 A (WITNESS ROBERT MARTIN) Can I characterize
19 the methodology? We would be sitting around forming a
20 recommendation, and somebody on the team would say, I
21 think that is being worked on, and we put an asterisk on
22 it.

23 MS. WEISS: Mr. Chairman, I would like to take
24 about five minutes at this point.

25 CHAIRMAN SMITH: Are you about ready to wind

1 up this phase?

2 MS. WEISS: Yes, we are about to get into the
3 specifics.

4 CHAIRMAN SMITH: Then you will be going to
5 technical bases and analyses?

6 MS. WEISS: Contention by contention.

7 CHAIRMAN SMITH: All right. Let's take a
8 midmorning break then of 15 minutes.

9 (Whereupon, a brief recess was taken.)

10 CHAIRMAN SMITH: All right. We are ready to
11 proceed.

12 MS. WEISS: Mr. Chairman, we of course have no
13 objection to the witness appearing as a panel. What I
14 would like to have stipulated, though, is that when we
15 ask a question, if one person answers, if the others
16 fail to respond or chime in, that that would be
17 understood as meaning that they all agree fully with
18 what has been said, and that they have nothing to add to
19 what has been said, and if they do have anything to add
20 or there is anything that they don't agree fully with,
21 that they would speak up, even if we forget to pause and
22 go on to the next question. Is that acceptable to the
23 Board?

24 CHAIRMAN SMITH: It would be the
25 responsibility of each party to ask the other panel

1 members if they felt that there was a particular reason,
2 but I think that is an official way to proceed.

3 Mr. Cutchin?

4 MR. CUTCHIN: I have no problem with
5 agreeing. I think it is subject to interpretation on
6 "fully."

7 CHAIRMAN SMITH: Off the record.

8 (Whereupon, a discussion was held off the
9 record.)

10 MS. WEISS: We are going to proceed now to go
11 over the recommendations item by item as they correspond
12 to the UCS contentions, and I am going to allow Mr.
13 Pollard or ask Mr. Pollard to do most of that
14 questioning.

15 CHAIRMAN SMITH: Gentlemen, you understand the
16 proposal by Ms. Weiss that if you disagree or if you
17 think that there is a material omission from the answer
18 given by the person answering -- and I would guess it
19 would be Mr. Martin -- that you will speak up or ask to
20 be heard on it, and add whatever you think is
21 appropriate to make an accurate record. Is that
22 satisfactory to everyone?

23 MR. CUTCHIN: Mr. Chairman, I would like some
24 clarification here. As the Board remembers, I am sure,
25 the staff agreed at the hearing in Harrisburg to allow

1 Mr. Pollard to do questioning without the rulings
2 normally required by a Board before that is permissible,
3 and I think in the interest of proceeding expeditiously
4 I will refrain at the moment from raising that objection
5 at this point in time and seeking a Board ruling.
6 However, I would like the Board to make clear that we
7 are not going to have a one-two approach, and if Mr.
8 Pollard is going to be questioning, he will complete a
9 line of questioning, and then if we switch subjects that
10 can be done before Ms. Weiss chimes in.

11 CHAIRMAN SMITH: We will continue the rulings
12 that we have made in the hearing, and that is, we will
13 take it up as it comes. Anything that does not
14 intimidate the panel and will move the interrogation
15 along we will permit.

16 BY MR. POLLARD:

17 Q I would like to first address your
18 recommendation on equipment which begins on Page 20 of
19 the so-called Martin report, and after discussing the
20 general problem, then move on to the recommendation
21 dealing with pressurizer heaters which appears beginning
22 on Page 23.

23 Your statement of --

24 MR. CUTCHIN: Excuse me. Hold up a minute. I
25 want to make sure each witness has a copy in front of

1 him, or at least access to a copy.

2 WITNESS ROBERT MARTIN: Mr. Pollard, you are
3 starting on Page what?

4 MR. POLLARD: Twenty.

5 BY MR. POLLARD: (Resuming)

6 Q You discuss under this heading of the general
7 problem with equipment that during the TMI 2 accident
8 certain equipment did not function reliably, and that in
9 the past marginal attention had been given to equipment
10 that has been considered non-safety grade. Then you
11 state that the accident has shown that such equipment is
12 required to be functional to mitigate circumstances
13 encountered and or to allow for a diversity of action.

14 In that statement of the problem, did you mean
15 that equipment previously considered non-safety grade
16 had been required to be functional to mitigate the
17 circumstances at TMI 2?

18 MR. CUTCHIN: Clarification, Mr. Chairman.
19 Would Mr. Pollard identify which of the specific I&E
20 team recommendations he is referring to here? Is this
21 one of those that was identified by UCS?

22 MR. POLLARD: What I am working from, Mr.
23 Cutchin, is leading into Recommendation C.1.c4, which
24 dealt with the pressurizer heaters, which is the subject
25 of UCS Contention 3. I am now backed up to the

1 introduction to the section in which that recommendation
2 appears, where they first state a problem, a general
3 problem with equipment, and then state at the bottom of
4 Page 20, the following equipment will be discussed as
5 separate concerns.

6 MR. CUTCHIN: Fine.

7 Thank you, Mr. Chairman.

8 WITNESS ROBERT MARTIN: The issue being
9 addressed as a general problem was that for the accident
10 scenario that existed at TMI 2 the plant in its recovery
11 activities did place reliance and make use of equipment
12 that classically has not been treated as safety grade
13 equipment, and we were addressing ourselves to recovery
14 actions being used utilizing non-safety grade equipment.

15 BY MR. POLLARD: (Resuming)

16 Q In other words, this recommendation stems from
17 your investigation of the accident which showed that non
18 safety-grade equipment had been used and that it was
19 necessary to be used in those circumstances, either to
20 mitigate the circumstances encountered and or to allow
21 for a diversity of action.

22 A (WITNESS ROBERT MARTIN) Yes.

23 Q Excuse me. I had one preliminary question
24 before we started on this.

25 When Ms. Weiss was asking you the basis for

1 your recommendations, I thought I understood you to say
2 it was as a result of your investigation of the
3 accident, but wasn't also in making your
4 recommendations, did you not also draw upon your past
5 experience and expertise?

6 A (WITNESS ROBERT MARTIN) Yes.

7 Q And your statement of qualifications which
8 were attached to the affidavit is in fact that
9 experience you brought to bear in making your
10 recommendations?

11 A (WITNESS ROBERT MARTIN) Yes.

12 Q If we can go now to Recommendation C.1.c4,
13 dealing with pressurizer heaters, which appears
14 beginning on Page 23 of the Martin report, am I correct
15 from the description of the problem that you observed a
16 failure of the pressurizer heaters during the accident
17 as well as prior to the accident which involved the
18 tripping of circuit breakers that supply electrical
19 power to the heaters?

20 A (WITNESS ROBERT MARTIN) Yes.

21 Q And that you attributed the failure -- from
22 your investigation of the accident, you attributed the
23 failure of these breakers to a high ambient temperature
24 and a high humidity in the room where the breakers were
25 housed?

1 A (WITNESS ROBERT MARTIN) As I recall our
2 investigation, I think we speculated that that was a
3 cause of the tripping of the breakers. There are other
4 causes that would lead to the same functional event, the
5 tripping of the breakers. I do not recall exactly how
6 we ascribed it. In the investigation report, I think we
7 transmitted that that was the speculation on the part of
8 the people we interviewed, that that had been a problem
9 of moisture in the area of the breakers which could have
10 led to the tripping of the breakers.

11 Q In the course of your investigation of the
12 accident, did you identify any other potential cause of
13 tripping of the breakers?

14 A (WITNESS ROBERT MARTIN) Potential cause?
15 Yes, there would be high humidity in the area of any
16 electrical connections inside of containment.

17 Q Such as the heaters being submerged or sprayed
18 with water?

19 A (WITNESS ROBERT MARTIN) Such as.

20 Q But it was not speculation with respect to the
21 historical failures, that you did know prior to the
22 accident these breakers had been tripping, and that the
23 cause of the tripping prior to the accident was the high
24 humidity and high temperature in the breaker room?

25 A (WITNESS ROBERT MARTIN) I don't recall us

1 being able to be definitive that that was the cause. I
2 think it was alluded to as the cause, the factual matter
3 that there was frequent instances of breaker tripping
4 prior to the event and during the event. That is
5 correct. The speculative aspect, that comment I made
6 refers to being able to uniquely identify either the
7 prior causes or the cause during the course of the
8 accident.

9 Q Am I correct that in general how you wrote
10 this report was, you first described the problem, and
11 then followed it with your recommendation as to how to
12 solve the problem you described?

13 A (WITNESS ROBERT MARTIN) Yes, that is how we
14 generally did it.

15 Q Now, you recommended that the pressurizer
16 heaters should be evaluated for their performance in
17 pressure control to mitigate the demands on emergency
18 systems for pressure control. What was the basis for
19 your recommendation, or why did you think it necessary
20 to mitigate the demands on emergency systems for
21 pressure control?

22 A (WITNESS ROBERT MARTIN) In a pressurized
23 water reactor if you no longer have the heaters
24 available and because of accident conditions you have to
25 maintain the system in some given pressure range, if you

1 don't have the heaters, you will lose the bubble in the
2 steam generator eventually.

3 Q Did you mean the pressurizer?

4 A (WITNESS ROBERT MARTIN) I am sorry. In the
5 pressurizer. Thank you. You will lose the bubble in
6 the pressurizer and ultimately you will go to solid
7 operation. Solid operation is more demanding on the
8 operators than operation with a bubble in the
9 pressurizer. So, given the conditions where you need to
10 hold it in a pressure band, it is less demanding on the
11 operators if they can do it with a bubble in the
12 pressurizer rather than solid operation.

13 Q It is also true that now that they have the
14 bubble in the pressurizer and have the heaters, there
15 would be no demands on the safety systems for pressure
16 control?

17 A (WITNESS ROBERT MARTIN) No, that is not
18 correct. It may be that from a feed standpoint and to
19 make up water losses there would still be demands on the
20 emergency systems. The availability of the pressurizer
21 does not preclude the need for the use of safety systems
22 or ES systems. It merely precludes the need for the
23 operators to operate that equipment and maintain system
24 pressure in a solid configuration.

25 Q Am I correct, then, in understanding your

1 answer that when you recommended as part of your
2 recommendation that you should mitigate the demands on
3 emergency systems, your concern was primarily the
4 difficulty that the operator has in controlling pressure
5 while the system is solid as opposed to the concern that
6 you might be challenging or demanding operation from the
7 emergency systems at a frequency higher than they are
8 designed for?

9 A (WITNESS ROBERT MARTIN) If I followed your
10 question correctly, the answer is yes.

11 Q Perhaps I made it too long, but yes, you were
12 more concerned about the difficulties of controlling
13 pressure in a solid condition than you were about
14 requiring operation of the ECCS system at a frequency
15 greater than its design basis frequency?

16 A (WITNESS ROBERT MARTIN) That implies -- that
17 implies more analysis than we put in. Your comment
18 about more than its design basis frequency is a degree
19 of subtlety. We were more concerned about the operators
20 having to run the plant if they had to maintain pressure
21 control in solid operation than with a bubble.

22 Q Can you please tell me some of the
23 difficulties the operator might run into in trying to
24 control primary system pressure with no bubble in the
25 pressurizer?

1 CHAIRMAN SMITH: Let me interrupt here. You
2 are asking his opinion as he knows it now or as he
3 considered it at the time the recommendation was made?
4 I would like to establish the tenor of the questions
5 along that line. You asked him a question in the
6 present tense.

7 MR. POLLARD: Yes, okay. Well, perhaps we
8 should find out if there has been a change.

9 BY MR. POLLARD: (Resuming)

10 Q Perhaps you can answer first as to, if you can
11 remember what you knew then versus what you know now.
12 First answer with what you knew when you made your
13 recommendations about the types of difficulties the
14 operator can encounter while trying to control primary
15 system pressure with the primary system solid.

16 A (WITNESS ROBERT MARTIN) Well, both then and
17 now when the primary system is solid then it is subject,
18 based on changes in operating equipment configurations,
19 to more rapid fluctuations in system pressure. The
20 pressurizer functionally serves as a smoothing device
21 when it is operational with a bubble in it to smooth out
22 rapid fluctuations in system pressure. If it is solid,
23 you have lost that smoothing methodology.

24 Speaking then, we had a circumstance whereby
25 the -- operationally, the operators were trying to place

1 the plant at various times in essentially a hot shutdown
2 configuration. That is, they had elevated water
3 temperatures and returning system pressure to near the
4 range of operating range, and because of the frequent
5 tripping of the breakers feeding the pressurizer
6 heaters, it introduced a distraction and additional
7 complication to their recovery actions, to have to
8 re-establish frequently power to those heaters.

9 In our perspective at that time, that added
10 complication was something the operators did not need to
11 have to face, and one of the ways we perceived that they
12 could eliminate having to face that added complication
13 was to upgrade the performance of those heaters -- that
14 heater system.

15 Q Does anyone else have anything to add as far
16 as difficulties the operator might encounter?

17 CHAIRMAN SMITH: Excuse me. You used a
18 colloquialism there that may not come out clear in the
19 written transcript, and that is, when you said, did not
20 need to have to face. As I understood your meaning, it
21 was that they should not have had to face it.

22 WITNESS ROBERT MARTIN: Yes.

23 WITNESS THOMAS MARTIN: The only other comment
24 that I would make is that at that time, industry
25 training procedures and experience were minimal in the

1 area of solid operations, and so it was not an area
2 which the operators had familiarity with, which made it
3 even more difficult. That has been changed since the
4 event.

5 BY MR. POLLARD: (Resuming)

6 Q By changed, you mean the operators are now
7 being trained to control pressure with the plant solid?

8 A (WITNESS THOMAS MARTIN) The simulators now in
9 fact cover that range of operations. The procedures
10 cover that. The training covers that. The operators
11 now have seen that type of situation, and have practiced
12 coping with it.

13 Q I am sorry. To follow up on that, can you
14 describe for me the scenarios or accident sequences for
15 which operators are being trained to control pressure in
16 a solid condition?

17 For example, are they being trained to take
18 the plant from a hot shutdown condition to a cold
19 shutdown condition with the plant solid?

20 A (WITNESS THOMAS MARTIN) I could not --

21 MR. CUTCHIN: Mr. Chairman, I am going to
22 object to going too far in this direction, because I
23 think the Board hit on the point that these witnesses
24 are here primarily to testify as to the basis of their
25 recommendations at the time they made them. Now, if the

1 Board would like to hear these things, of course, the
2 Board will hear these things, but I think it is going to
3 consume a lot of time if we go down this track on every
4 question.

5 CHAIRMAN SMITH: If such a concern can simply
6 and easily be resolved by the additional testimony, of
7 course, it would be welcome, and might assist, and
8 certainly that would be relevant to whether the record
9 be reopened, but unless it can be done efficiently and
10 shortly, I don't think we ought to go into things that
11 have happened since the report and all the modifications
12 to see if their recommendations are still germane. I
13 did not understand that to be the scope of it.

14 MS. WEISS: That is fine with me, Mr.
15 Chairman. The statement is now in the record, though,
16 that indicates that at least one of these persons has
17 some doubt about the original recommendation for a
18 specific reason, because he says that now there is
19 operator training and procedures to cover solid water
20 operation, and that seems to me extremely damaging to us
21 unless we can inquire into whether in fact it does do
22 that.

23 MR. CUTCHIN: She elicited the information,
24 Mr. Chairman.

25 MS. WEISS: No, we did not. That was

1 volunteered, Mr. Cutchin.

2 MR. CUTCHIN: That comes under her request to
3 fully agree or disagree.

4 CHAIRMAN SMITH: I think the parties should
5 agree on which way we go on this.

6 MS. WEISS: I was prepared to be absolutely
7 frank with the Board today. I was prepared to ask all
8 questions on what did you mean when you wrote those
9 recommendations, what was your basis for those
10 recommendations. I then expected counsel for the other
11 side to ask, do you still believe that these things need
12 to be done, and if you don't, why don't you, and so we
13 are prepared to get into that second level issue, and in
14 fact we believe it is important for the Board on the
15 ultimate question of, should the PORV's or the heaters
16 be safety grade. You are going to have to consider that
17 issue.

18 CHAIRMAN SMITH: We are not here for the
19 ultimate question. We have decided it.

20 MS. WEISS: Exactly, but if this is reopened,
21 you will eventually have to redecide the ultimate issue
22 if the hearing is reopened. We are prepared to go to
23 that second level today. If the Board does not want to
24 hear that, we are prepared to stay at the first level,
25 what was the basis for your recommendation, on the

1 agreement that that is where we stay.

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1 (Board conferring)

2 CHAIRMAN SMITH: Mr. Cutchin, we did not hear
3 from you.

4 MR. CUTCHIN: I would like to make a
5 suggestion. I guess this puts somewhat of a burden on
6 the Board.

7 I think as we go through issue by issue the
8 Board obviously is considering what is coming out in
9 comparison with what it remembers to be in the record
10 and what caused it to come to the decision it did.

11 I think maybe a practical way to approach it
12 is if at any point in the discussion of the bases for
13 any of these recommendations the Board has a particular
14 uncertainty, then I think at the instance of the Board
15 we could pursue that further. Otherwise, it is a total
16 waste of time.

17 CHAIRMAN SMITH: Do you have a position, Mr.
18 Baxter?

19 MR. BAXTER: It is a tough one, Mr. Chairman.
20 I do not think we are here to pretend these are five new
21 witnesses and what do you think and why. On the other
22 hand, to understand the technical basis for the original
23 recommendations it is sometimes relevant to put it in
24 perspective by saying have you learned a lot since
25 then. And we have already had testimony they were

1 somewhat isolated and not aware of what was going on in
2 the rest of the industry and within the agency itself.

3 To me it is just a matter of extent. Do you
4 have something -- do you know something now you did not
5 know before I think is somewhat relevant, but going into
6 a lot of detail about what your position is today and
7 why does not seem to me to be helpful or to point.

8 (Board conferring.)

9 CHAIRMAN SMITH: Well, I think that the
10 parties seem to be leaving it up to the Board. We will
11 follow, in essence, the approach that the cross
12 examination should be of the first level, and that is,
13 what were the bases for your recommendations at the
14 time. And then if a particular problem comes up that
15 troubles the Board, we will intercede. And then, of
16 course, if Mr. Cutchin goes the route predicted by Ms.
17 Weiss, that is a different problem, and we will approach
18 it then.

19 MS. WEISS: That is fine with us, Mr.
20 Chairman. And the witnesses have heard your description
21 of the scope.

22 I would, just as a matter of cleaning up the
23 record then, I guess move to strike Mr. Martin's
24 response so that we are back to level one, so we do not
25 have to go into the reasons for it.

1 CHAIRMAN SMITH: All right. Let us do that.
2 Let us strike it.

3 Now, do you understand what we are doing now,
4 gentlemen, what our approach is now?

5 All right. They have indicated agreement.

6 WITNESS ROBERT MARTIN: Yes.

7 MS. WEISS: And when I said Mr. Martin I meant
8 Mr. T.T. Martin.

9 BY MR. POLLARD:

10 Q When you recommended that the pressurizer
11 heater system should be classified as safety grade, at
12 the time you wrote the phrase "safety grade" what did
13 you think was necessary -- what criteria or regulations
14 had to be meant to make the pressurizer heater system
15 safety grade?

16 A (WITNESS ROBERT MARTIN) In our terminology,
17 especially being inspectors, basically inspectors,
18 safety grade does denote a level of demand on the
19 engineering and evaluations applied to the design of the
20 component meeting various kinds of criteria and
21 requirements, including environmental qualifications,
22 design performance, quality of construction, the like.
23 There is a spectrum depending upon the nature of the
24 object.

25 So as a general term when inspectors typically

1 use safety grade equipment they bring to mind a spectrum
2 of specific design and implementational requirements
3 that would be imposed upon that particular component.

4 At that time I would say there was some
5 diversity of view amongst the team members as to whether
6 or not on any given instance throughout these
7 recommendations when we used the word "safety grade"
8 that we had a complete uniformity of view as to whether
9 or not the full spectrum of requirements was truly what
10 we were calling for. We really did not discuss that
11 issue per se.

12 We clearly meant as an absolute minimum
13 amongst us a substantial quality upgrade in the
14 engineering design and installation requirements on any
15 piece of equipment that we called safety grade. So,
16 therefore, I think there is a uniformity in terms of the
17 quality to which it should be built, including the
18 design considerations.

19 I think you would find amongst us some
20 diversity -- small but nonetheless a diversity -- as to
21 the exact requirements that we had in mind when we
22 collectively agreed to use the term "safety grade."

23 Q I am just waiting. I thought someone was
24 going to add something. Does anyone want to add anything

25 (No response.)

1 Q Now, when you said the pressurizer heater
2 system should be classified as safety grade you had at
3 least two main conditions in mind, according to your
4 recommendation here: number one, that there would be
5 emergency power availability and protection from
6 failures due to environmental conditions.

7 A (WITNESS ROBERT MARTIN) That is correct.

8 Q I can see from the description of the problem
9 where you came up with the recommendation that the
10 heaters should be protected against failures due to
11 environmental conditions, because you had observed
12 failures which appeared to be the result of
13 environmental conditions.

14 A (WITNESS ROBERT MARTIN) That is correct.

15 Q My question is what was your basis at the time
16 for recommending the connection of the heaters to the on
17 site power supply?

18 A (WITNESS ROBERT MARTIN) It was our judgment
19 as we reviewed the events of the accident that TMI-2 did
20 not suffer a loss of off site power throughout the
21 course of that event. They had normal power
22 availability throughout the course of the event. They
23 were very fortunate, in our view, that that was true,
24 because it kept available those electrical components
25 that are not fed off emergency power.

1 It struck us -- it appeared to us, and we
2 concluded based on our review of the accident, that
3 again speaking about pressurizer reliability and the
4 steps they were taking to cope with that accident, and
5 the further complications to the manipulative actions
6 required of the operators, to cope with that accident
7 over that prolonged period would have been substantially
8 aggravated if they had a loss of off site power. And
9 ultimately as one such category of components, the
10 pressurizer heaters would not have been available to the
11 operators because they are fed only by normal power. So
12 it was our experience and our judgment based on
13 reviewing the events of the accident where fundamentally
14 we concluded that if they had lost off site power, they
15 would have had even more difficulty than they already
16 had in coping with that accident.

17 A (WITNESS HUNTER) I would like to add to what
18 Bob is saying. If you read in our recommendation, we
19 keyed a natural circulation. If normal power had
20 failed, we would have lost the -- we would have been
21 faced as a team evaluating the loss of the reactor
22 coolant pumps, which in fact did not occur, in order to
23 place the system in natural circulation under a pressure
24 control system that would be easily manageable, the
25 pressurizer heaters then -- at least the small number of

1 heaters needed to maintain the steam bubble in the
2 pressurizer -- we felt that was of a critical nature in
3 any event of loss of off site power. And that was based
4 on my background and my experience.

5 The event where the operators were using
6 pressurizer heaters at TMI-2, it should be understood
7 that the investigation revealed that that was a futile
8 effort. However, we tried to evaluate the use of the
9 heaters and how it took away from their attention to the
10 event, and tried to evaluate it in a larger spectrum.

11 If it had been just a normal loss of off site
12 power but the pressurizer heaters had given them a
13 problem or the loss of pressurizer heaters if they had
14 lost normal power, and the conclusion was yes;
15 therefore, adding emergency power to the environmental
16 qualifications, which we saw during the incident.

17 Two final questions on this. If we look now
18 at the description of the problem as you have raised it
19 with respect to the pressurizer heaters, namely what you
20 observed from your investigation of the accident itself
21 and what you observed from the previous history of
22 failures of the pressurizer heaters, is it correct that
23 the principal part of your recommendation that would
24 deal with the observed problems is that part dealing
25 with environmental qualification?

1 A (WITNESS ROBERT MARTIN) Yes, that would be
2 correct.

3 Q And that your recommendation with respect to
4 connection to on site power really went beyond what had
5 actually occurred during the accident, and for that you
6 drew upon your knowledge and expertise of what might
7 happen in different accident scenarios involving loss of
8 off site power?

9 A (WITNESS ROBERT MARTIN) Yes, that is correct.

10 A (WITNESS HUNTER) Yes.

11 Q And the second question -- I do not know if
12 this falls within the Board's ruling, but I am sure
13 someone will tell me if it does not -- at the time you
14 wrote your recommendations on dealing with the problems
15 encountered by operators in solid condition trying to
16 control pressure, was one of your bases for recommending
17 an upgrade of the heaters an attempt to minimize
18 challenges to the PORV or safety valves on the
19 pressurizer?

20 A (WITNESS ROBERT MARTIN) I am now answering
21 for myself. My primary concern was the complexity, the
22 additional complexity faced by the operators in solid
23 plant operations. One of those complexities is the
24 possibility of raising system pressure fairly rapidly to
25 the point where you would inject water at the primary

1 system safety valves. So that is incorporated in the
2 spectrum of problems. And I personally did not single
3 out that problem as being a unique aspect. It is an
4 inherent aspect of the complexity faced by the operators
5 in solid plant control.

6 A (WITNESS THOMAS MARTIN) I think that is a
7 fair characterization.

8 A (WITNESS HUNTER) And I would agree.
9 Realizing that after we had reviewed the accident we
10 knew that it was obvious there was high radiation
11 problems with the reactor coolant system, and that they
12 were to be if we could -- maintain the activity in the
13 containment, meaning that certain systems for pressure
14 control are not available. Looking at that accident,
15 they foresee the letdown pressure control system would
16 be difficult to use. Notwithstanding that during normal
17 operation when all those systems were available it still
18 would be considered a solid system, very difficult or
19 more difficult, needing 100 percent attention of the
20 operator, that type of thing.

21 So that pressure was not allowed to increase
22 with a charging pump or high head pump with a 2500-pound
23 discharge head pressure capability. It is very likely
24 if your solid -- the likelihood of lifting a
25 power-operated relief valve or safety valve would in

1 fact be undesirable.

2 My experience, again based on my experience
3 being sensitive to that, once the safety valve lifts,
4 you do not lift safety valves because after they lift
5 there is always a chance that they do not reseal. So
6 just being sensitive to that particular, you do not
7 operate solid if you do not have to. It makes the
8 bubble in the pressurizer and those necessary heaters to
9 maintain that bubble very, very important for routine,
10 normal operations.

11 Q Again, thinking if you can about the basis for
12 your recommendations in 1979, was one of your bases for
13 trying to avoid solid water operation the potential for
14 a rapid decrease in pressure that could result in
15 voiding in the primary system and during a loss of off
16 site power it may get difficult to re-establish natural
17 circulation?

18 A (WITNESS ROBERT MARTIN) I have to refer back
19 to my prior answer. Solid plant operation runs the
20 opportunity, an increased opportunity and an increased
21 challenge to the operators for the possibility of wide
22 pressure variations both upward and downward. So
23 everything attendant with wide swings in pressure of the
24 system were inherent in our general considerations.
25 Whether or not we singled out that possibility, that is

1 a consequence -- one of the several consequences
2 associated with wide swings in pressure, the ones we
3 mentioned before or the one you just described now.

4 I would not say we singled that out as a
5 unique circumstance adding additional impetus, but is a
6 clear consequence of wide swings in pressure which are
7 characteristic of the difficulties faced during solid
8 plant operation.

9 Q Could we now move on to the recommendation
10 C.1.C.2 dealing with the pilot-operated relief valve,
11 which appears on pages 21 and 22.

12 CHAIRMAN SMITH: Mr. Pollard, I think if we
13 take our lunch break at this point we can beat the 12:00
14 rush, and it would be a good, logical breaking point.
15 So let's take 45 minutes.

16 (Whereupon, at 11:50 p.m., the hearing was
17 recessed for lunch, to be reconvened at 12:45 p.m.)

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1 is what we said. Recognize, if you will, in many
2 instances we were trying to give whoever the readers of
3 this document would ultimately turn out to be our
4 perspective. We did not, nor do we, I believe, allude
5 to the fact that we think we are in a position to be a
6 definitive source of what the general design criteria --
7 how they should be interpreted.

8 It seemed to us that these general design
9 criteria appeared to be appropriate for consideration
10 during -- consideration of this recommendation. We have
11 done that in various places throughout this document.

12 I guess I am just trying to make sure that you
13 understand the perspective of, we are not trying to make
14 a definitive statement that we are absolutely assured
15 that without question these general design criteria
16 apply to this particular component. We were trying to
17 identify those design criteria which we felt should be
18 included in the consideration of whatever would be done
19 with design considerations of that valve.

20 Q At the time you made your recommendations,
21 were you aware that safety grade components that were
22 part of the reactor coolant pressure boundary were
23 required to meet GDC 14?

24 A (WITNESS ROBERT MARTIN) I personally cannot
25 say that I was aware of that. Gentlemen, anyone else?

1 A (WITNESS HUNTER) No, I can't specifically.

2 Q Was part of your basis for recommending
3 consideration of GDC 14 your recognition that the PORV
4 at that time was not designated as safety grade?

5 A (WITNESS ROBERT MARTIN) Again, I think I can
6 only characterize my answer as I did before. I think
7 they are two separate issues. One, we did recognize
8 that the PORV was not safety grade, and two, we believed
9 that GDC 14 seemed to be appropriate for consideration
10 in the review of the status of that valve. I don't know
11 that one follows from the other. I think they are two
12 independent actions on our part.

13 Q Returning to your description of the problem
14 -- and you can review as much of it as you want, but in
15 general, just let me characterize it. Apparently, as a
16 result of your investigation of the accident, you
17 discovered documents or information tending to indicate
18 that the valve installed in Three Mile Island Unit 2
19 might not have been designed for both use as a high
20 pressure relief device as well as a relief device at low
21 pressure. Is that correct?

22 A (WITNESS ROBERT MARTIN) Yes.

23 Q At the time you prepared this report, did you
24 do any investigation to determine whether the same valve
25 was in use in Three Mile Island Unit 1?

1 A (WITNESS ROBERT MARTIN) I don't recall if we
2 did or not. I think we may have come across such
3 information, but no, I don't think we uniquely pursued
4 it for applicability to TMI 1.

5 Q Ms. Weiss thought someone was going to add
6 something.

7 A (WITNESS HUNTER) No, not I.

8 Q At the end of the description of the problem,
9 you refer to use of the PORV to minimize safety valve
10 lift. Is one of your recommendations -- basis for your
11 recommendation you believe that you should minimize
12 challenges to the safety valves?

13 A (WITNESS ROBERT MARTIN) Again --

14 Q Or, excuse me. Was one of your bases for the
15 recommendation.

16 A (WITNESS ROBERT MARTIN) Again, there are
17 advantages because of safety valve design to not
18 unnecessarily challenging them. That is, that is a
19 basic precept of operating practice, to not
20 unnecessarily challenge your safety components, your
21 safety systems. The issue that was addressed here is
22 that the PORV or any relief valve that functions, motor
23 or pilot operated relief valve in both primary and
24 secondary systems of these plants -- the function of
25 that valve in essence is to control a range of

1 transients which they are designed for, to reduce the
2 threat of challenging safety components such as safety
3 valves in both the steam systems and the primary
4 systems. That is their primary function.

5 The issue that we were addressing here was our
6 concern about the suitability of that valve for dual
7 use, one, the normal design function, which is to
8 eliminate challenges or reduce -- not eliminate, reduce
9 challenges to safety valve operation, unnecessary
10 challenges, and also to utilize that same valve, based
11 on the information that we had come across during the
12 investigation, which led us to question, had the valve
13 been suitably evaluated, adequately evaluated for dual
14 use, the low-pressure protection as well.

15 MR. CUTCHIN: Mr. Chairman, I would inject
16 here it is my understanding that the low pressure
17 function of this valve was not a subject that we
18 inquired into at the hearing, and so I have not covered
19 that with the witness here, and if the Board wants that
20 information on the record, I don't think it goes to the
21 issue that is before us here.

22 CHAIRMAN SMITH: Mr. Pollard?

23 MR. POLLARD: I certainly recall from my own
24 testimony that one of the safety functions that I
25 believe that the PORV performs was in fact over pressure

1 protection at low temperature.

2 MR. CUTCHIN: But I had understood the Board
3 to decide that that did not have a sufficient nexus to
4 the events that occurred at TMI 2 that the Board made
5 rulings or findings on. Maybe -- if someone remembers
6 the record differently, then I would stand corrected.

7 MS. WEISS: I don't believe that is correct at
8 all. We listed six uses of the PORV which we believed
9 were safety grade, and the Board addressed -- there was
10 responsive testimony on each, and my recollection is
11 that the Board addressed each and said that it wasn't,
12 for whatever reasons, a safety function.

13 DR. JORDAN: Mr. Cutchin, I believe that we
14 did not, in fact deliberately did not go into the
15 overpressurized overprotection at low pressures.

16 MR. CUTCHIN: I just raise it to keep from
17 cluttering the record, if we can clear it up.

18 CHAIRMAN SMITH: Well, what should the ruling
19 be?

20 MR. POLLARD: Was there not also another part
21 of the PID where the Board concluded that operator
22 action -- that the PORV overpressure protection at low
23 temperature was only a backup to operator action?

24 MS. WEISS: Yes, that is Paragraph 790, I
25 believe.

1 MR. CUTCHIN: We are referring to PID
2 Paragraph 790, if that would be helpful, Mr. Chairman.

3 CHAIRMAN SMITH: Yes. Is your position still
4 the same now?

5 MR. CUTCHIN: My position is still the same,
6 that the Board did not place any emphasis on that
7 function of the valve in its decision, and I think a
8 better basis is, there is no nexus between its low
9 pressure function and the TMI 2 accident, but if the
10 Board -- let's see where it goes. If it is not going
11 very far, perhaps I am wasting more of the Board's time
12 by pursuing it here than letting it go, but I don't want
13 to reopen discussion of the low pressure function of
14 that valve, because it does have a nexus to TMI 2.

15 CHAIRMAN SMITH: Well, as a practical matter,
16 since I am not on top of the issues, and if you do not
17 object to a short inquiry into it, let's go ahead. I am
18 confused here as to the difference between -- I hear low
19 pressure being --

20 MR. CUTCHIN: Low temperature, I should have
21 said.

22 CHAIRMAN SMITH: Had you completed your answer?

23 WITNESS ROBERT MARTIN: I believe I did.

24 MR. CUTCHIN: For clarification, it is both
25 low temperature and low pressure.

1 MS. WEISS: I am afraid we are going to have
2 to ask the Reporter to read back the last question.

3 CHAIRMAN SMITH: I don't believe that will
4 help, because I think --

5 MR. CUTCHIN: It was the answer that was
6 causing the problem, not the question.

7 CHAIRMAN SMITH: It wasn't even an objection.

8 MR. CUTCHIN: No, it was just a request for
9 clarification from the Board as to whether they wished
10 to go into this, since it was my recollection that it
11 was not an issue before the Board.

12 CHAIRMAN SMITH: You might also say it was a
13 caution to your witnesses, but I wouldn't say that.

14 (General laughter.)

15 MR. CUTCHIN: Say what you will, Mr. Chairman.

16 BY MR. POLLARD: (Resuming)

17 Q In Part B of your recommendation on the top of
18 Page 22, you state that this valve as attached to the
19 pressurizer presents a potential single failure when
20 needed to protect against overpressurization at low
21 temperatures. You then go on to recommend or to state
22 that the ability to isolate one such relief valve and
23 remain protected would require two valves. Such an
24 arrangement would also allow for the use of this design
25 for the different pressure ranges and the ability to

1 test the valves. A dual set would also mitigate the
2 concern, real or imaginary, to isolate the relief valves.

3 Then you conclude by saying, all valves and
4 attachments that constitute the reactor coolant pressure
5 boundary integrity should be re-evaluated for safety
6 grade classification.

7 I did not read the parentheses. We will go
8 back to those in a moment.

9 My question is, at the time you made the
10 recommendation that all valves, including the PORV, that
11 constitute the reactor coolant pressure boundary should
12 be re-evaluated for safety grade -- was one of the bases
13 for that recommendation the use of the PORV as an
14 overpressure protection at low temperature?

15 A (WITNESS ROBERT MARTIN) No, I did not
16 categorize it that way. We were aware that the PORV is
17 in its normal function used for overpressure protection
18 under normal operating conditions, and also at TMI 2 was
19 used for overpressure protection at a lower set point
20 when the system was at lower temperature, and we had
21 come across a document which suggested to us that there
22 might be some conflict in the operational requirements
23 on that valve when asked to perform -- or when used to
24 perform double duty.

25 That constituted the basis for our concern to

1 identify that that use, dual use, should be
2 re-evaluated. The general issue of re-evaluation of the
3 valve for safety grade classification was the
4 recognition that that valve played an important part to
5 one extent or another throughout the course of the
6 accident, both in terms of its initial malfunctioning
7 and subsequent operation and subsequent malfunctions to
8 that, and recognizing that that valve was not safety
9 grade.

10 So, given the first -- the first and driving
11 impetus for our recommendation to re-evaluate the safety
12 grade classification of that and in a broad sense any
13 valve connected to the reactor coolant boundary was the
14 clear and significant part that that valve played
15 throughout the course of the accident, and in addition,
16 we had additional information that suggested that its
17 dual use perhaps -- forgetting perhaps -- that its dual
18 use was not a proper application of that valve.

19 Those two things combined led us to the
20 recommendation that that valve and any other valve which
21 is connected, and at some time during reactor operation
22 constitutes part of the reactor coolant system boundary,
23 should be re-evaluated as to safety grade
24 classification. That was our judgment based on the role
25 that the valve played and the information we had about

1 that particular valve.

2 Q I understand your last answer, and that seems
3 to be the basis for Recommendation A, which appears on
4 the bottom of Page 21. There you quite specifically are
5 concerned about the dual use of the valve, that is, for
6 relief at both high pressure and lower pressure when the
7 temperature is low. Then you go on to Recommendation B,
8 which deals solely with the subject matter of use of the
9 PORV as a device for protection against overpressure at
10 low temperature, and you talk about why or what benefits
11 there would be to having two such valves as protection
12 against overpressure.

13 My question is, as part of your recommendation
14 that the PORV be re-evaluated for safety grade
15 classification, was the basis for that recommendation
16 the use of the valve for overpressure protection at low
17 temperature in addition to perhaps your other concerns
18 about its dual use? But did you believe at the time you
19 made this recommendation that this function of
20 protecting against overpressure at low temperatures was
21 an important safety function, and was that part of your
22 reason for recommending a re-evaluation for its safety
23 grade classification?

24 A (WITNESS ROBERT MARTIN) Well, in my answer to
25 your previous question, I thought I addressed that. I

1 really believe I am being redundant. Clearly, the
2 protection of this system, the reactor coolant system,
3 against overpressurization transients is an important
4 function. In my answer to the prior question, I stated
5 that we had come across some information that led us to
6 have concerns about the appropriateness of using that
7 particular valve design and that particular valve in
8 that dual use function, and I feel I am repeating -- I
9 feel I am being redundant to what I said before.
10 Therefore, that led us to recommend that that valve and
11 any other valves connected to the RCS be evaluated for
12 safety grade.

13 Q Why would you need two PORV's for use for this
14 overpressure protection? In other words, what was your
15 basis for thinking that two might be required and for
16 stating that the present design presents a potential
17 single failure?

18 A (WITNESS ROBERT MARTIN) Well, it is -- that
19 falls back on our operational experience, our technical
20 judgment. When you have valves that are required to
21 perform a function, it is periodically necessary to test
22 them. To test them, you must isolate them. If you
23 isolate them, they are no longer connected to the
24 reactor coolant system boundary, and you have in a sense
25 lost that protection.

1 Therefore, you cannot lose that protection so
2 you seek redundancy. In the reactor coolant system you
3 have two safety valves, each 100 percent capacity, for
4 the same sort of reason and logic, and it was just a
5 natural extension of our background and experience that
6 you would be better off with two than you are with one.
7 That was a judgment. It was a technical judgment on our
8 part. That -- By the way, the basis for that was purely
9 our technical judgment at the time, and really had
10 nothing to do with the events that transpired during the
11 course of the accident. That was just a judgment call,
12 as far as that is concerned.

13 Q In other words, it was based on your prior
14 experience?

15 A (WITNESS ROBERT MARTIN) Prior experience in
16 the general area of components and systems, not prior
17 experience per se with these valves used as low
18 temperature pressure protection devices.

19 Q Now, your investigation at least leading up to
20 this recommendation, you had investigated the role or
21 the circumstances of the PORV during the TMI 2 accident?

22 A (WITNESS ROBERT MARTIN) Yes.

23 Q And then you went on to recommend not just a
24 re-evaluation of the PORV for safety grade
25 classification, but you recommended that all valves and

1 attachments that constitute the reactor coolant pressure
2 boundary integrity should be re-evaluated for safety
3 grade classification. What was your basis for expanding
4 your recommendation beyond just the PORV?

5 A (WITNESS ROBERT MARTIN) Speaking for myself,
6 it was based on my conviction that I believed there was
7 at least one other component, and I presume that is the
8 block valve, listed below, that also did not meet that
9 same safety grade classification, and there might be
10 other valves which at some point during reactor
11 operation either at lower power or low pressure or
12 startup or some other configuration, under that
13 circumstance, if you will, does constitute under those
14 conditions the boundary of the reactor coolant system.

15 We did not try to become exhaustive in our
16 search for what valves they might be or to compare their
17 classifications. It is not uncommon in the inspection
18 business that if you find a problem, you request that
19 the licensee look at all such valves to assure that they
20 are okay, and I think that motivated us. Somebody
21 should look at the variations in configuration and
22 design to make sure that any valves in any given plant
23 that at one point or another constitute the boundary of
24 the reactor coolant system -- you should make sure that
25 they have the appropriate classification and grade.

1 It was that kind of broad brush. I would say
2 that I have nothing in mind in terms of what valves come
3 to mind. It was just that broad scope of our concern is
4 such that it deserves a broad look to assure appropriate
5 classification rather than we have something in mind
6 that we know you are going to find if you do such a
7 review.

8 Q I notice that your recommendation dealing with
9 the PORV, that you gave this the A priority
10 classification that is prompt implementation.

11 A (WITNESS ROBERT MARTIN) Yes.

12 Q And of the factors you discussed earlier of
13 what would cause you to class something in this Category
14 A for prompt implementation, what were the reasons you
15 assigned priority A to this recommendation?

16 A (WITNESS ROBERT MARTIN) The event at TMI 2,
17 which served as the -- the event which constituted a
18 failure which triggered the sequence of events at TMI 2
19 was the failure of the PORV to reclose when it was
20 supposed to reclose. All other things evolved from
21 that. Therefore, it struck me, as that being the case,
22 that that valve failure introduces a break into the
23 reactor coolant system in a unique location with rather
24 unique consequences and deserves prompt attention.

25

1 Q Returning to the last sentence in the
2 recommendation where you said all valves and attachments
3 and so on should be re-evaluated for safety grade
4 classification, you put in parentheses "functional and
5 seismic."

6 A (WITNESS ROBERT MARTIN) Uh-huh.

7 Q By functional safety grade did you mean that
8 the valve should perform as designed, that is, open and
9 close properly, as well as simply retain its physical
10 integrity?

11 A (WITNESS ROBERT MARTIN) Yes.

12 A (WITNESS HUNTER) That is true. It should not
13 fail during an event, or if you need to operate it after
14 the event it should maintain its capability to allow you
15 to prevent opening the safety valves or whatever its
16 function was.

17 Q And when last question on this
18 recommendation. You had reference in Recommendation A,
19 General Design Criteria 13, which deals with
20 instrumentation and controls. And I will let you read
21 GDC 13 if you wish, but my question is simply the same.
22 When you said re-evaluate the valve for safety grade,
23 functional safety grade classification, did you include
24 in that recommendation the instrumentation and control
25 for the PORV, that they should also be re-evaluated for

1 functional safety grade classification?

2 A (WITNESS ROBERT MARTIN) Well, we did not
3 identify that as such. That is not in that paragraph as
4 such.

5 Q I understand that.

6 A (WITNESS ROBERT MARTIN) I have to say in all
7 honesty that when we recommend something be reviewed, we
8 mean it be reviewed more than as just a piece of
9 hardware. That is sort of why we stressed function,
10 that it be capable of performing. If the valve is
11 capable of performing only under conditions that it does
12 not see in service, that to us is not an evaluation. It
13 is the evaluation of the systems, the supporting
14 instrumentation of the leads, the cables. It is the
15 function that it performs to be evaluated.

16 We would anticipate that it goes without
17 saying that when someone evaluates the function, they
18 look at all subcomponents necessary for that function to
19 occur. That to us constitutes an appropriate evaluation
20 of any device system component.

21 CHAIRMAN SMITH: Is every in agreement?

22 (Panel nodding affirmatively.)

23 (Pause.)

24 BY MR. POLLARD: (Resuming)

25 Q When you made your recommendations with regard

1 to re-evaluating both the pressurizer heaters and the
2 PORV be re-evaluated for upgrading to safety grade
3 classification, were you aware of what has been referred
4 to as a feed-and-bleed cooling mode for the primary
5 system?

6 A (WITNESS ROBERT MARTIN) I cannot remember us
7 discussing the feed-and-bleed method as being something
8 that would add to or modify our comment. I do not think
9 we even discussed that methodology at all during our
10 consideration of these recommendations. I am not even
11 sure that we were familiar with the discussions that had
12 gone on about feed-and-bleed type methods back at that
13 time. I just do not remember that being discussed or
14 entering into our deliberations.

15 A (WITNESS HUNTER) In my case that is a good
16 characterization. We did not discuss that particular
17 aspect of the usage of the valve or the function at
18 that time.

19 Q It may not have played a role in your
20 recommendations on the PORV and the heaters. My
21 question is were you aware at that time of a
22 feed-and-bleed cooling mode being available for the
23 primary system?

24 A (WITNESS ROBERT MARTIN) In my case I was not
25 -- I was not aware of a feed-and-bleed mode. That is

1 not normal, you know. That is an abnormal situation,
2 and I was not aware of it at the time we did the report.

3 A (WITNESS KIRKPATRICK) I was aware of such a
4 mode. However, as Mr. Martin has indicated, we did not
5 discuss this or I do not remember any discussions
6 regarding this mode of operation.

7 A (WITNESS THOMAS MARTIN) I think just one
8 other thing I have got to make in that area. I do not
9 know when I became aware in my 20 years of experience of
10 feed and bleed; it may have been after the event. I
11 cannot say specifically that we discussed it any time
12 during the investigation. Therefore, I do not know if
13 this played a part in this recommendation.

14 Q Thank you.

15 Let us move on now to Recommendation C.1.C.3
16 dealing with the block valve, which appears on pages 22
17 and 23 of your report. Near the bottom of page 22 there
18 is a sentence which reads, "During the course of the
19 event on March 28, 1979, after actuation of containment
20 spray power was lost to the block valve for a period of
21 time."

22 Can you explain to me how the power loss came
23 about and whether or not your investigation determined
24 the cause of the power failure?

25 A (WITNESS ROBERT MARTIN) Do any of you

1 gentlemen recall? I do not -- excuse me. I would think
2 that NUREG-0600 identifies when it was lost. With
3 regard to the source of the loss, I do not think we ever
4 identified that.

5 A (WITNESS HUNTER) Ask your question again. I
6 think I can answer it. I think I know what you are --

7 Q What I am trying to determine is what caused
8 the power loss and how did it occur; that is, did we
9 lose just power to the block valve, or did we lose it to
10 a whole distribution center?

11 A (WITNESS HUNTER) Again, to the best of my
12 recollection, during the event the containment spray
13 system came on at some time in the -- when the pressure
14 increased above five pounds or whatever the set point
15 was. When the spray system came on it sprayed equipment
16 down in the containment. At that time, if I recall
17 correctly, and I believe it is documented in our report,
18 two motor control centers in the auxiliary building
19 tripped totally, and because of containment sump pumps,
20 power-operated relief valve was off of that particular
21 bus. There was a lot of equipment off that bus.

22 And at that point in time with the loss of
23 those two motor control systems, they lost the
24 motor-operated valve, the block valve and other
25 equipment. And it remained off until around 4:00 in the

1 afternoon when they finally got down into the auxiliary
2 building area and reclosed selected pieces of
3 equipment. They actually stripped the bus and then
4 reclosed selected pieces of equipment, if you look at
5 the sequence, and I think you can see at that point in
6 time when they started using the power-operated block
7 valve again.

8 Q Do you recall whether or not these two motor
9 control centers -- did you call them?

10 A (WITNESS HUNTER) Yes, sir.

11 Q Were those the block safety grade components
12 or were all the equipment coming off those non-safety
13 components?

14 A (WITNESS HUNTER) To my knowledge all
15 equipment off of there were non-safety grade
16 safety-related equipment. Also, they were not
17 safety-related motor control centers. In other words,
18 they were not off the emergency diesel generator buses.

19 CHAIRMAN SMITH: We have gone from the block
20 valve to the bus to other items of equipment off that
21 bus. Is that where the testimony is taking us?

22 WITNESS ROBERT MARTIN: Sir, perhaps I can
23 clarify. For electrical distribution to various
24 components you will come through a main electrical bus
25 feeder to a device which distributes power to various

1 components, both their controls and their functions. We
2 usually refer to those as motor control centers.

3 Now, off that motor control center may be a
4 variety of pieces of equipment. The two motor control
5 centers in question were feeding a large number of
6 non-safety grade components in sight of the reactor
7 containment. When the containment spray actuated, it
8 would appear that enough shorting occurred that the
9 entire bus dropped out; that is, you "lost the motor
10 control centers."

11 CHAIRMAN SMITH: I just could not follow its
12 relevance, but I understand it now.

13 BY MR. POLLARD: (Resuming)

14 Q The next sentence says, "A loss of control of
15 this valve" -- I assume it refers to the block valve --
16 "A loss of control of this valve appears to be a vital
17 concern."

18 Can you explain to me why loss of control of
19 this valve was a vital concern?

20 A (WITNESS ROBERT MARTIN) Well, if you were to
21 lose power to the valve when you were at that point
22 undesirably steaming through the PORV, then you would
23 not be able to close the valve. If you wished to bring
24 the PORV into operation and the valve were closed and
25 you lost power to it and you could not open the valve to

1 bring the PORV in to use for whatever function the
2 operator wished to use it throughout the course of the
3 accident, on that first day the block valve and the PORV
4 were used at various times in the several manipulations
5 that the operating staff were doing to try to recover
6 the plant from the particular accident that they were in.

7 Now, except for the one loss of power, the
8 block valve functioned quite reliably. Our general
9 concern was had they lost the power or had they had a
10 malfunction of that valve, then many of those
11 operational maneuvers to which those valves were
12 critical, both the PORV and the block valve would have
13 been compromised and made more difficult for them to do
14 those maneuvers.

15 So the vital concern has to do with our
16 perspective of the role that that valve played in the
17 accident as we investigated it. And given a similar
18 scenario we would anticipate at that time -- we would
19 have anticipated that that valve would play a similar
20 important role in a future similar scenario, so we
21 identified it in that fashion.

22 Q Then when you moved to your recommendation,
23 when you state that the block valve should be upgraded
24 to functional safety grade equipment, given the
25 description of the power loss that you have just given,

1 was there inherent in the basis for that recommendation
2 the fact that either the block valve itself and its
3 circuitry or the other equipment and its circuitry
4 connected to the same motor control center was not
5 environmentally qualified, and that could result in loss
6 of power to the block valve?

7 My question is then as part of your
8 recommendation that the block valve be upgraded to
9 functional safety grade equipment did you mean to
10 include a requirement that the block valve and all other
11 equipment attached to its power supply should be
12 environmentally qualified?

13 A (WITNESS ROBERT MARTIN) No. When we say --
14 let me paraphrase this, by the desire to upgrade this to
15 safety grade definitely parallels our views on the
16 PORV. The basis and the motivation are almost identical
17 for upgrading the PORV, recommending upgrade of the PORV
18 in this valve.

19 Now, if I upgrade the block valve or any
20 component to safety grade and it is powered by a motor
21 control center at the current time before such upgrade,
22 which is not safety grade, and then I would anticipate
23 that whoever is doing the upgrading would not upgrade
24 everything on that motor control center, but they would
25 take that block valve and put it on a safety grade power

1 supply which removes it from the motor control center to
2 a different motor control center. But that would not
3 mandate that everything on that entire motor control
4 center must now be elevated to safety grade just to
5 provide function for the one valve.

6 Q Yes. Thank you very much. You answered the
7 question in the way I should have phrased it.

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1 Now, we want to relate one of your
2 recommendations on the heaters to the recommendations
3 you made on the PORV and the block valve. You recall we
4 discussed earlier among your recommendations on the
5 upgrade of the pressurizer heaters was the recognition
6 that you would like to mitigate the demands on emergency
7 systems for pressure control.

8 A (WITNESS ROBERT MARTIN) Only if you include
9 the operators as an emergency system, we said, or
10 heaters are available to reduce the complexity of the
11 operators' manipulations. That that would not
12 necessarily mitigate the need to use safety systems. If
13 you are thinking of hardware systems, that could still
14 be in demand with or without the pressurizer.

15 Q I am sorry if I misled you because I should
16 have read it. What you say is under the header
17 recommendation to mitigate the demands on emergency
18 systems. Now, is there some difference in your mind --

19 A (WITNESS ROBERT MARTIN) No, I was thinking of
20 the conversation we had earlier when I testified.

21 Q My question is, is part of your recommendation
22 for the heaters -- the basis for that recommendation
23 clearly was, as you state, to mitigate the demands on
24 emergency systems for pressure control. My question is,
25 in making your recommendations to consider upgrading the

1 PORV and the block valve to safety grade, was one of
2 your bases for making that recommendation an attempt or
3 desire to try and reduce the demands on emergency
4 systems? That is, if you could isolate a leak or if the
5 PORV were more reliable, you might not have a loss of
6 coolant accident requiring operation of the ECCS. Was
7 that part of your basis for recommending an upgrade or
8 considering an upgrade to safety grade?

9 A (WITNESS ROBERT MARTIN) My memory of my
10 concerns over both the PORV and the block valve had to
11 do primarily with the role that they played in the
12 scenario of the accident. Now, I think the fact that
13 were they operational when desired, that that could
14 result in a reduction of demand of use of any given
15 emergency safety system I really believe was secondary.

16 Clearly, if the valve malfunctions, you have
17 now placed a new demand on your other safety systems, so
18 therefore, a non-malfunctioning valve would have, as a
19 consequence, a lesser demand on safety systems than a
20 functioning valve would. I really think the primary
21 motivation we had was the role that it played during the
22 accident scenario, and our concerns about when it
23 malfunctioned, how it complicated that. And at other
24 points when it was functioning, had it malfunctioned --
25 any of those malfunctioned then, that they would have

1 again further aggravated the accident as it was in
2 progress at that time.

3 So I think the primary motivation of all of us
4 at that time was concern over the role these valves
5 play, and if they are going to play such an important
6 role in a comparable scenario they ought to be first
7 class valves that can be relied on every time. That
8 really was the primary motivation.

9 Q Mr. Hunter, did you have something you wanted
10 to add to that?

11 A (WITNESS HUNTER) No. I cannot reiterate the
12 way we felt, that the role that the motor-operated
13 isolation valve and/or the PORV played. I cannot give
14 it anymore importance than when we made our
15 recommendations, that we felt that they should be given
16 additional review to insure that they are reliable. And
17 you could say from the front end meaning that they
18 performed the job they were supposed to, they did not
19 fail and cause the problem. And from the accident
20 scenario also, that while they needed them to vent the
21 reactor coolant system or isolate a leak, that that also
22 held the same importance to us.

23 CHAIRMAN SMITH: The next one to discuss would
24 be recommendation C.1.B.6 dealing with the lock-in
25 feature on ESFAS which appears on page 19 to 20 of your

1 report. Mr. Martin, you may continue to answer if you
2 wish, but the next series of questions we have already
3 asked Mr. Hunter yesterday, and if he wants to repeat
4 those for the record that will be fine with me. We can
5 continue the way we were.

6 WITNESS ROBERT MARTIN: Based on what we have
7 said before, if you do not direct it to anyone in
8 particular, then I will start the answer. But if you
9 want to direct it to someone, then I will just assume he
10 will answer and will take the same role.

11 MR. POLLARD: At the same time I will ask the
12 series to Mr. Hunter, because we know we have gone
13 through it once before.

14 CHAIRMAN SMITH: Now, Mr. Pollard, you had
15 asked these questions yesterday, but you are not
16 satisfied with the answers? Are you not satisfied they
17 were asked to all of the people?

18 MR. POLLARD: No, we are satisfied with the
19 answers and I am just trying to find a mechanism to get
20 them on the record some way.

21 CHAIRMAN SMITH: All right.

22 BY MR. POLLARD (Resuming):

23 Q Okay. On the recommendation which actually
24 appears on page 20 after your discussion of the problem
25 of the engineered safety feature actuation system having

1 been routinely blocked by operators in the past, you
2 recommended providing an engineered safety feature
3 actuation system which is compatible with the accident
4 analysis, high pressure injection equipment and other
5 plant equipment and operating requirements.

6 Could you explain what you meant by that
7 recommendation with particular focus on what you mean by
8 being compatible with the accident analysis, HPI
9 equipment, other plant equipment and operating
10 procedures?

11 A (WITNESS HUNTER) Okay. I will again refer
12 back to the problem as we had identified it where the
13 operators had routinely -- were required to routinely
14 manipulate some parts of the high pressure injection
15 system after it initiated the high pressure injection
16 pumps in the accident scenario in order to prevent pump
17 runout. The operators were required to manually block
18 the engineered safeguard features actuation system and
19 then throttle the individual header discharge valves to
20 maintain no more than 250 gallons per minute.

21 The individual header did not include orifices
22 or throttling devices to minimize the flow, and if the
23 operators did not throttle the flow, the single pump
24 that was running could run out and it could be damaged.

25 The particular setup at TMI-2 also -- and it

1 was analyzed, by the way -- also required when ESFAS
2 occurred, when engineered safeguard features actuation
3 system occurred, the operator had to open a suction
4 valve to a second pump. When we say compatible with the
5 accident analysis, we would indicate that when the
6 system was initiated that it would function with
7 required operator intervention. And the operator then
8 would step back and verify the equipment to be
9 functioning correctly without having to take specific
10 actions to meet the accident analysis.

11 Q In other words, what you mean by that
12 recommendation of being compatible is that you believe
13 that the role of the operator should be to sit back and
14 watch, and that the system ought to be designed to do
15 all the things that the accident analysis assumed were
16 done; that automatically the valves ought to be
17 throttled to keep the pumps from running out, or --

18 A (WITNESS HUNTER) The appropriate equipment
19 should be supplied whether it was an orifice or locked
20 the valves in a certain position, but the operator then
21 should not have to prevent his equipment from being
22 damaged by taking manual actions. That is true.

23 A (WITNESS ROBERT MARTIN) I was just going to
24 add, and I think to amplify Mr. Hunter's last comment,
25 our philosophy in this case is that if the operator has

1 to, as was routinely the case because of the design
2 configuration at TMI-2, inject himself during the
3 transient as an operational contributor to appropriate
4 settings, then his attention is distracted from his more
5 major role of verifying rather than setting back -- what
6 is connoted by that -- of verifying that all of his
7 automatic systems are functioning, and they are
8 functioning the way they are supposed to so that he can
9 assess the situation he is in.

10 If he is an intimate part of the control
11 manipulations necessary to cope with the transient, then
12 he no longer is in a position to objectively review the
13 situation he is in. That is the compatible aspect.

14 Q Okay. Mr. Hunter, then the next
15 recommendation, to provide a lock-in feature on the
16 engineered safety feature actuation system to prevent
17 inappropriate operator defeat of the engineered safety
18 feature equipment, you did mean by that recommendation a
19 physical or hardware type of lock-in feature that really
20 would prevent the operator from interfering with
21 operation of the engineered safety feature equipment
22 that was not appropriate?

23 A (WITNESS HUNTER) That is true. Our
24 recommendation was that it be evaluated and determine
25 the appropriate lock-in feature. It may be in terms of

1 seconds, minutes -- appropriate. And that would not be
2 equipment actuated, but unless some pre-determined
3 conditions existed such as pressure recovery, et cetera,
4 et cetera, they would not be able to block that
5 equipment without some additional steps.

6 We, in our group, talk about key interlocks or
7 some supervisory injection at that point to allow
8 removal of the safety feature. Now, you may have to
9 remove a safety feature in an emergency condition, but
10 you would want adequate management control prior to
11 making that decision.

12 Q So that just to make it perfectly clear,
13 inherent in your recommendation was, in your mind, a
14 system designed so that although it might prevent the
15 operator from inappropriate termination of engineered
16 safety feature equipment, you also had in mind that
17 there could be included provisions for defeating the
18 lock-in features under proper management control?

19 A (WITNESS HUNTER) Yes, sir, absolutely.

20 Q Now, Mr. Hunter, in your past experience in
21 reviewing plant design, and being uniquely qualified in
22 plant dynamics, you have had occasion to observe the use
23 of similar interlocks or locking features on other
24 plants.

25 A (WITNESS HUNTER) Yes, that is correct.

1 A (WITNESS ROBERT MARTIN) Yes.

2 A (WITNESS THOMAS MARTIN) Yes.

3 A (WITNESS KIRKPATRICK) Yes.

4 A (WITNESS FASANO) Yes.

5 Q Can you describe some of those other
6 interlocks that you have been familiar with?

7 A (WITNESS HUNTER) An example would be that
8 after high pressure injection or ESFAS was initiated at
9 a facility, that through timing devices and looking at
10 some logic that the system would have to run five
11 minutes before anybody could or should touch it. During
12 that five-minute period they would be verifying the
13 actual functioning of the high pressure injection
14 systems or the ESFAS equipment.

15 Q And these were in Westinghouse plants, these
16 interlocks?

17 A (WITNESS HUNTER) The ones that I am familiar
18 with are engineered safeguard features logic and
19 included some time delay; it could have been three
20 minutes. The one I am familiar with is five minutes.
21 Yes.

22 (Panel conferring.)

23 Yes.

24 Q And did those designs also include a means for
25 defeating that interlock under management control? If

1 you do not recall, it is not that important.

2 A (WITNESS HUNTER) Those systems could be
3 defeated, yes.

4 Q Okay. Now, in your experience in reviewing
5 and inspecting plants in the past, the failures of
6 lock-in features or interlocks stand out in your mind as
7 an area of high failure potential?

8 A (WITNESS HUNTER) No, sir, they do not.

9 Q Does anyone have anything to add to that
10 series of questions?

11 A (WITNESS ROBERT MARTIN) No.

12 MR. POLLARD: I have lost the slip of paper.
13 What is the recommendation number?

14 MR. CUTCHIN: C.1.A, page 12.

15 BY MR. POLLARD (Resuming):

16 Q Recommendation C.1.A.1. dealing with incore
17 thermocouples on page 12 of your report. You describe
18 the problem with the incore thermocouples of being, one,
19 that the licensee did not place confidence in the
20 readings because the thermocouples are not safety grade
21 designated.

22 A (WITNESS ROBERT MARTIN) Yes, we did.

23 Q Is part of your basis for recommending that
24 the incore thermocouples be designated safety grade part
25 of your experience that operators do place more reliance

1 on equipment that they know has been designated in
2 safety grade and meets the regulations applicable to
3 safety grade equipment?

4 A (WITNESS ROBERT MARTIN) That is a true
5 statement.

6 Q So that is part of the basis for your
7 recommendation?

8 A (WITNESS ROBERT MARTIN) Yes.

9 Q I do not remember whether it was you, Mr.
10 Martin, or you, Mr. Hunter, but is another one of your
11 bases for this recommendation -- was it your recognition
12 that with the reactor coolant pumps off, that there was
13 no other instrument that could provide the same
14 information as the incore thermocouples if there were
15 voiding in the primary system?

16 A (WITNESS HUNTER) That is a correct statement.

17 A (WITNESS ROBERT MARTIN) It is a correct
18 statement. I think a lot of what went into our
19 considerations was that there was a great deal of
20 information about voiding. The incore instrument will
21 not tell you there is voiding; it will tell you that
22 there are high fuel temperatures from which you conclude
23 that there are other problems.

24 There was a great deal of information there which
25 was not effectively used, was difficult to obtain and

1 was not relied upon. That was the primary motivation,
2 since it was a source of a great deal of information.
3 It was a source of a great deal of information even when
4 the reactor coolant pumps are on, much less when they
5 are not on, so that was the primary motivation behind.
6 True, secondary aspects, or it may be the only
7 temperature instrumentation you have about projected
8 core conditions when you are not under forced flow
9 conditions. But the fact is it was a great wealth of
10 information, it was not reliably obtained or used, and
11 the thrust of our recommendation is there is a wealth of
12 information there that the operators could use and it
13 should be substantially upgraded and put to the point
14 where it could be relied upon by the staff.

15 A (WITNESS KIRKPATRICK) Well, I would like to
16 disagree with your statement that it was the only
17 instrumentation available because during the accident
18 and during our analysis of the instrumentation there
19 were thermocouples in the upper part of the coolant
20 system that did go to very high temperatures and which
21 we were able to find records of and which were outside
22 of the core. So while it is true that while we felt the
23 core thermocouples were important, I would like to
24 clarify that there were other sources of information
25 regarding conditions in the core that existed outside

1 the core.

2 Q These are the thermocouples that are in the
3 vessel but not in the core? Is that what you are
4 referring to?

5 A (WITNESS KIRKPATRICK) I am thinking
6 particularly of vessels in the hot legs, in the upper
7 part of the hot legs of the reactor coolant system.

8 Q Is this the RTDs you are referring to?

9 A (WITNESS KIRKPATRICK) Right.

10 Q That is what I wanted to ask a follow-up
11 question on with respect to Mr. Martin's answer, about
12 the incore thermocouples of course provide information
13 when the pumps are running, and you have forced flow.
14 You also have your RTD's. But what I intended to ask,
15 and maybe I took too much of a shortcut, is if you do
16 not have your pumps running so you don't have forced
17 flow, and if you have voiding in the primary system such
18 that there is not natural circulation either, then the
19 incore thermocouples are at that point -- at least given
20 the situation at the time you did your investigation --
21 the only source of information about the temperature of
22 the core. I see Mr. Martin disagreeing.

23 A (WITNESS THOMAS MARTIN) That is not true. In
24 this particular core, the nuclear instrumentation,
25 incore nuclear instrumentation, had detectors with, I

1 think, rhodium or whatever they actually become,
2 thermionic emitters, and you can actually do a
3 correlation between the amperage they generate and the
4 temperature they are seeing.

5 Q These are referred to as the self-powered
6 neutron detectors?

7 A (WITNESS THOMAS MARTIN) That is correct. That
8 is one piece of information.

9 Another piece of information which is not
10 temperature but is voiding related is the excore nuclear
11 instrumentation. One of them being the source range,
12 which we were able to see actual changes and imply
13 something about the voiding in the core.

14 Q And you were aware of all of this information
15 you just related at the time you made your
16 recommendation to consider upgrading the incore
17 thermocouples to safety grade?

18 A (WITNESS THOMAS MARTIN) Yes. We felt that
19 they were the best indicators available.

20 Q One final question on this. Your
21 recommendation reads, the incore thermocouples be
22 designated safety grade and readout circuits be full
23 range with alarms at high level. My question is just
24 one of the English. Did you intend by that
25 recommendation to mean that the readout circuits

1 themselves and the alarms should also be safety grade?

2 A (WITNESS ROBERT MARTIN) I defer back to my
3 prior comment about when I talk about a system being
4 evaluated as safety grade I mean the system, not just a
5 specific component of that system. I think it is
6 implicit that the quality of the readout and other
7 instrumentation be associated with that component.

8 Q So the answer to my question is yes, you did
9 intend it.

10 A (WITNESS ROBERT MARTIN) Yes.

11 Q Okay, thank you.

12 Now, in recommendation C.1.A.17, on page 17
13 dealing with pressurizer level and temperature
14 instrumentation, can you expand, please, for me on the
15 description of the problem, to be more specific about
16 what problems were introduced by the less than highly
17 reliable pressurizer instrumentation, and describe to me
18 how it would have been beneficial to the operators, to
19 management and NRC during the course of the accident?

20 A (WITNESS ROBERT MARTIN) To a limited degree
21 during the course of the accident or in the early hours,
22 both in terms of some involvement by the licensee's
23 staff during the coping with the accident, as I recall
24 there were some instances of uncertainty about the
25 reliability of the information being provided by the

1 pressurizer level instrumentation because that
2 instrumentation in that plant design is not safety
3 grade. Therefore, there are not redundant channels and
4 there is not, you know, redundant displays of
5 information.

6 So the information available to the operator
7 is a single source of information. And I think, as I
8 recall, there were instances where it was subject to
9 question. Over and above that, based on our judgment
10 and experience, and again, the concentration on what had
11 occurred during the course of that accident, recovery
12 from that accident in the configuration they had, the
13 scenario they had, was fairly critical to re-establish
14 some stable set of water conditions in the reactor
15 coolant system, and re-establish flow.

16 To do that, they had to rely on the
17 pressurizer. Being non-safety grade, had that channel
18 failed, there would have been no redundant channels and
19 there was no extra assurance that that channel would not
20 fail. So given that scenario and that set of
21 circumstances, recovery, again, would have been severely
22 complicated had there been a failure.

23 Now, there was not. But had there been
24 because the equipment was not more strenuously designed
25 against failure, then the recovery operation would have

1 been severely complicated.

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1 A (WITNESS THOMAS MARTIN) I might add to that
2 because the operators did not trust the indication
3 because it was not safety related, they spent a great
4 deal of time trying to prove it was wrong, and I don't
5 think they ever were satisfied that they really had an
6 accurate indication.

7 They checked noncompensated indications, took
8 voltage readings, et cetera. Basically, they spent an
9 awful lot of time not believing the instrumentation.

10 Q Were any of the other means they were using to
11 try and, I think you said, prove that the level
12 instrumentation was wrong, was any of that other
13 equipment safety grade?

14 A (WITNESS ROBERT MARTIN) No, it was not.

15 Q Can I ask one question of clarification on
16 your answer, Mr. Martin? Did I understand you correctly
17 to say that during the TMI-2 accident there was no
18 failure of the pressurizer level instrument or
19 instruments?

20 A (WITNESS ROBERT MARTIN) Yes, I did say that
21 and that is my recollection. That instrument, in fact,
22 appeared to function reliably throughout the accident.

23 A (WITNESS THOMAS MARTIN) It was when the
24 pressurizer level instrumentation showed the level going
25 off-scale high and stayed up there. They just couldn't

1 believe it. They had never seen a plant with no bubble
2 in the pressurizer.

3 Q I have to ask the question. How many channels
4 of pressurizer level instrumentation are there?

5 A (WITNESS HUNTER) To the best of my
6 recollection, there was three plus a wide range. I
7 believe there was four that they could look at.

8 Q And it is your testimony based upon the
9 investigation of the accident that none of those
10 channels of instruments failed?

11 A (WITNESS HUNTER) During the course of the
12 accident I believe that is a true statement; they failed
13 later.

14 A (WITNESS ROBERT MARTIN) There were later
15 failures much later after the recovery during the course
16 we looked at.

17 A (WITNESS HUNTER) During the 16 hours we were
18 looking at, they did not fail. They were reliable.

19 Q In the 16 hours they did not fail?

20 A (WITNESS HUNTER) That is my understanding,
21 yes, sir.

22 Q And in the course of your investigation did
23 you verify that in fact the reason the operators stopped
24 the reactor coolant pumps -- that did not have anything
25 to do with their distrust of pressurizer level

1 instrumentation?

2 A (WITNESS ROBERT MARTIN) No, that
3 consideration did not enter into the decision, to our
4 knowledge.

5 Q But once again, that answer applies to the
6 first 16 hours.

7 A Yes.

8 Q Okay.

9 CHAIRMAN SMITH: Based upon the progress so
10 far, do you think that you will have much redirect, Mr.
11 Cutchin?

12 MR. CUTCHIN: Not at this time, sir.

13 CHAIRMAN SMITH: Okay. The traveling members
14 of the Board have a little bit of a problem. They don't
15 have reservations. They have been trying since this
16 thing was scheduled, and if we could conclude today, it
17 would be very helpful.

18 MS. WEISS: We are just about done. In fact,
19 we are just talking about whether there are any more
20 questions we wanted to ask.

21 [Pause.]

22 BY MR. POLLARD: (Reuming)

23 Q What I have gathered from your answers with
24 regard to your recommendations on in-core thermocouple
25 upgrading and upgrading of the pressurizer level and

1 temperature instruments seems to be the common thread
2 that if there is instrumentation available which would
3 be beneficial or, in fact, even important for the
4 operators to have, that your basis for recommending the
5 upgrade to safety grade was so that they would have a
6 reliable instrument that they could have confidence in
7 and that these instruments in fact provided valuable
8 information -- would have provided valuable information
9 during the TMI-2 accident.

10 Is that a fair summary of at least the common
11 thread between those two recommendations?

12 A (WITNESS ROBERT MARTIN) Yes. Given
13 everything you introduced into that question, the answer
14 is yes.

15 Q In the course of your investigation leading to
16 these recommendations, did you look at the emergency
17 procedures which were in effect at TMI-2 at the time of
18 the accident?

19 A Yes.

20 Q In recommending the upgrading of
21 instrumentation to safety grade, was part of your basis
22 for the use of such instruments in the emergency
23 procedures that the operator should rely upon them to
24 perform actions?

25 A (WITNESS ROBERT MARTIN) Please ask the first

1 part of the question because I am afraid I am stuck with
2 a yes or a no, or a yes and no.

3 Q I will try and break it down and go a little
4 bit slower. You had looked at the emergency procedures,
5 and what my question is, is part of your basis for
6 recommending the upgrade of certain instrumentation to
7 safety grade the observation that the emergency
8 procedures mentioned instrumentation that the operator
9 should rely upon in the course of a particular accident,
10 that is, perhaps if I give an example, that he was told
11 to check the in-core thermocouples, and if they read
12 above such and such a temperature, he should take
13 Action A?

14 A (WITNESS ROBERT MARTIN) Your example
15 notwithstanding, the answer to your question is yes.

16 Q That did affect your recommendation as to
17 whether or not the instrumentation was used or referenced
18 in the emergency procedures?

19 A (WITNESS ROBERT MARTIN) Yes, it affected us.

20 MS. WEISS: We are done with our questioning,
21 Mr. Chairman, and will pass the microphone on to Mr.
22 Sholly.

23 CHAIRMAN SMITH: Mr. Sholly.

24 CROSS EXAMINATION

25 BY MR. SHOLLY:

1 Q We will be focusing on page 13, Recommendation
2 C.1.a.4, entitled "Control Room Sound Recording
3 System." There is also a companion recommendation back
4 on page 35 which is somewhat similar but limited to
5 audio recording. I may be referring back to that as
6 well.

7 MR. CUTCHIN: Mr. Chairman, I might note that
8 I have no record of that having been referred to. If I
9 am wrong, please correct me. In the motion, that is.

10 MR. SHOLLY: I made reference to it in the
11 response to the initial responses by the Staff and the
12 Licensee.

13 MR. CUTCHIN: Let's see where it goes, Mr.
14 Chairman.

15 CHAIRMAN SMITH: Certainly.

16 BY MR. SHOLLY: (Resuming)

17 Q The problem stated in the report on page 13
18 says the information about occurrences during the
19 accident when the operators did not record in their log
20 could be alleviated by the use of tape recording of
21 conversations or direct verbal recordings. Such records
22 can be time sequenced.

23 The recommendation reads: Installation of
24 recording system that activates with reactor trip,
25 turbine trip, ES automatic or manual initiation, and

1 note that videotape may also have limited merit.

2 Can you explain the factors which led you to
3 make such a recommendation?

4 A (WITNESS ROBERT MARTIN) Oh, yes. During the
5 course of the investigation one of the most difficult
6 things to establish was those actions that occurred
7 which are not automatically recorded. They are not
8 identified on the plant computer system as having
9 occurred, and they were not locked in by anyone.
10 Therefore, as a consequence of that we had to piece
11 together when various actions took place based on the
12 recollections of the people that we were interviewing.
13 That is a time-consuming task.

14 This recommendation falls in the general
15 category of, given that amount of inconvenience,
16 wouldn't it have been nice if there was a recording
17 system by which we could play it back and reconstruct
18 those problems much more readily and not have to rely on
19 the memory of the individual participants in the
20 scenario at that particular time?

21 There may have been some extended discussion
22 about the relative merits of this or that relative to
23 that recommendation, but that was basically the primary
24 thrust. We had had difficulty establishing certain
25 facts, and wouldn't it have been nice if we had had a

1 recording.

2 Q Are any of you gentlemen familiar with the use
3 of so-called black box recorders on aircraft?

4 A (WITNESS HUNTER) Just through the media. You
5 know, you read about it.

6 A (WITNESS ROBERT MARTIN) Yes.

7 Q Did consideration of that sort of function, a
8 function where you would have a recording being made of
9 voice conversations and such which would not interfere
10 with the actual accident responses -- is that the sort
11 of thing that went into consideration of this
12 recommendation?

13 A (WITNESS ROBERT MARTIN) Drawing a direct
14 parallel to that I think suggests more analysis than was
15 performed. What we said was wouldn't it have been nice
16 to have a recording, and it was pretty much the thrust
17 of it. We would certainly expect that any such system
18 would not interfere with the operators being able to
19 perform the safety functions, but we did not analyze it
20 or think of it or speculate beyond the point of wouldn't
21 it have been nice.

22 A (WITNESS HUNTER) I would comment you can see
23 in the recommendation that we did, in fact, discuss if
24 you have that type system, when would you want it
25 activated? You know, we wanted to give that

1 information, that there are certain types of events we
2 felt like would trigger the system so that our people
3 who would review this recommendation would have the
4 merits of that recommendation in front of them.

5 Q Do you feel your investigation was hampered at
6 all by the lack of such a recording system at TMI-2, and
7 if so, to what extent?

8 A (WITNESS ROBERT MARTIN) Yes.

9 Q To what extent? In what ways? If you can
10 think of any particular examples, that would be most
11 helpful.

12 A (WITNESS ROBERT MARTIN) All I can do is
13 describe that we had conducted so many interviews and
14 had to analyze so many transcripts to establish what
15 occurred and when, and I guess I can only speculate or
16 give you my conviction that had such a recording
17 existed, both we and other investigating agencies and
18 the licensee would have had an easier job, without being
19 able to quantify it, as determining what were all the
20 things that took place during the course of that
21 accident.

22 I don't think there is any way for us to
23 quantify how much easier it would have been.

24 Q In your discussion --

25 A (WITNESS THOMAS MARTIN) Let me respond to

1 that. From reviewing the physical data we had, we knew
2 certain things occurred. There were a lot of things we
3 didn't understand what people in the control room -- at
4 least we thought were in the control room, didn't pick
5 up the same information as it occurred.

6 If we saw that they were occupied in another
7 part of the control room, that would have explained it.
8 If they were actively, you know, doing some type of
9 switching operation which just overloaded them and they
10 didn't have time to respond, that would have also
11 explained it.

12 When trying to tie down certain things are not
13 recorded, we knew that certain people worked certain
14 places when those occurred. If we could know when they
15 returned to the control room, we would -- it had
16 completed at that time. We felt strongly that certain
17 things had occurred in a period of time, and the
18 operator said no, it did not happen at that time, and we
19 had physical evidence which suggested it, and we could
20 not resolve those conflicts.

21 The testimony conflicted with the hard data,
22 and we couldn't fall out either way. So there was a lot
23 of information that is just lost because it is not
24 recorded.

25 A (WITNESS HUNTER) I would like to comment also

1 in a specific example that was distressing. In the
2 event, if you remember the event, the isolation valves
3 on the auxiliary feedwater system were opened after
4 eight minutes, about, into the event. I don't recall
5 anyone in the interviews that I held -- we had physical
6 evidence, recording of pressure, et cetera that told us
7 when the valves were reopened.

8 No one in the control room remembered when the
9 valves were reopened. The normal time frame that was
10 given to us was 45 seconds to a minute and a half, yet
11 it was eight minutes. We know, you know, the physical
12 evidence that we have showed eight minutes, and that was
13 very distressing to us.

14 During the event there were so many things
15 going on, annunciators, et cetera, that what we call,
16 like, a time compression, they really lost track of
17 time, and the recording, video or audio recording system
18 would have been of great assistance in the time -- and
19 you will note in here that these could be marked with
20 the time so that we could have a record of when things
21 happened.

22 Q In your discussion of this recommendation, did
23 you discuss at all any potential disadvantages of such a
24 system, and I am thinking particularly from the
25 standpoint of a point that was raised by the witnesses

1 who testified on this in the hearing, a "big brother"
2 type of objection? Did you discuss that at all?

3 A (WITNESS ROBERT MARTIN) Yes.

4 Q Did you come to any resolution of that issue
5 at all?

6 A No. Our basic recommendation was still that
7 motivation that yes, it would have been nice, but we
8 also, I think, discussed -- remember, we did not spend a
9 great deal of time on this topic, but I am confident and
10 I do recall our concern over the chilling effect of that
11 kind of thing that may occur if you are constantly
12 reported or monitored.

13 We still came to that recommendation as we
14 wrote it.

15 A (WITNESS KIRKPATRICK) Well, I believe that is
16 why we put in the next paragraph in which we stipulated
17 that we felt that this should only come on if the
18 reactor tripped or the turbine tripped, that it wouldn't
19 be on all the time.

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1 BY MR. SHOLLY: (resuming)

2 Q If you move to page 17, Item C.1.A.16, this
3 deals with the use of multipoint recorders. During your
4 investigation and your discussion of these
5 recommendations, did you come up on any particular
6 examples of significant instrumentation that was putting
7 output onto one of these multipoint recorders that made
8 it difficult to interpret what happened?

9 A (Witness Robert Martin) During our
10 investigation of this accident and that scenario the
11 four items we give under our recommendation is data, as
12 I recall -- is data recorded on multipoint recorders
13 through the course of this accident. That data was
14 fairly critical.

15 The general thrust of our recommendation is in
16 light of the accident to go back and look at what data
17 could and would be critical to accident scenarios and if
18 you come to that conclusion to not put them on
19 multipoint recorders. Put them on continuous recorders.

20 So the answer to the question of what
21 parameters were critical to the accident that occurred,
22 those four parameters in learning and understanding the
23 nature and the consequences of that accident and how it
24 took place -- those parameters were critical to the
25 accident.

1 There may well be others and -- that is
2 speculative. The thrust was to evaluate which
3 parameters are critical and once you come to that
4 conclusion to not put them on multipoint recorders.

5 Q Drop back one page to page 16. We would be
6 looking at item -- I'm sorry. This is on page 17 as
7 well -- no, no, it's on 16, Item C.1.A.15 at the bottom
8 of the page dealing with instrumentation failure modes.

9 You recommend that you require instrumentation
10 which fails in other than a normal position. Did you
11 have in mind, in making this recommendation, the
12 integrated control system?

13 A That was one of the systems, as
14 instrumentation under certain conditions failed, when in
15 a failed state assumed a position virtually the same as
16 the normal operating condition. It was not the only one.

17 The T-AV is not part of the ICS. The
18 T-average system had a similar difficulty which we meant
19 to capture here. That was not a failure in the true
20 sense. It is just that once in the T-average indication
21 average temperature of the RCS indication, whenever the
22 two temperature devices got outside of their normal
23 predetermined range, then that recorder would average a
24 false signal which was the same as the normal operating
25 temperature and that led to substantial confusion on the

1 part of the operating staff.

2 So, no. While the ICS is an example, it is
3 not the only example of that kind of phenomenon.

4 Q The last sentence in the recommendation says
5 "GDC requires failure to be indicated and in a safe
6 condition." Do you know which GDC you had in mind?

7 A We had in mind GDC-23. Please remember that
8 is in the same context I offered before, that that was
9 our view of what we drew from the GDC. We were not
10 trying to say, that is, the interpretation of GDC. We
11 think it is telling us that and ought to be considered.

12 Q Lastly, on pages 18 and 19, recommendation
13 C.1.B.3, the recommendation here was three parts -- to
14 provide the requirements for safety-related ICS, to
15 evaluate the continued operation of B&W plants without
16 safety-related ICS, and to consider extra shift
17 personnel assignments and procedural controls to provide
18 ICS backup during loss of power conditions and/or loss
19 of ICS situations.

20 During the time you were preparing the
21 recommendations, were you aware that B&W had submitted a
22 failure modes and effects analysis to the Staff and,
23 according to the partial initial decision that happened
24 August 17 of '79, if that helps you recall?

25 A No. No, I don't think any of us were aware

1 that that was under way.

2 Q You did not see that, then, before you made
3 your recommendation?

4 A No, we did not.

5 Q What advantages did you see in recommending
6 that the ICS be evaluated for safety grade?

7 A My answer to that would be basically a
8 reiteration of many of the comments I had made before
9 about other components or systems being upgraded to
10 safety-grade. The ICS is a control system which entered
11 in in one phase or another during the response to the
12 accident at TMI.

13 Had there been certain failures which a safety
14 grade system might well have been able to withstand but
15 a non-safety grade system such as loss of offsite power
16 or comparable losses -- a known safety grade system
17 cannot withstand, then the recovery and the handling of
18 the accident at TMI would have been severely complicated
19 for the operating staff and, therefore, that led us to
20 believe --

21 We spent a great deal of time looking at the
22 various interactions and functions of the integrated
23 control system in general in order to learn it, to
24 understand it better, and it appeared to us that based
25 on the accident and the sequence of events the recovery

1 phase, the coping with the more dynamic aspects of the
2 accident, would have been complicated had any number of
3 various kinds of failures occurred or in fact, because
4 the system was non-safety grade, certain malfunctions
5 did occur that the operators were not aware of which
6 they probably would have -- I'm sorry -- which they
7 would have been aware of had it been a properly designed
8 safety grade system.

9 As a case in point, I presume, would be the
10 shut valves on the emergency feedwater pumps. There are
11 probably others throughout the course of the event which
12 we felt would have been mitigated, if not eliminated,
13 had the ICS been reanalyzed and reevaluated as a safety
14 grade system.

15 Q When you said you did a fair amount of
16 examination of the ICS in order to understand it, were
17 there particular component failures in the ICS that
18 stick out in any of your minds as providing the general
19 basis for recommending this possible upgrade?

20 A (Witness Hunter) Just as an example -- and I
21 don't have all the information -- but as an example, the
22 continuation of feedwater to the steam generators after
23 a trip or loss of offsite power. If I recall right, TMI
24 had steam-driven main feed pumps so anytime the unit
25 trips and you lose main steam availability, you lose

1 your turbine-driven feed pumps and you switch to the
2 emergency feed pumps.

3 In this particular application the control
4 valves on the emergency feedwater pumps, the actual
5 control -- the valves which control flow to each steam
6 generator are a control system. However, the loss of
7 feedwater is a lot of heat sink and that particular
8 aspect was of concern since the control system was
9 utilized to maintain flow to the steam generators and
10 maintain the heat sink from the emergency feedwater
11 system. That is a specific example.

12 The failure of the ICS itself and/or the air
13 system to those feedwater control valves would be
14 inclusive in that system. Either of those failures
15 could have prevented feeding the steam generator with
16 emergency feedwater automatically or remotely.

17 At TMI they did have a backup motor-operated
18 motor valve for the operators to take manual control and
19 bypass those valves if they in fact failed closed.
20 However, the control system was not safety grade and you
21 couldn't -- we felt like you couldn't take credit for a
22 control system under accident conditions.

23 Q In particular, did you consider possible
24 isolation of steam generators due to failures in the ICS?

25 A (Witness Robert Martin) I think -- I don't

1 recall that being a specific instance. We did look at
2 what would have been complicated had they lost normal
3 power. The ICS, being non-safety grade, is not fed by
4 emergency power and therefore what complications might
5 have occurred.

6 Again, it was the role that ICS played in the
7 incident, and based on our experience and review, what
8 further complications over and above the ones they had
9 to deal with would have occurred had they suffered any
10 additional failures, such as a power loss or a
11 malfunction.

12 (Pause.)

13 (Panel of witnesses conferring.)

14 Q In making the recommendation that the
15 requirements for safety-related ICS be provided and that
16 you evaluate continued operation without the
17 safety-related ICS, was one of the considerations that
18 went into that the possibility of interactions between
19 the ICS and safety-related systems?

20 MR. CUTCHIN: Mr. Chairman, I am going to
21 object to this question from Mr. Sholly because I don't
22 think it is really related to either one of the
23 contentions that he raised and I believe it is related,
24 if at all, to the contention that was raised by UCS and
25 it was not argued by Mr. Sholly as related to one of the

1 issues he wanted to reopen.

2 MR. SHOLLY: Mr. Chairman, as I remarked in
3 response to the Staff's response to the motion, the
4 consideration of the ICS in the hearing at all was
5 fundamentally a systems interaction problem. That's why
6 it was considered at all and therefore I think the
7 question is extremely relevant.

8 DR. JORDAN: It seems to me that he has
9 already indeed answered that in the affirmative in that
10 he considered failure of the ICS and its interaction
11 with the emergency feedwater system, which is
12 safety-related, so at least in one case the answer is
13 yes.

14 MR. SHOLLY: And I was seeking the possibility
15 that other examples were considered by the group and
16 that is why I asked the question.

17 DR. JORDAN: Were there any other examples
18 besides the one I cited?

19 WITNESS ROBERT MARTIN: I think there well may
20 have been, but right now none of us can really bring any
21 to mind. The great difficulty is now trying to separate
22 the knowledge we have now about B&W plant dynamics and
23 system interactions and the various other terminologies
24 that are used and what we had at the time we formed the
25 basis for a recommendation.

1 We can be comfortable of the one example we
2 gave. Any others in the past three years, I am afraid
3 that the last three years have controlled very
4 substantially our memories and we really can't remember
5 other good examples for consideration.

6 MR. SHOLLY: That is all the questions I have,
7 Mr. Chairman.

8 CHAIRMAN SMITH: Okay, Mr. Baxter. How long
9 will your cross be?

10 MR. BAXTER: Five minutes.

11 CHAIRMAN SMITH: All right.

12 CROSS EXAMINATION

13 BY MR. BAXTER:

14 Q Excuse me for talking to your backs,
15 gentlemen. Unless I indicate otherwise, my questions
16 will be for you, Mr. R. D. Martin.

17 Mr. Martin, I believe yesterday you said that
18 the primary function of this team was to determine the
19 facts of what occurred at the TMI-2 accident during the
20 first 16 hours. Is that correct?

21 A (Witness Robert Martin) That is correct.

22 Q And was that primary function paramount in the
23 selection of the team members, including those you
24 recommended?

25 A Yes, yes, it was.

1 Q I believe you said there was one or two days
2 spent in the preparation of this report in Atlanta. We
3 have been discussing only a few of the design
4 recommendations. There are many others dealing with the
5 emergency planning, staffing, recordkeeping,
6 investigations, covering approximately 40 pages.

7 May we assume that roughly your time was
8 evenly spent in preparing the 40 pages of the document?

9 A Oh, I see what you mean, distributed over the
10 -- yes.

11 A (Witness Thomas Martin) Would you explain
12 your question. If you are implying it only took two
13 days to put this together, I would take exception to
14 that.

15 Q I was only repeating what I thought Mr. Hunter
16 discussed, that it was two days where you actually sat
17 down after 0600 had been written and put the words
18 together and edited it and then followed it up with a
19 telephone conference.

20 A (Witness Robert Martin) Let me clarify it. I
21 may have led you to that conclusion. We met after we
22 sent NUREG-0600 to Region I, the final version of it.
23 We then worked for several days on it. We then
24 dispersed. But I think each of us personally then
25 continued to write up our various recommendations and

1 views individually.

2 We then, as time was available over the next
3 30 days, we then met again for about two days in which
4 we synthesized it, but we only met collectively perhaps
5 on the subject for four or five -- four or five days
6 between TMI and Atlanta. But in terms of the amount of
7 effort that any one individual put in, I am sure that
8 varied, but there was the time in-between as well also
9 put together.

10 So this does not represent a collective four
11 days of mental thought, but it does not also represent a
12 large number of hours of meeting collectively to come to
13 resolution on any given particular issue.

14 Q Today you were asked about the fact that you
15 had not pursued with any members of the steering group
16 that developed the TMI action plan their reasons for
17 dispositioning, if you will, the recommendations of your
18 team, and yesterday, if I can go over my notes, Mr.
19 Martin, and ask you to correct or affirm my recollection
20 of what you said, that you didn't pursue them because
21 you didn't feel that adamant about any one
22 recommendation. You only wanted to make sure they got
23 in the hopper for technical review and your feedback was
24 the knowledge that the steering group was dealing with
25 the issues.

1 A (Witness Robert Martin) That characterizes
2 it, yes.

3 Q Mr. Hunter, Mr. Pollard was asking you about
4 interlocks at Westinghouse plants with respect to
5 ESFAS. Yesterday you told us there was more than one
6 reason why there were such interlocks on Westinghouse
7 plants and you mentioned high boron concentration and
8 HPI.

9 Would you explain it just very briefly for the
10 record?

11 A (Witness Hunter) Yes, I will. Certain
12 utilities and certain vendors use for main steam line
13 break and the cooldown associated with that to prevent
14 reactor restart, they used concentrated boric acid
15 injection into the reactor coolant system, usually a few
16 hundred gallons, to ensure the core remains shut down
17 during that extremely rapid cooldown that would occur
18 from the analyzed main steamline break.

19 At 20,000 parts per million, the point where
20 the boric acid comes out of solution -- can come out of
21 solution and become crystal is fairly high. Part of the
22 interlock system that causes the high pressure injection
23 system to operate for a specific period of time is also
24 to ensure that anytime you have an ESF actuation that it
25 flushes the boric acid into the reactor coolant system,

1 thus diluting it and not creating a problem after the
2 safety injection has occurred. That's true.

3 MR. BAXTER: Thank you. Those are all my
4 questions.

5 CHAIRMAN SMITH: Mr. Cutchin.

6 MR. CUTCHIN: I only have one followup and it
7 was raised by Dr. Jordan's asking of the last question.

8 REDIRECT EXAMINATION

9 BY MR. CUTCHIN:

10 Q Lest there be any confusion remaining on the
11 record, when the question was did you gentlemen, in
12 making your recommendations with respect to the ICS, see
13 or were you aware of any systems interactions that would
14 be initiated, if you will, by any of these non-safety
15 systems or components, that in your view at the time
16 would not be adequately compensated for by safety system
17 actions.

18 A (Witness Robert Martin) I think I have to
19 answer as I believe I answered before. The difficulty
20 we are collectively having is remembering what we knew
21 then compared to what we know now. All of us have had,
22 to one extent or another, a great deal of interaction
23 with several B&W-designed plants since TMI and we just
24 cannot separate out what we knew before and what we knew
25 after.

1 Q I'll ask the question a different way, if I am
2 allowed to. Knowing what you know today, are there any
3 such initiated interactions that you as a group are
4 aware of that would not be adequately protected against
5 by the safety systems that are installed at TMI-1, if
6 you know the answer.

7 MS. WEISS: I have to object to that, Mr.
8 Chairman.

9 CHAIRMAN SMITH: Well, I think you are at a
10 crossroads now, Mr. Cutchin. If you are going to go
11 that way, then we all go.

12 MR. CUTCHIN: I believe Dr. Jordan in effect,
13 by asking that first question, I thought, carried us
14 that way, Mr. Chairman. If the Board is satisfied with
15 what they know, I am satisfied. I will cut it off there.

16 (Board conferring.)

17 CHAIRMAN SMITH: Dr. Jordan says he didn't
18 mean to open any --

19 MR. CUTCHIN: Fine. I am satisfied to drop it
20 right there.

21 CHAIRMAN SMITH: Miss Weiss, any additional
22 questions based upon --

23 MS. WEISS: Something about the boric acid.

24 MR. POLLARD: I had one question.

25

1 RE CROSS EXAMINATION

2 BY MR. POLLARD:

3 Q It was Mr. Hunter. Can you go into the other
4 reasons for the interlocks on the ECCS system in
5 Westinghouse plants which you referred to yesterday?

6 A (Witness Hunter) Well, I would like to
7 clarify the one particular interlock and I indicated to
8 you, I believe, that it had two purposes. One was to
9 ensure the boric acid reached the reactor coolant
10 system, realizing that the main steamline break is a
11 five-second accident -- a fifteen-second accident, in
12 that time frame -- and it takes a certain amount of time
13 to get the boric acid through the reactor coolant system
14 and continue to inject the boric acid.

15 Realizing the time reserves the purpose that
16 once it initiates the operators couldn't block it or
17 they should not block it and could not block it because
18 if they did, then the restart would be outside the
19 analyzed envelope. So it did serve both purposes -- to
20 prevent blocking so that the accident analysis could be
21 met and, secondly, so that the boric acid, even if it
22 was inadvertently initiated due to testing, which
23 happens, that the boric acid would be flushed into the
24 system and diluted so it wouldn't create a cleanup
25 problem of the system.

1 MS. WEISS: That completes the questions.

2 CHAIRMAN SMITH: Anything further?

3 MS. WEISS: I did want to draw to the Board's
4 attention before we leave a memorandum and order from
5 the Appeal Board. You may already be aware of it. We
6 were not. It is dated March 8 and it is in the Rancho
7 Seco case.

8 I think it will be important for you to look at
9 it. I won't characterize it beyond saying that it
10 relates directly to the issue of whether the reduction
11 of challenges to the ECCS system is a function that is
12 important to safety. I want to draw it to the Board's
13 attention as you rule on the motion.

14 MR. BAXTER: If you are going to look at that
15 one, there is a whole series of Licensing Board and
16 Appeal Board orders in that docket in which the whole
17 question of challenges to safety systems were considered
18 and litigated in that proceeding, not at the same length
19 it was here, but raised by the California Energy
20 Commission.

21 It's not just the most recent order is what I
22 am getting at. There was an earlier decision last
23 October and the Licensing Board's decision in May
24 addressed the same question.

25 CHAIRMAN SMITH: What would be the possible

1 relevance? Let's say the Appeal Board has announced a
2 law in Rancho Seco contrary to law that we have applied
3 in our initial decision. Even so, could we change our
4 initial decision on that account?

5 MS. WEISS: I guess I am anticipating that
6 when you get into the question of deciding whether the
7 record is going to be reopened here that it is going to
8 be hard to separate that question -- the question of
9 what this testimony means -- from the question of what
10 does the other testimony that you heard the other
11 witnesses say, what does that mean. And there is going
12 to be some balancing in your mind.

13 Our original motion to reopen the record, of
14 course, contemplated quite directly that there would be
15 a confrontation of the original Staff witnesses as well
16 as these witnesses. I guess in my mind it is sort of
17 implicit in the whole inquiry. We look at the relative
18 qualifications and relative technical bases and relative
19 understanding of the accident, and I think that is
20 something that this Appeal Board decision bears
21 certainly on the testimony of the earlier Staff
22 witnesses to the effect that challenging -- reducing
23 challenges to ECCS is not an important safety function,
24 and that was involved both in the PORV issue and the
25 heater issue today.

1 These witnesses brought it up. It was part of
2 the basis for their recommendation. I hope that is
3 clear in the transcript.

4 CHAIRMAN SMITH: Any further comment?

5 What do the parties propose as our next step?
6 We had stated in one of our orders that we would expect,
7 after opportunity to inquire, that the motions would
8 either be withdrawn, but in any event reconsidered and
9 refiled in light of the information that you gathered.
10 In this stage of it I still think that is a logical
11 approach, that you go back to your offices and consider
12 your motions anew and refile them.

13 MS. WEISS: What we had in mind, Mr. Chairman,
14 was something that would look like proposed findings on
15 what we think is the significance of what came out today
16 in addition to what is already in the record on this
17 question -- that is the affidavits and the papers that
18 have gone back and forth -- and essentially to renew the
19 motion or to bring it before the Board for a ruling
20 again.

21 I think that we have certainly proven
22 everything that we said we would in our opening
23 statement and I think that we have probably proven more
24 and --

25 CHAIRMAN SMITH: You made some statements I am

1 not encouraging you to into, but you made some statement
2 about the relationship of this panel to the hierarchy in
3 the NRC and I take it you don't want to pursue that.

4 MS. WEISS: I think that's implicit. I don't
5 think it would do any good to ask these men about that,
6 no. It was meant to be an observation, I think, of the
7 nature of a bureaucracy and I really don't think that
8 there is any question about it.

9 But I would like to take a look at the
10 responses that we got today when we get the transcript
11 back and to essentially bring the issue before the Board
12 again on the motion, plus what we believe we have
13 learned today, and that would depend -- well, timing is
14 another question. Now we are in front of the Appeal
15 Board on the main briefs on exceptions which can affect
16 the timing. I don't know when the transcript will be
17 available.

18 MR. BAXTER: We were sincerely hoping, Mr.
19 Chairman, and you held this out to us once in the
20 telephone call, that the Board would be able to confer
21 and rule today without further written presentations of
22 the parties, I guess on the basis of having heard the
23 evidence presented here, and to me it is strongly enough
24 supportive of our original position that there is no --
25 well, we have got a lot of elaboration today, but what

1 the words mean and what they had in their minds, but
2 there is really nothing new in the way of a technical
3 basis or analysis that hasn't been thoroughly aired at
4 the hearing.

5 I hope a lot of this sounded familiar to you
6 in terms of the positions that were taken back and forth
7 in the earlier proceeding and that we wouldn't have to
8 go through, given the competing demands that are now
9 before everyone, another round of pleadings on this
10 motion.

11 MR. CUTCHIN: I would like to state as
12 strongly as I might, Mr. Chairman, that I was relying on
13 that particular understanding in not objecting more
14 strenuously this morning to the spreading of all of this
15 on the record because I can't say it any other way.

16 It seems to me we have been somewhat sandbagged, if
17 that is the proper phrase, because if indeed the purpose
18 of this proceeding was to allow the Board to decide or
19 to hear what the technical facts and analyses, if any,
20 that underlay these witnesses' recommendations were and
21 if, and only if, those were sufficiently different and
22 sufficiently strong in the minds of the Board to
23 convince it that it really might change its bottom line
24 decision in this PID, I guess I am at a loss to see why
25 it is difficult for the Board to rule from the bench.

1 CHAIRMAN SMITH: You are placing a very large
2 burden upon the Board to take a day of testimony and
3 just say that it cannot possibly materially affect our
4 decision.

5 MR. CUTCHIN: Would an alternate be, Mr.
6 Chairman, rather than having the parties file additional
7 papers now, to have the Board take this transcript and
8 look at it and see if that is the case, and not have to
9 digest it here today, but rather than generating more
10 rounds of paper, that perhaps the Board could focus on
11 that transcript as supplementation of the motions,
12 because as I understood the question, the Board was
13 concerned as to whether there were indeed any technical
14 facts underlying these recommendations that had not been
15 brought forward that might cause the Board to decide
16 that it needed to reconsider its decision.

17 CHAIRMAN SMITH: Well, we have explained at
18 the outset that we would at least not absolutely
19 foreclose other arguments based on opportunity to
20 observe and different abilities to interpret the same
21 facts. We haven't foreclosed that.

22 Let's take a short break, and let the Board
23 consult, and we will come back and announce what we want
24 next, and if we want something to schedule for, ten
25 minutes.

1 (Whereupon, a brief recess was taken.)

2 CHAIRMAN SMITH: Mr. Cutchin, I am troubled
3 somewhat by your suggestion that the Board -- let me say
4 the Chairman has somehow led you into a position you
5 don't belong in. I concede that I did say that I would
6 hope that after we would have a preliminary hearing,
7 that the Board could rule on the motion, but I by no
8 means intended to give that guarantee, and I have often
9 throughout this proceeding and other proceeding hoped
10 that matters would be simpler than they have turned out
11 to be, but I was nevertheless sincere in expressing
12 that, but as it turns out the Board collegially feels
13 that we cannot rule today, and if you want to elaborate
14 upon your concerns and seek appropriate relief, we will
15 hear from you.

16 MR. CUTCHIN: At this stage, Mr. Chairman, I
17 am not sure that I could frame a request for relief. I
18 think the best thing as this stage is, let's hear what
19 the Board thinks it wants us to do next, but I would
20 strongly hope that the Board, before asking for other
21 rounds of papers, might be able to focus on the record
22 itself.

23 CHAIRMAN SMITH: We have considered the
24 possibility that we could look at a transcript. That is
25 not an impossibility. We could do that, and rule. But

1 we think that it will be much more -- it would be
2 easier, let's say, to be guided by the parties. I
3 realize that you have a conflicting schedule before the
4 Appeal Board, but we retain jurisdiction over the
5 subject matter of our initial decision. If the
6 appellate forum is insensitive to your problems in
7 remaining in this area and getting that over with -- and
8 I haven't followed that, and I am not suggesting that
9 they are -- that in no way relieves us of proceeding
10 with dispatch in our job of getting this case over with,
11 and we will have to do that, and if you are having
12 trouble with the Appeal Board or the Commission, maybe
13 this portion of the transcript might assist you. But we
14 are not done with this case yet, and we still need your
15 help and attention. But we want to tell you how much
16 and how little we need.

17 First, we are going to give right now an
18 opportunity for UCS if it wishes to represent the
19 intervenors to make arguments to use based upon this
20 transcript and whatever else in their viewpoint as to
21 the non-technical bases, why they think that they have a
22 right to prevail either in whole or in part, a reference
23 to the hermetically sealed component and the
24 relationship of the witnesses to the NRC hierarchy, and
25 the other things that you alluded to, and as I recall,

1 Ms. Weiss, not only did you allude to them, but you
2 represented to the Board that you would reproduce it by
3 way of testimony.

4 We will give you that opportunity to make all of
5 the non-technical bases arguments now for 15 minutes,
6 and then a like amount of time collectively -- in toto,
7 I mean, for the staff and the licensee to respond.

8 Then we will have briefs, limited to UCS and Mr.
9 Sholly's view of how this testimony this afternoon has
10 developed technical bases and limited to technical
11 bases, that is, facts and analyses which were not
12 included in the positions that were not taken into
13 account, and the positions presented by the staff at the
14 hearing, or with reasonable diligence by parties adverse
15 to the staff could not have been produced.

16 For example, you asked a question of this
17 group on cross examination which seems to be a perfectly
18 logical cross examination question that could have been
19 put to the witnesses at the time. We may even take that
20 into account at the time we rule on it. So, if you want
21 to address that, that would be fine, and we would expect
22 UCS and Mr. Sholly to represent to us that these
23 technical bases do not appear in our initial decision or
24 in the proposed findings of the parties or elsewhere in
25 the evidentiary record.

1 I suppose you are prepared to do that, and we
2 will permit 20 pages for UCS and ten pages for Mr.
3 Sholly. We want it to be concise and factual. We also
4 want you to reaffirm, if that is the case, reaffirm and
5 resupport your entire motion, if you have dropped
6 portions of it. I know you would anyway, but we would
7 expect you to tell us about it.

8 Any questions about that?

9 MS. WEISS: Well, the thing that troubles me
10 is that the Board appears to have ruled by what you have
11 just said, that is, that the briefs should deal with
12 technical bases that do not appear in the record or were
13 not considered in the decision. The Board appears to
14 have ruled that it will not give any weight to the fact
15 that in our view these witnesses were far closer to the
16 accident and had a different sort of experience than the
17 witnesses --

18 CHAIRMAN SMITH: Now, we expect you to make
19 that argument, and then you have the entire 20 pages
20 available to you for your factual and analytical
21 discussion, but we expect you today, right now, to make
22 the argument to us about the position of these witnesses.

23 MS. WEISS: Because it has never been our
24 contention -- and I tried to make that clear in the
25 opening statement -- that these men had any secret facts

1 or they knew some particular aspect of the accident that
2 nobody else knew. That has never been the basis for our
3 motion. The basis for our motion has been that this is
4 a group of people who had very different experience than
5 the witnesses who appeared for the staff, and who
6 therefore interpreted and who had a much closer, much
7 closer observation of the accident.

8 In fact, if you will recall, neither Mr.
9 Jensen nor Mr. Sullivan were particularly familiar with
10 the accident, nor did it affect their testimony in any
11 way. This testimony comes directly out of the accident,
12 and experience of people who worked every day with the
13 relationship between operators and equipment in an
14 accident environment or in the operation of a plane.

15 Our motion was based on the fact that with
16 that body of experience and that body of knowledge that
17 these men have, they reached conclusions which in the
18 pertinent case is directly parallel to UCS for precisely
19 the same reasons that UCS adopted -- or that UCS made
20 those contentions.

21 So, we don't expect anything to have dropped
22 out of the sky today. In fact, we tried to organize our
23 cross examination today to focus on precisely those
24 portions of the partial initial decision where the Board
25 came down and said, we have heard this point of view, we

1 have heard that point of view, we make a decision this
2 way for that reason, and we have tried to hone in on
3 those areas to see where we could get relevant testimony
4 from these witnesses that might change the way the Board
5 came out.

6 So, that is why I am troubled by the statement
7 earlier that you want us to focus on what does not
8 appear in the record and does not appear in the
9 decision. We would have cast it quite the other way
10 around.

11 CHAIRMAN SMITH: I don't know how to help you,
12 Ms. Weiss. We intend to approach the motion as we have
13 so far, carefully and thoroughly. The only way we can
14 think of to do it is look at what you are saying, go
15 back to our decision, look at the decision, go back to
16 the proposed findings, and see if we missed something,
17 and that is how -- I don't know how else to do it.

18 You know, it is not magic. We are not
19 omnipotent. The only way we can do is on a fact by
20 fact basis and a hard work basis.

21 MS. WEISS: Exactly. I just want the Board to
22 be clear that we do not accept the staff's definition of
23 what the question is that the Board has to answer. We
24 don't think the question is, is there some fact that
25 these people knew that people who came after them didn't

1 know. We don't think that is the issue.

2 We think it goes to whether the conclusions
3 which these men reached based on different experience,
4 different backgrounds than the other set of staff
5 witnesses are more to be believed.

6 CHAIRMAN SMITH: Okay. Now, you have been
7 given the opportunity and you are taking it, I see, to
8 make this argument to us right now that they are more to
9 be believed, and you can tell us why, and then we will
10 give you more opportunity to highlight the actual
11 factual basis and analytical bases that they had which,
12 coupled with their greater opportunity to observe,
13 should convince us that our decision will be materially
14 affected.

15 MS. WEISS: That is fine. Two other things
16 you mentioned, I hope that I can just discuss them to
17 your satisfaction right now. You mentioned our argument
18 about hermetically sealed components of the staff. I
19 think the record is clear on certain things which make
20 that rather indisputable. One is that none of the staff
21 witnesses, previous staff witnesses was aware of the
22 existence of the Martin Report at the time they
23 testified or indeed until our motion was filed. That is
24 clearly in the affidavits. It didn't have to be brought
25 out again necessarily. So, those people were certainly

1 sealed off. They never had the benefit of this report
2 nor of this analysis.

3 Point Two. The substance of the Martin Report
4 recommendations do not appear in any draft of the action
5 plan, nor in any I&E document other than the Martin
6 Report, so if they didn't have the Martin Report there
7 was no other way they could have gotten to the substance
8 of their recommendations. There has certainly been no
9 dispute of that. So I think, you know, that establishes
10 that the previous staff witnesses were walled off from
11 this information.

12 We heard today that the witnesses that
13 appeared today put a document into the hopper. They
14 were never told of what disposition was made of their
15 recommendations, nor the reasons why. To me that
16 establishes that once this was put into the hopper,
17 these people were sealed off from what went on beyond --
18 from what went on at the management level, and every
19 point beyond that.

20 In my view, that establishes clearly that
21 there was no interaction between these two groups, and
22 in our view, as I said this morning, this group is the
23 group that is more qualified and more experienced to
24 testify on the issues which the UCS contentions raised,
25 and that is exactly what we will be briefing to you in

1 more detail.

2 I mentioned this morning --

3 CHAIRMAN SMITH: Wait a minute. Would you
4 repeat your last statement? That was what we said you
5 should not do.

6 DR. JORDAN: I think you are right. Go ahead
7 and say it again.

8 MS. WEISS: What I said was that I think this
9 group of witnesses today was more experienced and more
10 qualified to testify on the issues which UCS raised, and
11 that is what I expect to use this transcript to show to
12 you in the briefing.

13 CHAIRMAN SMITH: All right. If you do, then
14 it will be at the expense of -- you are going to have 20
15 pages, and if you do that, it is going to be at the
16 expense of the particular technical bases then, but that
17 is up to you. I am just giving you a double opportunity.

18 MS. WEISS: When we say technical basis, Mr.
19 Chairman, we may have a different understanding of what
20 that term means. A technical basis can be a computer
21 analysis, and in Mr. Jensen's case that is what it was.
22 A technical basis can equally well be four months of
23 investigation and 20 years of experience in the
24 operation of reactors.

25 When I say technical basis, I include the

1 latter, and that is why all the questions that we asked
2 today, virtually all were prefaced by, based on your
3 experience and or your investigation of the accident. I
4 consider that a technical basis.

5 CHAIRMAN SMITH: Or it could just simply be a
6 different thought process.

7 MS. WEISS: Or it could be, and I think if you
8 go through this transcript today you will see that these
9 witnesses are very -- remarkably consistent in
10 responding to questions and being specific. This is
11 what we recommended because this happened during the
12 accident, and because we know that valves have been
13 called upon in the past, for example, and I think there
14 is a basis in there.

15 DR. JORDAN: We think the questions you asked
16 and the responses were indeed directed toward the
17 technical basis, so that that is not a problem.

18 MS. WEISS: Okay. That is a relief.

19 The last comment that I have is with respect
20 to the remarks I made in my opening statement about the
21 fact that I believe that the staff, and I am referring
22 primarily to staff counsel, because that is where the
23 documents come from these days, has been trying to make
24 this into an issue of do these witnesses agree or
25 disagree with management. That really is the question

1 that one gets into at the second level.

2 We asked a lot of questions, not a lot, but some
3 questions yesterday in our informal discussions directed
4 towards that, and just for the Board's information, it
5 was clear to us -- and I think it is -- that it really
6 is self-evident that at this stage, there having been
7 produced an official document called the action plan,
8 which was endorsed by the Commission, members of the
9 staff who take their marching orders from their
10 management, from the Commission, are loathe to say, I
11 disagree with that.

12 The question was not asked today, because we
13 remained at the first level, and because I believe -- we
14 believe that that is not the issue, do you agree or
15 disagree. As I said this morning, the issue is, does
16 this Board find that there was sufficient technical
17 merit based on the bases we elicited that these are the
18 positions they would like to adopt, because, of course,
19 the action plan itself doesn't prove anything in this
20 case. It has no particular value as proof in this
21 case. This Board's decision has to be based on the
22 record, and that is the testimony of the witnesses that
23 justify the actions the staff chose to take or not to
24 take.

25 That would complete my remarks, unless the Board

1 has any further questions, and I look forward to the 20
2 pages of brief.

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1 CHAIRMAN SMITH: All right, Mr. Sholly.

2 MR. SHOLLY: Just very briefly, I think with
3 particular reference to the control room recording
4 system recommendation that the testimony of the
5 gentlemen today confirmed exactly what I expected it to,
6 that from the standpoint of investigators trying to
7 ascertain what happened, when it happened, who knew
8 about it, how this caused the participants to do what
9 they did -- such a system could be very useful, and I
10 think it is precisely because of their background and
11 their experience and their job that caused them to make
12 that recommendation, and that is exactly the opposite of
13 the witnesses that we have previously heard from. They
14 were from NRR. They did not have an inspection or
15 investigation background. And I expect to deal with
16 that at some length in those ten pages.

17 CHAIRMAN SMITH: The control room recorders is
18 one that struck me as being along the line of where you
19 are talking about, is where perhaps people on the scene
20 and their opportunity to observe may have a particular
21 value.

22 What if you prevailed on that? What would we
23 do? We do not know to what extent they inquired of the
24 people they interviewed and what effect the recorders
25 might have, although they did allude to it, and we do

1 not know -- I am just really asking for advice.

2 What would we do? What if you convinced us?
3 What would be the next thing we would do? Call them
4 back? Reopen the hearing? Call them back and have
5 rebuttal come in? Or just what would be the reach of it?

6 MR. SHOLLY: It is times like this, Mr.
7 Chairman, that make me wish I had gone to law school
8 instead of majoring in geology. And, you know, for
9 whatever lack of skill in inquiring I perhaps did not go
10 as deeply as I should have.

11 CHAIRMAN SMITH: I am not suggesting that at
12 all.

13 MR. SHOLLY: Well, I personally think --

14 CHAIRMAN SMITH: As a matter of fact, you
15 were not really given much more latitude than you took.
16 I am not suggesting you did not go far enough. Let us
17 defer that question until we hear from the others.

18 MR. BAXTER: Mr. Chairman, it is sort of news
19 to me to hear today that the thrust of UCS's case in
20 this proceeding was to convince the Board their
21 contentions were right from the basis of operational
22 experience and people who are familiar day to day with
23 the operation and investigation of reactor operations.

24 I do not think that is the experience Mr.
25 Pollard brought to the proceeding, and I recall a lot of

1 testimony and focusing upon the meaning and
2 applicability of General Design Criteria, IEEE
3 standards, the Standard Review Plan, and other
4 regulatory precedent that may or may not have anything
5 to do with operational focuses in terms of how the
6 plants are run and respond to transients.

7 If that was of interest to UCS, why did they
8 not go after these people two years ago? Why did they
9 need the recommendations in the Martin Report to go
10 after people who had operational experience if the staff
11 did not have it?

12 Did they ever move this Board for leave under
13 2.720(h) to depose any of these people? They were
14 clearly identified in NUREG-0600. I am sure their
15 experience and background could have been brought
16 forward. And it is only now that we suddenly have this
17 new-found interest which is based on their
18 qualifications and exposure to an investigation of the
19 first 16 hours of the accident.

20 Ms. Weiss refers to other staff people as
21 having been walled off. I do not think that was any
22 kind of conscious effort on anyone's part which the
23 terminology she employs suggests. The staff witnesses
24 certainly were not walled off from NUREG-0600, the main
25 body of information produced by this team in terms of

1 what the accident sequence was. It has been well
2 thought through and considered by a lot of other groups
3 that have investigated the accident since then.

4 And of course we know that the Action Plan
5 group and the Lessons Learned task force had
6 representatives from Inspection & Enforcement on it and
7 operational people and came to many of the same
8 conclusions that the staff witnesses did here.

9 I am not going to sit here and argue that
10 these gentlemen are not qualified. They are clearly
11 qualified to do the job they did. But all we heard was
12 what their views were in August of 1979, and they said
13 they were not aware of a lot of what was going on in the
14 rest of the industry and the rest of the agency. They
15 did not have the benefit of the ICS failure modes and
16 effects analysis, the knowledge of what changes were
17 going to be made to the PORV set points, and the
18 additional indication of PORV positioning put in, the
19 control design room review and human factors studies.

20 We do not know from their qualifications
21 whether today and based on the diverse interactions and
22 studies that have gone on at all levels of the staff
23 since August 1979 whether they would have these views or
24 not, and I do not think that is what the Board should be
25 looking for now is taking additional votes.

1 We had a lot of witnesses of many kinds of
2 different backgrounds, and none of them to my knowledge
3 even when directly challenged by UCS in terms of their
4 qualifications, as Mr. Conran was, was found to be
5 unqualified by the Board to present their testimony.

6 So I think when we talk about their
7 qualifications we have to talk about for what purpose --
8 they were immensely qualified in terms of what they
9 brought to their investigation and what they had before
10 them in August when they did what they did, and they
11 have been very candid about that. And it does not at
12 all indicate that there would be additional testimony
13 now to be brought to the Board on these contentions that
14 is any different or enlightening or has any different
15 basis than what we have already heard from the many
16 witnesses that have testified.

17 Thank you.

18 MR. CUTCHIN: Mr. Chairman, I would only add
19 that this is the first time the staff has interpreted
20 the thrust of the Intevenors' motions to go in that
21 direction either.

22 I would also add that while these witnesses --
23 the staff, of course, would agree -- were eminently
24 qualified for the task they did, I think it has been
25 stated several times during their testimony that not

1 only were they not familiar with what was going on, with
2 what was being done by others to come up with
3 recommendations, I think if they were asked they would
4 say that they were not that intimately familiar, with
5 perhaps the exception of the one individual who was in
6 Region I, with the design of the TMI -- I am sorry --
7 the TMI-1 plant.

8 And so I am not sure how even if they have
9 these qualifications and background and experience,
10 without some knowledge of the design fixes that have
11 been imposed at TMI and will be in the short and long
12 term, they can bring to bear the benefit of that
13 experience, because I think it is those kinds of answers
14 the Board would have to have in order to weigh the value
15 of their testimony with respect to improving the design
16 of the TMI-1 plant.

17 I would only say with respect to Mr. Sholly's
18 argument that I believe that the presence of a so-called
19 black box recorder does not make the plant safer to
20 operate. It makes the job of the investigator who is
21 trying to determine what happened after an accident
22 easier to do; And I think an example of that is they
23 are always looking for these black boxes in the
24 airplane, so they are trying to figure out how to
25 prevent the next one. It does not make the one that is

1 presently operating safer, especially if it is only
2 going to be actuated when the accident occurs.

3 CHAIRMAN SMITH: Are you suggesting that we
4 might not even have jurisdiction over that?

5 MR. CUTCHIN: I think you have jurisdiction to
6 decide whether you do, Mr. Chairman. But I would only
7 offer that argument. I think the presentation that he
8 made and the purpose for which he would have that black
9 box installed would raise that question certainly in my
10 mind.

11 CHAIRMAN SMITH: This point occurred to me
12 when the analogy to the black box was being raised; that
13 assuming that we are convinced, you know, that these
14 gentlemen saw the usefulness of the black box, and then
15 we go to the generally recognized standards for
16 reopening the record, which is is it a significant
17 safety issue, and one might say that it is, but then we
18 could go to the next step and say that it is a
19 significant safety issue for other reactors. And that
20 is perhaps outside our scope.

21 MR. CUTCHIN: I am not sure it is necessary
22 even for the reactors. Say every plant in existence had
23 one of these black boxes. It would not make that
24 particular plant safer to operate. It would make the
25 job of the investigator after an accident had occurred

1 at that plant easier, and it would enable him perhaps to
2 make better recommendations to improve the safety of
3 operation of other plants after that point in time.

4 CHAIRMAN SMITH: So you are saying the job is
5 made easier, not better.

6 MR. CUTCHIN: I would not argue easier versus
7 better, but I am just saying it does not improve the
8 safe operation of TMI-1 prior to having an accident or
9 even after having an accident unless, of course, the
10 plant can be cleaned up after that accident and put back
11 in operation.

12 But I think this Board is charged with looking
13 at the short and long term actions that are necessary
14 and sufficient to make this plant safe to operate?

15 CHAIRMAN SMITH: Anything further?

16 MS. WEISS: Yes, Mr. Chairman.

17 CHAIRMAN SMITH: Ms. Weiss.

18 MS. WEISS: I would like to respond just to
19 two remarks.

20 There is the suggestion that UCS in some way
21 sat on its rights and belatedly became interested in the
22 conclusions of the investigators. Let me just remind
23 Mr. Baxter that we had no way of knowing that this
24 document existed. That is well documented. NUREG-0600,
25 which is far as anybody could tell is the only I&E

1 investigation, did not contain any design-related
2 recommendations. I will not go into the details.

3 I am sure the Board does not need to be
4 reminded of the fact that UCS did not set on its
5 rights. It brought this to the attention of the Board
6 as soon as it could.

7 Secondly, the suggestion from both the
8 Licensee and the Staff that they have just learned what
9 the nature of the UCS motion is, that it is based -- I
10 cannot believe that learned counsel read the papers in
11 this case, particularly pages 11 to 13, without
12 realizing it was the gist of the motion.

13 Let me just give you the flavor of it. This
14 is the reply of UCS to the Staff and Licensee opposition
15 to our motion. Well, that has been around since October
16 30th, not exactly recent. And it states that, to give
17 you some of the flavor, not only does the fact that the
18 Staff witnesses were totally unaware of the I&E
19 recommendations reflect poorly on their preparation and
20 qualification for giving the testimony they presented,
21 it is also important that the Staff witnesses testify
22 generally on the basis of a theoretical knowledge of
23 plant design, and/or computer analyses, without being
24 particularly knowledgeable, all were influenced by the
25 TMI-2 accident. In contrast, the I&E recommendations

1 come from a group which deals on a day-to-day basis with
2 plant operation in which they have done detailed
3 analyses of the accident.

4 The same general statement appears other
5 places in page 11, page 13, on the footnotes. I cannot
6 believe I have sprung a surprise on learned counsel.

7 No further comment.

8 CHAIRMAN SMITH: Anything further?

9 MR. BAXTER: I was just going to say Ms. Weiss
10 totally missed my first point, which was not that they
11 were late in bringing to the Martin Report to the
12 Board's attention, but that if operational interests
13 were really the source of their contentions, that was
14 not pursued by UCS at any time in this proceeding to my
15 knowledge.

16 MS. WEISS: They support the contentions.
17 That is the issue, not whether they are the source,
18 whether they support them.

19 CHAIRMAN SMITH: Okay. I think we understand
20 the point. So we will allow UCS 20 pages, and I guess
21 we have to allow -- we will allow UCS 20 pages and Mr.
22 Sholly 10 pages, to be delivered to the parties and the
23 Chairman's office and mailed to the other Board members
24 by Friday.

25 MR. POLLARD: Tomorrow?

1 CHAIRMAN SMITH: No. A week from Friday. The
2 transcript will be ready tomorrow. Responses the
3 following Friday.

4 Ms. Weiss, I see you holding your head.

5 MS. WEISS: I just cannot see how we can do
6 that. I mean I understand the Board to have said take
7 your problems with the Appeal Board to the Appeal Board.

8 CHAIRMAN SMITH: I am not even aware of what
9 your schedule is before the Appeal Board.

10 MR. BAXTER: Neither are we.

11 MS. WEISS: That is part of the problem. We
12 have briefed about, I guess, 40 percent of the
13 exceptions and asked for an extension of time until
14 April the 5th to brief the remainder of them. We are
15 operating on the premise that is going to be granted, so
16 we are working on those.

17 MR. BAXTER: The Appeal Board schedule is
18 totally up in the air because of some problems with UCS
19 briefing, and the Appeal Board asked for the parties'
20 comments on Monday on whether their brief will be
21 accepted and whether they are going to allow further
22 briefs, and they are going to set a reply schedule, if
23 any, after they rule on those motions. So it is all up
24 in the air in terms of when things will be due with the
25 Appeal Board. And I think you might as well set your

1 schedules independent of it.

2 CHAIRMAN SMITH: I think we have to, because
3 no matter what we do the appellate for are going to have
4 to rule on what we do now, so we still have the same
5 pressure to get our decision out promptly, so let us
6 stick with that schedule. We will stick with that
7 schedule.

8 MR. BAXTER: That is March 26th and April 2,
9 to make sure we do not have any --

10 CHAIRMAN SMITH: That would be March 26th.

11 MR. BAXTER: And April 2.

12 CHAIRMAN SMITH: If that is the following
13 Friday.

14 And the answer to the motion would be similar,
15 20 pages and 10. Then those times and length of
16 pleadings will also apply to any other party who is
17 filing papers in this case.

18 Anything further this evening?

19 All right. Thank you. Thank you
20 particularly, gentlemen, for interrupting your schedules
21 and coming here to help us.

22 (Whereupon, at 3:35 p.m., the hearing was
23 adjourned.)

24

25

NUCLEAR REGULATORY COMMISSION

This is to certify that the attached proceedings before the
Before the Atomic Safety & Licensing Board

in the matter of: Metropolitan Edison Company (TMI Unit 1)

Date of Proceeding: March 18, 1982

Docket Number: 50-289 (Restart)

Place of Proceeding: Bethesda, Maryland

were held as herein appears, and that this is the original transcript thereof for the file of the Commission.

Ann Riley

Official Reporter (Typed)

Ann Riley

Official Reporter (Signature)