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UNITED STATES

NUCLEAR REGULATORY COMMISSION

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In the Matter of: :
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METROPOLITAN-EDISON (TMI II) :
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Conference Room D-4
Howard Johnson Motor Inn
473 Eisenhower Boulevard
Harrisburg, Pennsylvania

Friday, September 5, 1980

Interview of

GARY PAUL MILLER

called for by the Nuclear Regulatory Commission, pursuant to
notice, at 8:15 a.m.

On Behalf of the Nuclear Regulatory Commission:

- TERRY HARPSTER, Office of Inspection and Enforcement
- JOHN W. CRAIG, Office of Inspection and Enforcement
- NORMAN C. MOSELEY, Office of Inspection and Enforcement
- DAVID H. GAMBLE, Office of Inspector and Auditor
- RICHARD K. HOEFLING, Office of Executive Legal Director

On behalf of Metropolitan-Edison Company:

- ERNEST L. BLAKE, JR., ESQ.
- WILLIAM BRADFORD REYNOLDS, ESQ.
- Shaw, Pittman, Potts & Trowbridge
- 1800 M Street, N. W.
- Washington, D. C. 20036

POOR ORIGINAL

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1 PROCEEDINGS

2 MR. GAMBLE: Can we go on the record now.

3 This interview is being conducted as a portion of
4 the Nuclear Regulatory Commission's investigation into the
5 exchange of information between the Metropolitan-Edison
6 Company and the NRC on March 28th, 1979.

7 Mr. Miller, would you please state your full name
8 for the record.

9 MR. MILLER: Gary Paul Miller.

10 MR. GAMBLE: Counsel present, would you please
11 identify yourselves for the record.

12 MR. BLAKE: Ernest Blake and William Bradford
13 Reynolds, both with the law firm of Shaw, Pittman, Potts &
14 Trowbridge. We are here representing Metropolitan-Edison.

15 MR. GAMBLE: Mr. Miller, counsel present are
16 representing Metropolitan-Edison Company. Do you have any
17 objections to their presence during this interview?

18 MR. MILLER: No.

19 Whereupon,

20 GARY PAUL MILLER

21 having been first duly sworn by Mr. Gamble, was examined and
22 testified as follows:

23 THE WITNESS: Can we go off the record one second?

24 MR. GAMBLE: Certainly.

25 (Discussion off the record.)

1 MR GAMBLE: Back on the record.

2 While we were off the record we just discussed Mr.
3 Miller's request for a copy of the transcript and we agreed
4 to provide a copy when it is available within a week or two.

5 EXAMINATION

6 BY MR MOSELEY:

7 Q Okay, Mr. Miller, I know that it is rather hard
8 for you at this point in time to remember times and
9 sequences, but if you will, would you recount for us the
10 conversations that you had with Mr. Herbein on March 28th
11 concerning the accident and we would sort of like to have
12 them in the sequence in which they occurred.

13 A The most vivid recall I would have would be in the
14 early hours before there was recognition of the severity of
15 the problem, and that is that somewhere in the time frame of
16 five to six in the morning I had a conference call set up
17 with Herbein and Lee Rogers of the Babcock & Wilcox
18 Company. I have given the best of my recall of that
19 conversation prior to this.

20 After that point Jack was in Philadelphia, and I
21 can't remember when the next conversation would have
22 occurred because he was coming to the observation center.
23 It was probably mid-morning.

24 Q Ten or thereabouts?

25 A I don't think it was as early as ten. I believe

1 it was closer to 11 to 12. That is totally a guess on my
2 recall.

3 Q This would be after he arrived at the observation
4 center?

5 A Right. I can't recall in the sequence after.
6 After seven o'clock in the morning there were a lot of phone
7 calls that had to be initiated to carry out the emergency
8 plan, and in that sequence Jack could have called me and I
9 have forgotten. I could have forgot that from two weeks
10 after the accident. I just don't have the recall of
11 anything other than the early call because it was initiated.

12 Q I believe that my recollection is that Herbein has
13 told others that he had conversations with the control room
14 subsequent to his arrival and prior to your leaving for the
15 Lt. Governor's office. Did you participate in any of these
16 conversations with Mr. Herbein?

17 A Once Jack arrived at the observation center then
18 he began to set up his communications at that point which
19 was part of the plan for an emergency. He would have talked
20 to the control room on his own and I could have been unaware
21 of it. That is not unusual for the way we were organized.

22 Prior to the Governor's office we did have
23 conversations. There were times when I had to relinquish
24 the phone to people like Lee Rogers or people like George
25 Kunder because of the number of activities that I was

1 required to be a decision party in. The priority of talking
2 to Jack would have become No. 2 of the priorities in the
3 plan, in the emergency plan. I can't place times, although
4 I know we discussed that he wanted to go to the Governor's
5 office and I dispatched Kunder I believe to help assemble
6 that information.

7 Q Well, would you describe that there were frequent
8 conversations between Herbein in the control room between
9 his arrival and your leaving for the Lt. Governor's office,
10 some of which you participated in? Would that be an
11 accurate characterization of what you have told us?

12 A I don't know about the word "frequent." You know,
13 in an hour I might have less than 10 minutes of time when I
14 wasn't talking to someone about something either inside or
15 outside, and I can't say that it was no more frequent than
16 anyone else, as I the best I do recall.

17 Q Moving on to after you returned from the Lt.
18 Governor's office, did you have conversations with Herbein
19 that you recall?

20 A I recall having conversations but not all the
21 content. I certainly had one prior to the brief on the
22 preservation of the plant.

23 Q That was the one I had in mind.

24 A That one I can recall having. Frequently Jack
25 would call over. There are things that will pop out in my

1 mind. He was discussing the release, the ventilation
2 systems, that type of technical type conversation because of
3 his awareness of the plant. That occurred throughout the
4 day and I can't begin to place times and subject matter any
5 more.

6 Q Moving on to another subject, we were told
7 yesterday in an interview by Mr. Zewe that he had briefed
8 you when you arrived on March 28th in the morning that the
9 HPI had been throttled and the let-down had been increased
10 in an effort to control the level in the pressurizer. In a
11 May 7th interview with the IE investigators you said that
12 you perceived the operators were still tending to use the
13 pressurizer level as their indicator of a full system and
14 they were still tending to throttle HIP injection and trying
15 to recover pressurizer level.

16 From this can we conclude that you were aware in
17 the morning of the fact that the HPSI had been throttled
18 and the let-down had been increased in an effort to regain
19 or to control the pressurizer level?

20 A I can recall discussions on HPI throttling but not
21 specific flow rates. In our procedures HPI throttling was a
22 recognized item that you had to do. I think in the May
23 thing I was trying to conclude in my mind what they were
24 thinking more than being sure of what they were thinking.
25 That was my perception. The only thing that stands out

1 strong in my mind is that somewhere in the early morning,
2 and I got there at 7 or 7:05, somewhere in the first hour to
3 hour and a half it was throttled beyond the point where I
4 wanted it to be and I very strongly told Zewe and Ross
5 personally that it wouldn't be secured without me
6 personally. That is the one strong conversation that I can
7 remember.

8 Q Yes.

9 A The let-down, I can't recall today as specifically
10 I can the HPI securing, say, at 8:15 or 8:20 in the morning.

11 Q Okay. Was the status of HPI in the let-down
12 system discussed in the telephone conference call that you
13 Rogers, Kunder and Herbein participated in at about 6
14 o'clock?

15 A I can't recall any better today than what I have
16 said previously to questions that were asked like was the
17 block valve shut. Those kinds of things I have said before
18 and I can't remember.

19 Q I don't believe this is mentioned in that. That
20 is why we were interested in whether or not this was.

21 A I can't recall. The status of the plant was the
22 discussion, and I can't recall all the questions that came
23 up. The result of the conversation was that, you know, my
24 day was changed from another activity to go to the plant,
25 the reasoning being that the status of the plant wasn't

1 clear enough to the people on the call.

2 Q Did you at any time that day discuss the status of
3 the HPISI and the let-down flow with Kunder, Rogers,
4 Herbein, Chwastyk or anyone else, to your knowledge?

5 A I arrived at seven o'clock in the morning. Within
6 the first 20 minutes we were in a general emergency.
7 Therefore, I became in a position of being the emergency
8 director besides the guy in the overall charge of the
9 plant. I discussed every hour roughly, and roughly at
10 hourly intervals I sat down with the four or five people I
11 had appointed to be the people I would communicate through.
12 At every hour or hour and a half we discussed each guy's
13 area in detail with him. Mike Ross was Bill Zewe's boss.
14 That is how it came up at 8:30 in the morning about HPI. T
15 That was the way I ran it.

16 I don't remember any conversations with, say,
17 Chwastyk. I would have depended on Ross as my operations
18 supervisor, Dubiel as my radiation guy. That is the best
19 context that I can come up with, and, yes, there were
20 discussions in every area as frequently as practicable.

21 Q Well, if we delete Chwastyk from the list can we
22 interpret your statement to mean that you did have
23 discussions in this area with Kunder and Rogers at least? I
24 believe they were members of your think-tank.

25 A My memory is Kunder was doing a lot of

1 communicating for us. So he would have been a part of the
2 things to help communicate information. It is fair to say
3 they would have been there when we discussed plant
4 conditions.

5 Q I don't want to put words in your mouth. Did you,
6 to the best of your knowledge, discuss the HPISI, and I am
7 focusing on the HPISI and the let-down flow? I believe you
8 have said that all pertinent plant conditions were
9 discussed. Would that include the HPISI and let-down flow?

10 A Yes.

11 Q Do you recall discussing these with Herbein?

12 A I can't recall that today.

13 Q Mr. Arnold has testified that he had a
14 conversation with you around 10 to 10:30 in the morning.
15 Was the HPISI, throttling and the let-down flow discussed
16 with Mr. Arnold in this 10 to 10:30 conversation with you?

17 A I can't recall.

18 Q Was this information passed on to the NRC on March
19 28th, to the best of your knowledge?

20 A To the best of my knowledge, all of the
21 information discussed in my group was passed to the NRC. In
22 fact, from roughly 10 in the morning on, 10 or 10:30, they
23 actually were part of those meetings and were welcome to be
24 a part of it and asked to be a part of it.

25 Q But you have no recollection specifically of this

1 having been prior to the time any of our people were on site?

2 A The only recognition I have would involve
3 non-specifics. What I mean by that is that I knew there was
4 a phone dedicated to it and I knew there were people there
5 to answer and provide information. I can't begin to recall
6 passing specific information because I was passing it to the
7 state, to the NRC and to my management. The intent would
8 have been in those meetings, as a result of those meetings
9 to pass the pertinent information from all of the areas.

10 MR. HOEFLING: Gary, you indicated that the NRC
11 was invited to participate in the think-tank sessions; is
12 that correct?

13 THE WITNESS: Yes, sir.

14 MR. HOEFLING: Who extended the invitation?

15 THE WITNESS: Me.

16 MR. HOEFLING: At what time?

17 THE WITNESS: The minute they go there.

18 MR. HOEFLING: To the group that first came into
19 the control room?

20 THE WITNESS: Yes, sir.

21 MR. HOEFLING: What did you say?

22 THE WITNESS: I welcomed them into the meeting and
23 asked for suggestions and we even discussed at one point my
24 obligation as a licensee, and I had no problem with that.
25 There were hard decisions to make. There were people in

1 that control room that had knowledge of the plant strictly
2 from the technical standpoint.

3 BY MR. MOSELEY:

4 Q In your opinion, at the time the information that
5 we were talking about, that is the HPISI and the let-down
6 flow, that should have been reported to the NRC? Now, I am
7 differentiating between what you believed on March 28th, and
8 then I am going to ask you a similar question of what you
9 believe now. So would you answer as to what you believed on
10 March 28th first.

11 A I believe that there was an awareness of these
12 conditions that you are talking about on March 28th. An
13 awareness was there. The information was discussed openly
14 of that awareness and the knowledge was there. As far as
15 sitting down and writing a report, no.

16 Q No, I am simply asking as to the fact that the
17 HPISI was throttled and the let-down flow was increased.
18 Was that in and of itself a reportable item in your view on
19 March 28th? By reportable I am not restricting it to things
20 that would be in a written report. I want to embrace verbal
21 reports as well.

22 A I believe the emergency plan required things like
23 that to be listed on a discussion sheet, the status of
24 various things. From that standpoint, yes, it was required
25 to be reported.

1 Q And now do you believe the same?

2 A I believe the same.

3 MR. HOEFLING: What is this discussion sheet,
4 Gary, that you have made reference to?

5 THE WITNESS: Some of the questions on the general
6 emergency, if I remember right, and this is going back a
7 long way. There was a status of various things like
8 radiation readings.

9 MR. HOEFLING: That would be transmitted when
10 making the notification?

11 THE WITNESS: That would have been the thing that
12 George would have been using to help to talk to state and
13 talk to other people in addition to their questions. Then
14 as we progressed further through the day I believed that
15 some of the phones were manned by NRC people. Therefore as
16 a result of the discussions, the radiation readings were
17 passed and there was a multitude of information being
18 channeled that I was not aware of I am sure.

19 MR. HOEFLING: The discussion sheet, is that a
20 formal part of the procedure in making the notification?

21 THE WITNESS: I think there is a sheet in the
22 emergency plan or one of the emergency procedures that you
23 go down and it has things on it like HPI, radiation
24 readings, the ES system, and I am just remembering parts.

25

1 BY MR MOSELEY:

2 Q As we go on here, Mr. Miller, I am going to make
3 reference to a number of places where you have testified
4 previously. I have that stuff here. I won't take the time
5 to show it to you. If you feel like you want to look at it
6 ask me and we will give you an opportunity to read it for
7 context or whatever you desire. Unless you ask for it we
8 will presume that you have no disagreement with the quotes.
9 Is that satisfactory to counsel?

10 MR. BLAKE: That is fine with me. I take it we
11 are going to tie these, Norm, into the three subject areas
12 that were expected to be the areas that he would be
13 questioned on, the thermocouple readings, or the pressure
14 spike or the high dose initial reading? The HPISI questions
15 and others that Gary doesn't have much recollection about
16 today, are you going to tie those into those three areas
17 that you have indicated would be the subject of today's
18 questions?

19 MR. MOSELEY: Yes. We feel all of these questions
20 are related to those because the general knowledge of the
21 status of the plant and the various systems relate to the
22 assessment of these specific things that were outlined in
23 that.

24 MR. BLAKE: I see. Thank you.

25

1 BY MR. MOSELEY:

2 Q Going on, Mr. Miller, you stated to the IE
3 investigators on May 7th, and I quote:

4 "I came back to the plant. We, as I remember,
5 decided immediately to try to start the pumps, and we
6 started one or two or three and we got 100 amps. Totally no
7 flow which told us we weren't pumping anything."

8 Based on the parameters plot down by NSAC, and I
9 will show you this which I believe you have probably seen.

10 (Document shown to witness.)

11 Also on this Color Plate 3 which is an excerpt
12 from the Rogovin report and there is some overlap between
13 these two.

14 A Which pumps are you referring to?

15 Q I just read from your statement, but you are
16 referring to the primary coolant pumps?

17 A Right, not the make-up pumps.

18 Q That is correct.

19 Based on parameter plots down that I have just
20 shown you here, attempts to start the reactor coolant pumps
21 were made in two periods, one around 7 a.m. and another
22 around 8:25 a.m. Was this, that is the coolant pump, that
23 the reactor coolant pumps weren't pumping anything prior to
24 being shut down discussed in the telephone conference call
25 with Herbein, Rogers and Kunder? This is the early morning

1 conference call.

2 A I can't recall today any more than I may have said
3 in the past.

4 Q I don't believe your statement, if you are
5 referring to your 30-page statement, I don't believe that
6 this was specifically mentioned in there.

7 A I just don't remember.

8 Q Then can you recall what was discussed with regard
9 to the inability of the pumps to pump water?

10 A At what time?

11 Q We are talking about the same frame, during the
12 conference call.

13 A I can't remember.

14 Q Was the inability of the pumps to pump water
15 discussed with Arnold in his 10 to 10:30 telephone call with
16 you?

17 A I can't recall.

18 Q Was the information that the pumps could not pump
19 water reported to the NRC, to the best of your knowledge, on
20 March 28th, specifically in the morning of March 28th?

21 A I can't specifically recall reporting various
22 components, but I am sure that that was an obvious fact that
23 was reported as a part of any plant status that would have
24 been given.

25 Q Again, I want to ask you, in your opinion then,

1 this was a reportable item; is that correct?

2 A The fact that the pumps were secured?

3 Q The fact that the pumps could not pump water, were
4 no longer pumping water.

5 A In my opinion, that is an item that should have
6 been reported as a part of the conditions reported to the
7 NRC, yes, for the plant condition we were in.

8 Q And your opinion on the reportability today?

9 A When you say reportability, do you mean
10 reportability as far as informing and not reportability
11 referenced to a reportability definition of the NRC paper
12 that we live with?

13 Q I include reportability, and this will hold for
14 the rest of our conversation, reportability includes things
15 that you report formally in a written form but also those
16 things that you would tell the NRC in some prompt way when
17 you became aware of these.

18 A What I am trying to ask is a set of definitions on
19 reportable items. Are we talking strictly relative to that
20 black and white definition or are we talking reportable for
21 where we were that day? That is what is bothering me.
22 Reportable to me, once we got into the emergency plan,
23 everything in the plant status-wise was reportable to the
24 state and to the NRC and to our own management. Things like
25 the reactor coolant pumps were significant items and should

1 have been a part of those conversations. That is what I am
2 trying to say as opposed to prompt reporting in and 30-day
3 reporting. That is what is bothering me I guess.

4 Q Well, I think you have answered then the question
5 and I won't need to repeat it as we go through. All of the
6 things that occurred in the plant become reportable during
7 the event, and that was your view on March 28th and that is
8 your view today?

9 A Yes.

10 Q To your knowledge, this information was not
11 withheld from the NRC on March 28th; is that correct?

12 A Specifically it was not withheld. Nothing was to
13 be withheld.

14 Q Again, in your previous testimony, and this time
15 to the Special Inquiry Group in September, you stated that
16 you didn't remember discussing in the morning of March 28th
17 the fact that the PORV had been opened for about two hours.
18 Again, Mr. Zewe has stated that to the best of his
19 recollection the pressure response to the closing of the
20 block valve was discussed with you when you first took
21 charge on March 28th.

22 When you discussed the decision to depressurize,
23 which occurred at about 11:30 a.m., you stated, and this
24 again goes back to the SIG testimony, you stated that one
25 factor in the decision was concern that the EMOV block valve

1 could fail open or closed, and you specifically
2 differentiated between the EMOV and the block valve.

3 Doesn't the concern you expressed about the
4 failure of the block valve mean that at sometime before
5 11:30 a.m. you knew that the PORV itself was not functioning
6 properly?

7 A The concerns that are referenced there I think
8 have to be looked at at the point of the scenario we were
9 in. By that I mean in the early morning hours on the phone
10 call when the question was asked, was the block valve shut,
11 it was asked by Lee Rogers I believe, he was trying to see
12 whether the block valve had been shut in case there was a
13 failure of the PORV which you can't see very well. The
14 answer that came back was yes, it is shut, without any
15 discussion of it being open, you know, without saying it
16 just was shut. It was shut.

17 Later on in the morning in an attempt to provide
18 flow, if you are going to HPI in you have to let it out
19 somewhere, the concern I expressed on the block valve was
20 based on the history of block valve failures that I was
21 through in Unit I in the test program. It sits on top of
22 that pressurizer in a hot environment and at times it has
23 failed open and closed. Therefore I would have had one less
24 option, and that was my concern. The PORV is not a very
25 easy valve -- the PORV itself is not a valve that you would

1 normally think to use to throttle or to let water in and
2 out. The block valve was the valve because it was an open
3 and shut valve.

4 My first concern would have been failure of that
5 valve. Certainly I would have been concerned about the
6 failure of the other valve, but my history was with failures
7 of the block valve. It was a gate valve I believe and it
8 tends to stick sometimes open or shut. I didn't want to
9 lose the ability to open and shut a valve because there were
10 not many openings available in the system.

11 Q However, opening and closing the block valve
12 wouldn't allow water to go out unless the PORV was open?

13 A Yes, sir, I am aware of that.

14 Q What I am really trying to get at is were you
15 aware on the morning of March 28th that the PORV had been
16 opened for some period of time? Perhaps you didn't know it
17 was two hours and 20 minutes, or whatever the time frame
18 was, but for some extended period of time?

19 A I can't recall discussing the status of that valve
20 prior to my arrival after I arrived, if that makes sense to
21 you. In other words, I can't recall any conversation
22 relative to four to six in the morning about what was going
23 on because of the fact that what was going on then was much
24 more important. The historical review hadn't started in
25 anybody's mind. I don't recall that today.

1 Q Are you saying you don't recall having knowledge
2 that the PORV had been opened for some extended period of
3 time?

4 A I don't recall that.

5 Q What explanation were you given for the recovery
6 of pressure, the rather rapid recovery of pressure?

7 (Counsel and witness refer to document.)

8 A What time is that?

9 Q This is between six and seven.
10 When you came in and were briefed what explanation
11 were you given for that?

12 A You know, I can't recall specifics. I know there
13 was discussion on the phone at six in the morning about the
14 depressurizer and that type of thing, but I can't come back
15 and remember that specific discussion.

16 Q But during the six o'clock phone call the concern
17 was that the pressure in the system and the pressurizer
18 level didn't match. The pressurizer level was high while
19 the pressure in the system was low. After the closure of
20 the block valve and being directed to increase in pressure
21 now you no longer had that discontinuity. What explanation
22 were you given for that?

23 A I just can't recall.

24 Q You don't recall any discussion that occurred in
25 the think-tank or in your briefing when you arrived the

1 status of the EMOV?

2 A The discussions I recall in the think-tank
3 involved the use of the block valve and the EMOV for vending
4 off for the plant conditions we were in then and not the
5 plant conditions that had progressed us to that point.

6 Q Your 30-page prepared statement stated that you
7 knew that the hot-leg temperatures were greater than 700
8 degrees after about 8:30 a.m., and that you knew even
9 earlier that the console TH instruments were pegged high.

10 Did you observe or were you told that the expanded
11 scale multipoint recorder printout showed a sharp increase
12 beginning shortly after the pumps were shut down?

13 A Which scale is that?

14 Q That is depicted here (Indicating on chart) during
15 the time period again from 6 to 7 a.m.

16 A Is that the black recorder on the back panel?

17 MR. HARPSTER: It is the one on the back panel,
18 Gary.

19 THE WITNESS: The one that is not necessarily the
20 qualified grade instrument. It is not normally used that
21 much. It has got a lot of points on it. It is hard to read.

22 MR. HARPSTER: On the left-side of the console.

23 THE WITNESS: My recollection that I have of that
24 time frame was that we were hooked up on TH with the test
25 instrument. We were using that. There may have been a

1 discussion with me that I don't recall on that black panel
2 recorder. I always thought that the operators had a problem
3 reading that black panel recorder. I knew it was there, but
4 I don't think the RTDs are hooked to the RPSs where we were
5 taking voltage readings that I remember and getting similar
6 data, you know, in the range.

7 BY MR. MOSELEY:

8 Q Did you inquire, or were you told as to what had
9 happened or how the sharp divergence between TH and TC had
10 developed and when it had developed?

11 A I don't recall a discussion of that. I did recall
12 in my testimony I think in that earlier time frame, 7 to 8
13 or 8 to 9 in the morning, a discussion of an evaluation of
14 some heat removal. The TC we would have thought was low
15 because HPI physically comes into the systems, I remember
16 being told, and we would have expected that to respond to
17 that colder water. TH would be on scale. That is one of
18 the reasons we were looking for a temperature device. Plus
19 I think we were using a steam generator pressure or
20 temperature recording instrument. That kind of discussion I
21 remember in the early time frame as far as trying to
22 determine some heat removal capability while we were pumping
23 the HPI in.

24 Q Early on you asked for a instrument to be set up
25 to expand the scale of the TH indications on the console.

1 Was a record kept of the data from these instruments?

2 A I had a requested that a record be kept. I can't
3 tell you where that is at or whether that was fully
4 implemented, but I had requested that, yes.

5 Q Were you aware on March 28th that it was being
6 kept? Let me go on to say that what I am getting at is was
7 this record looked at or trends or movements or changes in
8 these temperature indications?

9 A There were points during the day when I recall
10 discussions with Ross I believe and some of the group about
11 trending on temperatures, the differences in temperatures
12 and differences in the loops in the temperatures. I can't
13 recall specifics of the discussions, but I think that was a
14 part of some of our think-tank meetings.

15 Q Was Ross or someone else assigned the
16 responsibility for trending these data?

17 A I can't recall who would have been assigned.

18 Q Do you recall that someone was assigned?

19 A I can't recall a specific assignment other than
20 that was a part of the discussions. I can't recall a
21 specific set of words saying you do that trending. I guess
22 I am saying it was implied in the kind of meetings I was
23 having every hour or every two hours to discuss that, to
24 trend it. The assignment could have come from some other
25 level than mine.

1 Q Just to clarify, did you direct or request Mr.
2 Ross to have someone do this?

3 A I can't recall giving a specific direction today.

4 Q In your statement during the Met-Ed group
5 interview, and this was a recording that was made on April
6 12th, you said, and I quote:

7 "Our major concern was that the fuel didn't
8 degrade any more than it had degraded from there on and to
9 somehow figure out how to prevent that and how to stop
10 this. I didn't really feel that we were stopping at the
11 initial stages. I was scared of running out of water. The
12 outside pressure that I was getting indicated that you could
13 just pump this thing solid and I couldn't get it solid. You
14 could have pumped all day, but I am convinced that without
15 pumping water into the hot leg because you had to collapse
16 those bubbles we didn't have a 4,000 pound system."

17 You also stated in your testimony to the Senate
18 investigators on September 28th:

19 "We were pumping at that time or close to that
20 time as high a pressure as we had decided to go, and the
21 water level not changing or not charging the system solid.
22 In fact, we were losing water to the reactor building floor,
23 in other words, very hot superheated conditions."

24 Further in your statement to the Senate
25 investigators on October 29th you stated, and I quote:

1 "Somewhere in the morning, maybe because of Lee
2 Rogers' thrust, there must have been discussion of a
3 superheated condition, but as of today I can't remember
4 that."

5 Later in the same interview you said in another
6 quote:

7 "I think sometime later in the morning we may have
8 discussed steam conditions when we got into the core flood
9 type discussion because we were aware we weren't getting
10 anywhere by charging the plant."

11 You were then asked if you think that perhaps
12 later in the morning the steam conditions were discussed and
13 you responded, and I quote:

14 "I think that is true, and I base that on the fact
15 that I think Lee Rogers and his people may have brought that
16 up. I don't think that that made much difference from an
17 action standpoint. I think we talked about going against
18 the code release, but that is very hard to remember."

19 Now, a final reference. Zewe has stated to us
20 that everyone was aware of superheat after the bridge was
21 set up in on the RPS.

22 Now, my question is, weren't you aware on the
23 morning of March 28th that hot-leg temperatures were in
24 excess of saturation temperature for the corresponding
25 reactor system pressure?

1 A I don't think I can add any more to the quotes
2 that you have given me from what I have said previously.
3 The essence of that was it is hard to remember at which time
4 the steam conditions were exactly discussed, and from an
5 action standpoint the concern was to keep putting water in.

6 Q Does that mean that in the morning of March 18th
7 you were aware that the temperature was in excess of
8 saturation; in other words, there was superheat conditions
9 existing?

10 A I don't understand the question relative to
11 everything you have read back to me. I don't know what I
12 can answer to amplify it any better.

13 Q Would you like to refer to the records?

14 MR. BLAKE: Could we have the question repeated or
15 have him read through it again.

16 THE WITNESS: Please do that.

17 MR. MOSELEY: I apologize for the length of it,
18 but I was trying to capture the essence of several different
19 things.

20 In your statement during the Met-Ed interview on
21 April 12th you stated and I quote:

22 "Our major concern was that the fuel didn't
23 degrade any more than it had degraded from there on, and to
24 somehow figure how to prevent that and how to stop this. I
25 didn't really feel that we were stopping at the initial

1 stage. I was scared of running out of water. The outside
2 pressure that I was getting indicated that you could just
3 pump this thing solid and I couldn't get it solid. You
4 could have pumped all day, but I am convinced without
5 pumping water in the hot legs because you had to collapse
6 those bubbles we didn't have a 4,000 pound systems."

7 You also stated in your testimony to the Senate
8 investigators in September, and I quote:

9 "We were pumping at that time or close to that
10 time as high a pressure as we had decided to go and the
11 water level not changing or not charging the system solid,
12 and in fact we were losing water to the reactor building
13 floor; in other words, very hot superheated conditions."

14 In your statement to the Senate investigators on
15 October 29 you stated:

16 "Somewhere in the morning maybe based on Lee
17 Rogers thrust there must have been a discussion of a
18 superheated condition, but as of today I can't remember
19 that."

20 Later in the same interview you said:

21 "I think sometime later in the morning we may have
22 discussed steam conditions when we got into the core flood
23 type discussion because we were aware we weren't getting
24 anywhere by charging the plant."

25 You were then asked if you think that perhaps

1 later in the morning the steam conditions were discussed and
2 you respond:

3 "I think that is true, and I base that on the fact
4 that I think Lee Rogers and his people may have brought that
5 up. I don't think that made much difference from an action
6 standpoint. I think we talked about going against the code
7 release but that is very hard to remember."

8 Then I referred to Zewe's statement that everyone
9 in his view was aware of superheat after the bridge was set
10 up on the RPS system.

11 THE WITNESS: The initial think you read me was
12 out of what interview?

13 MR. MOSELEY: The initial one was out of your
14 group interview with various Met-Ed employees on 4/12.

15 THE WITNESS: Is that the tape that I made?

16 MR. MOSELEY: Yes.

17 THE WITNESS: That tape was made amongst Ross and
18 Zewe and the whole group I believe, right? Was that the
19 tape we are referring to?

20 THE MOSELEY: Let me make sure.

21 THE WITNESS: Because I thought that was the 14th.

22 (Short pause.)

23 MR. MOSELEY: The reference there begins on page
24 28 and 29.

25 THE WITNESS: Bill Zewe's statement of everybody

1 being aware, I am not sure I understand that. From the
2 standpoint of my recollection on April 12th it was certainly
3 better than September or October. I am sure that comes
4 through with some of the statements you have read. I don't
5 believe there was a discussion of superheat in the early
6 hours. I am saying steam conditions were most certainly
7 discussed as a part of the plant conditions in those
8 think-tank sessions, and I can't specifically remember at
9 what point in time that discussion point would have been a
10 strong one.

11 BY MR. MOSELEY:

12 Q Again referring to this, would you conclude that
13 it must have been sometime before the repressurization which
14 occurred between 9 and 10 o'clock?

15 A It could have been that time frame or the time
16 frame of the advertent depressurization which we went
17 through with the thought about the core flood and all. You
18 know, I couldn't pinpoint the exact point quite honestly.

19 Q Is it your statement that you were aware of
20 superheat but you don't know at what time you came to that
21 conclusion? Is that your statement?

22 A I can't remember at what time that point was
23 discussed in the conversations?

24 Q But you were aware of superheat?

25 A Sometime in the morning I think we discussed steam

1 conditions. I don't believe it was at 7:45 or 8:15 in the
2 morning because of the number of other activities that had
3 to take place to implement all the other things that had to
4 occur. At some point in that think-tank Ross or Sellinger
5 or somebody could have discussed that and I wouldn't
6 remember.

7 Q But it was during the morning to the best of your
8 recollection?

9 A I am concluding it was at sometime in the morning
10 because of the conditions we went through in the plant moves
11 we made. That is why.

12 Q Did you on March 18th recognize that temperatures
13 in excess of 705 degrees were above the critical temperature
14 of steam and in fact meant that the system had to contain
15 superheat?

16 A Please ask that again.

17 Q On March 28th did you recognize that temperatures
18 in excess of 705 degrees were above the critical temperature
19 for steam and in fact meant that the system had to contain
20 superheated steam?

21 A I was aware of that, but not as a heavy point of
22 discussion as opposed to the action status and action
23 recommendations and implementation. The conclusion was we
24 had to keep the core cool, and that was the thrust of the
25 pumping of water and looking at heat removal. It was a

1 part of that kind of discussion, yes.

2 Q What was your evaluation of the meaning of
3 superheated steam in the system?

4 A It is very hard to not be clouded by what I have
5 read in the last year or so. I just don't recall
6 discussions of that in those concise terms because the
7 cooling method we were in wasn't recognized anywhere that
8 had ever been studied.

9 The fact that you come in and all the indicators
10 are off scale high wasn't a recognized condition for this
11 reactor plant and it is hard to recall what that meaning was
12 of something that hadn't had much training or discussion in
13 the years of operation. So from a standpoint of what I know
14 today and methods and means of countering this type of
15 problem are different than they were on March 28th. The
16 discussion involved how to cool the core from a condition
17 that we didn't have recognized in any formalized training or
18 implemented document.

19 Q I guess what I am asking, Mr. Miller, is what your
20 evaluation of the meaning of superheat in the system is.
21 Having concluded that there was superheat, and certainly
22 this isn't something that you would have expected, but what
23 was your assessment of this superheat? Did you relate it to
24 core coverage?

25 A I can't today remember in our think-tank

1 discussions the details of those kind of discussions. I
2 just can't remember the evaluation or the conclusions that
3 were reached other than trying to come up with action
4 recommendations from the conditions that existed.

5 Q But I am asking what did you think?

6 A I can't remember what I thought on March 28th any
7 more than what I have said.

8 Q What did you conclude was the source of the
9 superheat, if it wasn't core uncoverage? Again, I am asking
10 what you think.

11 A You know, it is very hard to specifically remember
12 what I thought that day. From the time we got there and
13 started the reactor coolant pumps we knew there wasn't water
14 in the hot legs. Where was the water level at? There was
15 no recognition or instrumentation to tell you that.

16 So what I was thinking was that we had to keep
17 water moving into the core. Where was the level at? We had
18 to make sure we took every precaution through the whole
19 fabric of the thing to keep water moving on to the core, and
20 I can't remember any more of what I thought that day other
21 than the fact that there was recognition that there wasn't a
22 full system. That is why the concern about water. That is
23 why the concern about keeping the water on occurred to me in
24 the early hours. It was the only know method I knew of of
25 assuring core coverage.

1 If you took at the testimony somewhere we were
2 aware that steam pressure was low in the steam generator and
3 therefore natural circulation wasn't very effective. That
4 was aware to us. For the conditions we were in we were no
5 where near saturation pressure in the steam generator. That
6 kind of discussion and conclusion was what I thought on
7 March 28th.

8 To say we had this temperature and therefore we
9 had "X" fuel degradation, I just don't think we had that
10 discussion. We were very clear on the fact that we didn't
11 have a full system, and the recommendations and the thoughts
12 and the conclusions of the think-tank, including my own,
13 were to maintain heat removal and water flow. It was the
14 only thing we knew to do and we were looking at any other
15 action that could be taken to bring the plant to stability.

16 Q But you did not attempt to relate the superheat
17 conditions to what was the cause of this superheat? Am I
18 correct in what you have told me?

19 A I just don't feel we had the evaluation time in
20 the control room to very carefully and calculatingly deduce
21 this is how the plant got to this point. We were concerned
22 about getting it to a recognized point before we discussed
23 how we got it to where it was and what caused it to get
24 there.

25 Everything we did was to try and bring the plant

1 to a stable condition so you could discuss what had happened
2 to the plant. If you had taken the time and critiqued the
3 hours of four to seven in the morning, you wouldn't have
4 been able to perform the emergency plan or handle the plant
5 conditions. We were not in a mode of stability yet.

6 Q It was my impression that that was the purpose of
7 the think-tank was to assess what needed to be done and to
8 assure that that was done, and it is also my impression that
9 one needs to know how you got there in order to know how to
10 get out of it. Do you have a different impression?

11 A I don't have a different impression, but I am
12 saying that the ability to go back in time is somewhat
13 restricted when you are still in a serious condition. So,
14 yes, that is a part of the think-tank purpose, but the other
15 part of the purpose was to figure out what to do the next
16 hour or the next two hours. There was a lot of focus on the
17 requirements of an emergency plan that had to be met with as
18 much importance at that time that the plant had.

19 I am not disagreeing with you, but it is a matter
20 of time and availability of information and the availability
21 of more technical talent. It was, you know, communication
22 with a lot of people who I felt were going to help analyze
23 and to make the next recommendation. That was one of the
24 reasons that the think-tank included the people it did.
25 That is one of the reasons it included the technical

1 people. It included Lee Rogers from B&W. That was the
2 whole purpose of it.

3 Q Do you believe that a very important part of
4 assessing where you go is assessment of how you got there?

5 A I don't disagree with that. I think full
6 assessment while you are in the crisis is hard to arrive at
7 when you are looking at a hundred indications or forty
8 indications and you can come back at a subsequent time and
9 pick the right priority of information to display exactly
10 what happened. I am just saying that the amount of
11 exactness that you can deduce during the crisis is not at
12 the level where you are at today with this chart you have in
13 front of me. The chart took six months to make and I went
14 through a lot of questions and had people in other places
15 for weeks at a time. I am just saying that type of analysis
16 can't be done during a crisis. Yes, I agree with you, but
17 under those conditions.

18 Q Well, we have talked about so far the fact that
19 there was knowledge that the HPISI flow and the problem of
20 let-down flow was increased, the reactor coolant pumps were
21 shut off because they weren't pumping water, the MOV had
22 been opened for some extended period of time, the hot-leg
23 temperatures were significantly higher than one would
24 expect, and in fact were in the superheat condition.

25 Did you infer from these that there was an

1 inventory problem and that the core may be in trouble?

2 A We inferred that there as an inventory problem,
3 and we were certainly aware of some fuel damage because of
4 the readings in the building. But to infer that the core
5 had, say, been empty, we didn't arrive at that point in our
6 minds. I had never discussed that in my whole life prior to
7 March 28th. Therefore I was concerned and action was taken
8 to ensure water went on the core. As to whether the core
9 coverage was of a certain amount based on those things, I
10 can't recall that lucid a discussion of that, other than
11 assurance that the core was kept covered.

12 Q Given these indications, isn't there reason to
13 suspect that it might not be?

14 A There is reason to suspect that it might not be,
15 yes.

16 Q What efforts we made to determine the extent of
17 inventory deficiency on the morning of March 28th?

18 A I guess I don't understand the question.

19 Q There are various ways of inventorying the primary
20 coolant system and from that inferring or calculating the
21 deficiency.

22 A How do you determine the primary coolant system?

23 Q How do you normally do it?

24 A The pressurizer level. We knew that was no good.
25 What else is there? You said that. I don't know that there

1 are many methods of determining primary system inventory.

2 Q I am asking you what did you do on that day? What
3 was done, to your knowledge.

4 A But you stated there were many methods. I am
5 saying that I don't agree with that.

6 Q The question that I asked you was what efforts did
7 you exert on that day to determine this?

8 A From the time we got there and started the reactor
9 coolant pumps and saw them pump a hundred amps we were
10 convinced we didn't have a water level fully in that whole
11 plant. The efforts we had were to assure that the inventory
12 which we couldn't see didn't degrade. I can't remember
13 efforts in the research over how low it had gotten or how
14 deficiency the inventory had been. Today I can't recall
15 discussions along those lines.

16 Q I understand that there were isometric drawings
17 taken out on the basis of the pump performance.

18 A To look at elevations of the plant, where the
19 hot-legs are, where the top of the nozzles are and where the
20 HPI comes in.

21 Q Wouldn't the core exit thermocouples be an
22 indication of core level? Wouldn't the water level be
23 indicated by the nuclear instrumentation and other factors?

24 A Core exit thermocouples weren't even wired out
25 except by a quirk of design. I called for a set of those

1 readings because of my experience in test programs in naval
2 reactors where we used them. They weren't recognized, they
3 weren't in the procedures, their accuracy was in doubt and
4 they were never used to my knowledge in that plant for a
5 core condition.

6 Yes, to day I can very quickly conclude that that
7 is true. I don't believe that was a very rapid conclusin on
8 that morning. We looked more towards recognized
9 indicators. That is why we went to the test equipment on
10 the RPS temperatures because they were qualified
11 ervironmental instruments. The core thermocouples were not
12 recognized that I know of. They weren't even wired out in
13 Unit I.

14 MR. STELLO: Norm, I notice you are getting away
15 from the superheated steam. I wonder if we could just chat
16 for a moment, Gary.

17 BY MR. STELLO:

18 Q Normally when you are operating a plant there is a
19 fairly easy way in which to look at where are the hot
20 temperatures, where approximately they are. So if you ask
21 yourself the question do I have superheated steam, given you
22 have talked about it, what do you think about it? You are
23 an engineer. What is going through your mind?

24 A We have overheated something.

25 Q Good. How? What is there in the plant that was

1 capable of generating that high a temperature? Let's try to
2 go through it. You certainly can't do it in the steam
3 generators, right?

4 A You certainly can't.

5 Q There isn't anywhere in the plant where the metal
6 can be hot enough to do it, right? It is higher than any
7 metal temperature we have ever been, true?

8 A True.

9 Q What is left, the core?

10 A The core was the heat source.

11 Q Is it not clear that as an engineer you have to
12 say if I am going to get this steam hotter than saturation I
13 have got to raise metal higher than saturation heat to
14 steam, true?

15 A Or I have got to limit cooling to the core which
16 is normally at a pretty high temperature anyway, the fuel
17 elements themselves.

18 Q That will do it, because you have got water.

19 A We didn't have heat removal. We knew we didn't
20 have good heat removal. We knew that.

21 Q No, no. If you have water and you know you are
22 not going to get superheated steam, if you are transferring
23 heat to water, true? Thermodynamically you can't do it
24 that way. Isn't that true? If the core is covered with
25 water, even if you have poor heat removal, if the heat is

1 going to the water you can't see 700 degree temperatures.

2 A I don't disagree with you. I am not sure of the
3 condition you are in when you have, say, some partial
4 uncoverage and at what point you could end up with hot fuel
5 elements and that type of thing and the exact steam water
6 conditions that would have occurred.

7 Q Okay. But are you saying that in order for you to
8 get superheated steam you really concluded you had to have
9 at some time core uncoverage? The core had to be uncovered?

10 A I guess I am having trouble with -- you know, the
11 plant normally operates with superheated steam coming off
12 the steam generators.

13 Q Out of the steam generators.

14 A Coming out of there with water boiling in there
15 and going up through phases. Now, I am not sure, and never
16 was made that familiar with the conditions that would occur
17 if you start to have conditions in the core where there is
18 superheated regions and ^{nuclear} ~~nuclear~~ boiling regions or what
19 would have occurrd in that kind of transition. I am
20 relating it to what I know about a B&W plant.

21 Q But as an engineer you knew in the steam
22 generators the only way you superheat is to have steam in
23 contact with the hot tubes, right?

24 A That is right.

25 Q An analogy then, you have to have steam in contact

1 with the hot fuel elements.

2 A On steam generator you have some level indicators.

3 Q I understand. But I am trying to understand did
4 that analogy allow you to conclude the core is uncovered?

5 A And I can't recall that analogy in discussions on
6 March 28th. You know, I am sure that our discussions were
7 in terms of the inventory deficiency, but I am not sure how
8 far the discussion went relative to the technical terms we
9 are talking of now as far as superheat and lack of
10 superheat, you know what the temperature was and what the
11 degradation of inventory was.

12 Q A few minutes ago you said you clearly knew you
13 busted up fuel.

14 A I said we knew there were some degradation of fuel.

15 Q You busted fuel and you got fission products. I
16 inferred from that that you knew you had poor cooling and
17 the core overheated and busted some fuel, true?

18 A We knew we had some fuel degradation, Vic, and we
19 knew we had insufficient heat removal.

20 Q But I am trying to make certain that you coupled
21 the two. The degradation of the fuel was a result of core
22 cooling.

23 A And I can't remember how close that coupling was
24 on March 28th is what I am trying to say as far as the
25 actual discussion.

1 Q Give me any other interpretation that comes to
2 your mind even now. How do you degrade the core without it
3 being the result of core cooling? Even today can you think
4 of a way?

5 A Of degrading the core without having a lack of
6 core cooling?

7 Q Yes.

8 A No. Unless you are talking of, you know, of some
9 other mechanical damage.

10 Q Oh, yes.

11 A Other than that, right.

12 Q I am talking about the core staying in the fuel
13 without being physically damaged.

14 A Yes.

15 Q So the degradation of the fuel you did couple that
16 morning as a result of the core cooling?

17 A I am saying I can't remember the coupling of that
18 in the discussions of that morning. I can't honestly
19 remember the nice tie we have just discussed.

20 Q I am not looking for nice ties. I am looking for
21 can you conclude anything other than that you knew you had
22 busted fuel somehow, that that was a result of poor
23 cooling? Is it reasonable to conclude that that was
24 understood by the people that were analyzing the problem
25 then?

1 A At some point in the morning that was certainly
2 understood and it is one of the reasons we asked for flow
3 rate from B&W for decay heat, the same reason. How much
4 heat removal do I need for what we are at.

5 Q Good. Now, let me try again looking at the
6 superheat. What do you think was the nature of the core
7 cooling? Describe for me how can you get core cooling in
8 the reactor some two hours after shutdown? What does it
9 mean to you. What does core cooling mean?

10 A Well, core cooling to me means that we knew
11 natural circulation was adequate for the design of the plant
12 and we weren't getting adequate natural circulation. Beyond
13 that point on March 28th I don't believe there was any
14 information available other than the stuff you knew you had,
15 to pump water in it at the flow rates you had available.

16 Q Yes, but I am trying to get you to help me
17 understand poor cooling of the core. What does that mean to
18 you?

19 A And I am saying that what it means is that we were
20 out of a recognized cooling mode and therefore we knew that
21 we had to have more cooling. We didn't know how much more.

22 Q Gary, we are passing each other in the night.
23 Core cooling, let me give you some things that come to my
24 mind. The flow rate in the core was lower than it should
25 be. There was not enough water. I had steam in the core

1 with water. I had steam blanketed fuel. These to me are
2 concepts of inadequate cooling. Are they the kinds of
3 things that you think are inadequate for cooling?

4 A Those are kinds of things that I would connect
5 with that, yes.

6 Q Was any of that connection made during the day,
7 core uncover, steam there?

8 A And I am having a hard time recognizing whether we
9 discussed that specifically or at what point in the day it
10 coupled the way you have, Vic.

11 Q You had a lot of people in the control room.

12 A We didn't have a lot of people in the think-tank
13 though.

14 Q No, but in the control room who hopefully were
15 feeding information to the people there, or I hope that was
16 the management concept you were working under.

17 A That was the management concept.

18 Q Good. Of all of those people that somebody didn't
19 say, hey, if you have got superheated steam there ain't but
20 one way to get it. The core has got to be uncovered. That
21 kind of conclusion never popped up all morning?

22 A In the think-tank meetings, hey, the core is
23 uncovered was not, you know, wasn't brought out to that
24 degree.

25 Q Was it brought out to any degree?

1 A The amount of core uncoverage was not, to my
2 knowledge, discussed specifically as much as how do we
3 maintain water in there.

4 Q Gary, not amount, because I can't tell you that
5 even today, how much. Not degree; concept. Core uncover
6 caused superheated steam. Did anybody hint at, suggest at,
7 and then you would quickly come to the conclusion I have got
8 to get more water in, right, which you did come to?

9 A As far as the conclusion to get more water in, you
10 know, the recognition early in the morning of inadequate
11 natural circulation left you only one way of doing
12 anything. That was arrived at without even having to have
13 the other discussion you are talking about. We had to put
14 water in. There was nothing else available. It doesn't
15 matter what the conditions were. At 8:30 in the morning I
16 said put water on now even though people were saying don't
17 put water on.

18 Q Because you needed natural circulation.

19 A People that were out in the control room. That is
20 right.

21 Q That is what I am trying to say. That is clear to
22 me.

23 A And it was clear to me, not even needing to know
24 temperatures, just needing to know the steam pressure.

25 Q I understand that, but did you also know that you

1 weren't at that time getting enough water, there wasn't
2 enough water because of superheat?

3 A I didn't know how much water I needed.

4 Q I understand that, too. Do you understand my
5 question? Was there anyone coupling the only way to get
6 superheat was core uncovering? Did anybody suggest it?

7 A And I can't remember that. As of today I can't
8 remember that being suggested clearly at any point at least
9 in the early hours in the morning.

10 Q Forget the early hours. At any time that day.
11 Don't put time constraints on it.

12 A I can't remember. You are right, I shouldn't put
13 time constraints. I can't remember it in the afternoon
14 either. You are right.

15 Q I find that very hard to understand that here you
16 are stuck with temperatures that the only way to get them is
17 to have a metal, a heat source beyond anything you ever had
18 in normal operation. You know, the coupling, at least the
19 question is the core uncovered.

20 A Or the question we were asking is is the core
21 covered now. That is the question. We weren't asking has
22 the core been uncovered in the early hours. We were asking
23 how do you keep the core covered now.

24 Q Right.

25 A That is what we were asking ourselves.

1 Q Right.

2 A Using the only systems and methods we had. That
3 is where we were at.

4 Q And how do you know if it is covered?

5 A How do you know?

6 Q Right. If there is superheated steam you should
7 have a question about it. Today you know that for sure.

8 A Today there is a whole wealth of ways of handling
9 this based on this.

10 Q Agreed, but that is not a very sophisticated
11 concept. With all the people there I am trying to
12 understanding how it would be that nobody brings it up. To
13 day that you had superheated steam and then drop it doesn't
14 seem rationale to us. All of us bureaucrats sitting on our
15 duffs in Washington, that is what we were fussing about.

16 A And I think at the time of the crisis, Vic, I
17 really believe we were trying to look for anything that
18 would tell us any other method of arriving at stability more
19 than the coupling you are talking about. Do you know what I
20 am saying? We are saying what else can be done in the plant
21 and what else do we need to do in the plant.

22 Q Let me try one more way. You had a concern and
23 you wanted to put water in. You knew you had busted up some
24 fuel and you knew you weren't getting enough coolant. Those
25 were things you clearly understood that morning, right?

1 A Yes.

2 Q Okay. The only thing you could thing you could
3 think of is turn on the pumps and put more water in, right,
4 as an engineer?

5 A As an engineer with some knowledge of the plant
6 that was the only method I knew available.

7 Q As an engineering then wouldn't the next question
8 be how do I find out if that was effective? Did that
9 thought enter you mind?

10 A The thought that entered my mind is how do we
11 determine how much heat removal we need versus much we are
12 putting in, yes.

13 Q What did you consider to be indicators of whether
14 you were being successful or not?

15 A I think we have gone through that. We looked at
16 temperatures in the RCS, we looked at the steam generator
17 pressure and we put an indicator or an a test instrument on
18 the RPS on the hot legs if I remember right. We put that on
19 there because the on-scale meter was off.

20 Q Slow down.

21 A Okay.

22 Q You wanted to look at that temperature. What were
23 you expected it to do?

24 A At the initial stages of looking at it, Vic, there
25 was no high temperature on scale available, so the initial

1 idea was to get some reading in addition to the other
2 information.

3 Q You had a reading then. What were you expecting
4 that reading to do as you added more and more water?

5 A As we added more and more water throughout the day
6 we were expecting that reading to come down.

7 Q So if it stayed superheat it was clear then, was
8 it not, that it wasn't covered with water? Those RTDs took
9 the drawings out and you looked at them, should you not have
10 concluded they weren't covered with water?

11 A Hot-leg RTDs I think are located up above the
12 coolant.

13 Q Yes, they are in that straight run area.

14 A I think that even early in the morning when the
15 pumps started and we looked at the level we knew there was
16 water missing out of the hot legs, yes.

17 Q But my point being that as you kept adding water
18 you knew you never got those thermocouples covered?

19 A I think we knew that those were in a steam
20 condition of some type because I think there was some
21 discussion at some point during the day about how accurate
22 were they in a steam environment versus their qualification
23 which was in a water environment, that type of thing. I
24 mean, I think there was that kind of recognition.

25 A That means you had that part of the system empty

1 of water. So you should add more water. What is another
2 thing that ought to come in your mind? Is there any other
3 indicator? You had this Navy training with the in-core
4 thermocouples. Were you thinking they might tell you if you
5 covered the core back up?

6 A Either me or Lee asked for those initially because
7 that was a part of the initial getting of some indication.

8 Q Indication of what, Gary?

9 A Of temperature. You know, when you go in and you
10 look at the panel on TH which is off scale high we began to
11 look for an instrument on the high end. That is my memory
12 of their initial, you know, why we started looking for, you
13 know, some indicator. And once we had at least an
14 indicator, I don't believe the in-cores were really a point
15 of our discussion any more.

16 Q You never thought of the in-cores as an indicator
17 of water level, that they weren't covered with water?

18 A I don't believe I did, no. I asked for them, and
19 then by the time I got information on them they seemed
20 useless to me because the conversation indicated they
21 weren't reliable. At the same time we got the RTD hooked up
22 to a bridge and that was giving some information.

23 Q On the hot leg?

24 A That is right. But you are asking about heat
25 removal, and I am saying that that was one. There was steam

1 generator down cover we were using, there was steam
2 generator pressure we were using and we were looking at heat
3 removal determination, yes.

4 Q But you looked at the RTDs and concluded that that
5 was also a level indicator, that they were in a steam
6 environment.

7 A I didn't say we concluded it was a level
8 indicator. I am saying that just starting the pumps before
9 that instrument was available I think told us that we
10 weren't going to have a water environment on those RTDs
11 because they are up in the hot leg.

12 Q Okay, so they were in steam. That is what I mean.

13 A And there was even discussion I think of the
14 accuracy of gross versus fine, you know. That is a
15 qualified instrument.

16 Q But you didn't have that same thought with the ---

17 A Didn't even consider them qualified. I mean, in
18 my mind. Had they come back with a consistent set of
19 readings on them that I was aware of then I might have
20 changed my thought process on the in-cores. But I have said
21 before when they came back, you know, there was nothing at
22 all that I could see from them. What came back to me said
23 there is one here, there is one zero, there is one there.
24 It would have been tough to pick the one I was going to use
25 to believe.

1 Q It could have been another connection to
2 superheated steam.

3 A It could have been another connection for
4 superheated steam.

5 Q But that was not made?

6 A It was not made.

7 Q By anyone?

8 A By anyone that I am aware of.

9 Q It could have been an indication of core
10 uncover. That was also not made.

11 A To my knowledge, it was not made. They do sit
12 above the active core though. You mean from the standpoint
13 of the steam ---

14 Q That those thermocouples were uncovered, that was
15 never brought up?

16 A That I don't remember being brought up. We were
17 aware that the RTD was uncovered because we knew where they
18 were at and we knew when we got the elevation drawings out
19 and we knew when the pumps didn't run and we knew the hot
20 legs were not full of water.

21 Q But you made no analysis?

22 A We didn't make an analysis. We didn't go back and
23 discuss the in-cores. That is exactly what I remember. We
24 did not go back on the think-tank or myself even, my input
25 for them didn't come back to me. I got those things and I

1 was told they were unreliable and I guess I did not pursue
2 and question the in-cores further once I got the initial
3 shot from one of the people that they were not reliable.

4 Q Okay. Let me ask you now without trying to recall
5 a specific conversation with anyone or anything else. In
6 your mind as you search back now, was there ever a time in
7 the day when you believed the core was uncovered?

8 A As I search back, Vic, I can't honestly remember
9 what point of level I thought the system was at, including
10 the core.

11 Q I am not talking about the degree. Did you ever
12 believe the core to be uncovered? By that I mean the water
13 level, two phase, dropped into the core somewhere? That is
14 the top to the middle, I could care less. Just the fact
15 that it was uncovered. Did that enter your mind?

16 A And I can recall specifically the thoughts of that
17 day.

18 Q That is what I am trying to tell you. Don't try
19 to get specific, just your general impression of how you
20 felt.

21 A I think the general impression was that there was
22 a possibility of some level near the top or maybe partially
23 -- you know, I am saying I think there was thought of some
24 minimum uncoverage as opposed to an empty core.

25 Q The degree is not ---

1 A But the degree is where we were at as far as heat
2 removal.

3 Q Not the degree to which it was uncovered, but
4 whether or not it was uncovered.

5 A I don't believe we felt that if it was uncovered
6 that it was of any magnitude is what I am trying to say,
7 Vic. We might have believed that there was some steam
8 environment on the top of the fuel rods, is what I am saying
9 as opposed to, you know, is the core uncovered. We didn't
10 believe that we were doing anything that was going to put us
11 any further than we were, and that is the best I can do.

12 MR. STELLO: Okay.

13 MR. HARPSTER: Gary, help me out a little bit.
14 One of the things in looking back at this and reviewing the
15 testimony we got into some confusion. When you got down to
16 the trying to start the reactor coolant pumps and obviously
17 you had the low steam pressure in the hot leg, and you saw
18 the hundred amps and from that you tried to draw some
19 conclusion about what the state of your system was. I
20 believe you said was you got out the isometrics now and were
21 trying to draw some inference from that. Do you recall who
22 checked the isometrics?

23 THE WITNESS: I think Ross and Sellinger. That
24 means they were probably out by the computer console and
25 there could have been Zewe and other people there, but I am

1 pretty sure Ross and Sellinger would have been technically
2 the two that were talking to me. That is what I think,
3 Terry.

4 BY MR. HARPSTER:

5 Q George Kunder in his testimony ---

6 A And he could have been another one. It is just
7 the name slipped me.

8 Q George has expressed the concern many times that
9 that morning his belief was that the core was being cooled
10 by steam. In fact he was concerned about building up a
11 boron slurry down there because of the steam.

12 A He was there in the early, early hours. At five
13 in the morning he was there. And he has said that at the
14 point of time of 6:30, somewhere in there.

15 Q But he goes on in his testimony to say he has had
16 this concern throughout the morning and he can never assure
17 himself that he not cooling the core by steam, and in fact
18 when he talks with us at 9:30 in the morning he describes
19 the core as being cooled by superheated steam, some
20 superheated steam mechanism. Did he discuss that in the
21 think-tank that day?

22 A I don't believe so.

23 MR. BLAKE: If there is a question about the time
24 here, Terry, it might help to pull out these Kunder
25 statements that you are referring to.

1 MR. HARPSTER: We have conflicts in the testimony
2 and I am trying to understand what concerns were raised with
3 the think-tank. We have Mr. Kunder with the concern in his
4 testimony that the core is being cooled by steam and is
5 uncovered.

6 MR. BLAKE: To the extent there is a time
7 difference in what he recalls, if we have George's statement
8 here maybe we could take a look at it and sort that out.

9 MR. HARPSTER: I do have George's statement.

10 MR. BLAKE: Maybe we could take a break and look
11 at it.

12 MR. MOSELEY: We are almost ready to go into
13 another subject so I think it would be a convenient time to
14 take a break.

15 MR. HARPSTER: I was just trying to see if Gary
16 recalls George expressing his concern.

17 THE WITNESS: I do not.

18 MR. MOSELEY: Let's take about 10 minutes.

19 (Whereupon, a short recess was taken.)
20
21
22
23
24
25

1 MR. MOSELEY: We are back on the record.

2 BY MR. MOSELEY:

3 Q Mr. Miller, I would like to go to another subject
4 area now.

5 In your transcript of your discussion with the I&E
6 investigator on May 7, you were asked if the SPND were used
7 or discussed during the accident. Your response in part
8 was, and I quote: "That was discussed plus the ex-cores.
9 We watched both of these. Early in the morning that was
10 discussed. If something had occurred, you know, we did not
11 see, that I remember after 7:00 a.m., in the morning any
12 kind of an upward response on these. We were looking at
13 these. They had shown an upward response earlier in the
14 morning. In fact, earlier in the morning they probably
15 borated it, things based on the ex cores going up, and you
16 know they took low boron samples early in the morning and
17 they thought they were getting a low boron when they were
18 probably taking water off the damn core."

19 On the morning of March 28, what did you believe
20 based on what you saw or were told about the nuclear
21 instrument indications?

22 A I think the samples were pertinent. I have it in
23 my mind because of the samples and the way that I got into
24 this thing. I got a phone call saying that the sample lines
25 in unit I were hot, because the unit sample lines went into

1 unit I.

2 As far as further memory on the use of the
3 ex-cores and the in-cores, we looked at those as an
4 instrument of indication of criticality or recriticality.
5 That is all would think of discussing.

6 Q Was the count rate behavior discussed in the
7 telephone conference call between yourself, Kunder, Rogers
8 and Herbein at approximately 6:00?

9 A I can't recall specifically.

10 Q I am not sure if you asked this question, so I
11 will ask it again.

12 Did you, at any time during the day on March 28,
13 reach any inferences on core uncovering from the nuclear
14 instrumentation indications?

15 A Not that I recall. I also believe that the boron
16 boost in mid-morning was a recriticality as opposed to level.

17 Q I am aware that that was the initial
18 determination.

19 A I don't believe that the conversation went any
20 further than that during the day as far as an indication.

21 Q You don't recall any conversations of that as an
22 indication of core uncovering by anyone during the day on
23 March 28?

24 A Today I don't recall.

25 Q In Flint's testimony to the Kemmeny investigators

1 on June 30, Flint says that he drew the conclusion that the
2 instrument indications were not of a recriticality but were
3 a change in liquid flux.

4 He says that he discussed this with Rogers, and
5 that Rogers told him that he would discuss this with Met Ed
6 management. Did Rogers inform you or discuss it with you?

7 A I can't recall a conversation of that context. I
8 don't believe I recalled it in the past either.

9 Q Mr. Kunder has indicated to us, in fact yesterday,
10 that he believed this was discussed in the think-tank
11 meetings. This does not help you to recall this in any way?

12 A No.

13 Q To the best of your knowledge, what are the core
14 exist thermocouples used for, or how are they used in normal
15 operations?

16 A To the best of my knowledge, in fact on March 28 I
17 don't remember them being in the procedures.

18 Q There was no procedure at that time?

19 A There may have been a procedure for use of them on
20 the computer as a computer procedure, but I don't believe
21 any of the procedures for ECCS safety systems recognized or
22 utilized them that I remember.

23 Q What were they routinely used for in non-accident
24 situations?

25 A I personally today cannot recall their being

1 routinely used for anything. In Unit I they were not even
2 available, and it is the same reactor.

3 Q You are not aware that anyone took routine
4 readings, or observed these in any way?

5 A There could have been routine log sheets, but I
6 don't remember them being used for plant analysis, trending,
7 or safety evaluation. I don't remember them being used
8 relative to the reactor safety plan.

9 They could have been on a log sheet taken by a guy
10 on the computer because there were so many points on the
11 computer. They could have been used as part of the B&W
12 fuels program that I was not totally aware of either. That
13 is a possibility.

14 Q Would that use be by Met Ed people, or by B&W
15 people?

16 A It would be our responsibility, our fuels group's
17 responsibility, but they had a lot to do with that as a fuel
18 evaluation. That is a long-term type of thing which you
19 take printouts on, a lot of programs that I think were
20 originally prescribed by B&W, and there is stuff there that
21 I could be unaware of that was used for evaluations.

22 Operationally, in operational procedures, I don't
23 recall them being used as an indicator.

24 Q The in-core thermocouples are alarmed in the
25 computer, what is the significance of these alarms?

1 A I cannot recall. The computer people could have
2 alarmed a lot of points like that without it being an
3 operational necessity to know that. I don't recall those
4 alarms is what I am saying, on the in-cores, or their basis
5 as a part of the computer analysis or part of the reactor
6 safety information which you used.

7 Q Nor do you know what would be done if an alarm
8 went off, let us say, at 2:00 a.m. on Sunday morning?

9 A You would go out and pull out the alarm response
10 which there should be for that. I am not sure what that
11 says. I don't believe I looked at it.

12 Q In prior interviews you testified that you had had
13 prior experience with core exit thermocouples. For what
14 would the core exit thermocouples be used?

15 A I may have used the term core exit thermocouples
16 improperly recognizing that I have had some test program
17 experience, and this is back 15 years ago, in SSW reactors
18 and I believe there was a natural cool down test we used to
19 do where we used some thermocouples, I think, and they were
20 in the regions of the core as an indicator of heat removal,
21 when you use the natural heat removal system. That is what
22 I mean by my prior experience.

23 Q Isn't that quite akin to the situation that
24 occurred on March 28, that is, natural circulation cooling?

25 A That is akin. It was my initial thought to ask

1 for in-cores was geared to that. My initial thought was,
2 yes, there is be a temperature that may be available near
3 the core.

4 Q Were you aware on March 28 of anyone monitoring
5 the computer print-out of the in-core thermocouples during
6 the day of March 28?

7 A I honestly have no recollection on the 28th.
8 There was subsequently a lot of interest in those on the
9 next days, and I am aware of that interest. On the 28th for
10 me personally, in a very brief conversation of probably 20
11 to 30 seconis was my only discussion of these
12 thermocouples.

13 I was not aware specifically that the print-outs
14 were being made, but I know people were sitting out there at
15 the console and pulling data off, or something. I did not
16 ask for any more.

17 So to my knowledge, no, but that does not mean that
18 there were not print-outs being made that were not being
19 made available to me as a part of plant evaluation.

20 Q Getting back to your prior experience, did you
21 receive training on the use of the core exit thermocouples,
22 or whatever their nomenclature was in the Navy?

23 A No. I was part of the test programs for the
24 contract. Therefore, it was our responsibility to run that
25 test, not from an operational standpoint but strictly from a

1 demonstration of these natural circulation systems' ability
2 to circulate heat. These are part of the initial test
3 programs.

4 Q Did the test program include the use of the
5 procedures that would be used later?

6 A My guess is, it would have used the approved test
7 procedure which would have had some of this in the content.
8 It would not have used the ship procedure for the test. The
9 test procedure was a separate document. The ship people did
10 the testing, okay, but I am saying that it was not a normal
11 plant procedure, but it should have had very similar
12 elements.

13 Q It should not have had, or it should have had?

14 A It would have had, but it would have had more data
15 in it to make the initial clarification, you know, throttle
16 valve settings would have been determined, and things like
17 that.

18 It would have had more requirements, let us say,
19 than the normal plant procedures, but the elements as far as
20 readability and determination, yes, they should have been.
21 You are talking a long time for me.

22 MR. MOSELEY: We will go off the record for a
23 moment.

24 (Discussion was held off the record.)

25 MR. MOSELEY: We will go back on the record.

1 BY MR. CRAIG:

2 Q Gary, still discussing your navy training and the
3 use of the core exit thermocouples. I know that it was a
4 long time for you, and it is for me, and some of the other
5 people here.

6 Aren't there emergency procedures that the
7 shipyard test engineers are aware of, such as the total loss
8 of power, AC and DC, that you can hook the instruments up to
9 read the core temperature.

10 A Yes.

11 Q Are you aware of those?

12 A Yes. We used to hook the instruments up in this
13 program in the 2TM panel and back. I was aware of those
14 procedures existing, yes, and I was aware of what they were
15 for.

16 Q Are there any other procedures of which you were
17 aware for the use of these core thermocouples, again with
18 respect to the Navy program?

19 A Ask me again.

20 Q You have identified one specific instance in the
21 Navy program on submarines, the total loss of all powers,
22 one of the worst casualties that can happen, and the
23 emergency procedures.

24 So you were aware that you used these core exit
25 thermocouples in the Navy program to get an indication of

1 the status of the primary system when you have lost all of
2 your other instrumentation.

3 Are there any other instances of casualty
4 procedures and emergency procedures that you are aware of
5 that would utilize these core exit thermocouples?

6 A I just can't remember the emergency procedures
7 well enough to come up with a familiarity today. I just
8 connected up that with my knowledge that they were wired out
9 in Unit II, and asked for the initial readings on them.
10 That was it.

11 When they came back as no good, I gave up on
12 that. I did not pursue it further. Somebody asked me in
13 the past why I even thought about it. That is the reason I
14 thought about it, but I can't relate them to other emergency
15 procedures in the Navy where they were used, and how they
16 were used, or that type of thing.

17 Q That is exactly what I was trying to explore a
18 little bit.

19 A Right.

20 Q Can you over briefly, since we are discussing Navy
21 training, some of the training that you had on the use of
22 nuclear instrumentation in the Navy program?

23 A Some of the training that I can recall would have
24 been in how they work. The training was not unsimilar to
25 the kind of training you get in the licensing, and the

1 license program here.

2 I cannot recall the use of them with the exception
3 of their use in the operational procedures for starting up,
4 shutting down, or what they mean and the proper usage of
5 them, that type of training, the normal training.

6 Q Didn't one of the Navy casualty procedures discuss
7 neutron monitoring instrumentation saturation of the peg,
8 when you have a LOCA, if you had a LOCA on a Navy plane?

9 A I cannot recall that today. I am not saying that
10 does not exist, but I can't recall that today.

11 BY MR. MOSELEY:

12 Q We are returning to your 30-page prepared
13 statement. You said that the core exit thermocouple
14 readings taken at penetrations, and now I am beginning to
15 quote:

16 "The technical explanation that I was given
17 indicated that they were probably hot, and that if they were
18 hot there could be melting of the thermocouples and
19 different junctions would have been formed, and therefore
20 the temperature indications were not considered reliable on
21 a technical basis. But to me personally it indicated we
22 certainly had high temperature readings within the core."

23 What inferences did you draw from the temperature
24 possibly being high enough to form new junctions?

25 A The discussion you are relating to occurred over a

1 very brief, short time frame. I drew the inference that
2 they were unreliable. I did not evaluate the reason for the
3 unreliability.

4 In the subsequent days there was a lot of
5 discussion on the potential or actual damage that had
6 occurred to the in-cores. There were readings requested of
7 resistances. A lot of that discussion was in my mind, too,
8 when I wrote that.

9 I did not make an evaluation in the morning after
10 the brief conversation of that. I did not draw an inference
11 other than that they could not be used as an indicator.

12 Q On the morning of March 28 you were advised that
13 this was one of the technical bases for considering them
14 unreliable?

15 A I cannot recall any better than I have recalled
16 there.

17 Q But based on this statement that is what you
18 recalled at that time?

19 A That is what I recalled when I wrote that, and
20 that is the best that I can do today.

21 Q You did not at that time question the temperatures
22 that might be required to form these new junctions?

23 A I did not question the reason for the
24 unreliability. I did not go back and question them once we
25 had other temperature indicators.

1 Q Did you discuss with the think-tank as a group, or
2 with members of the think-tank, the possibility that these
3 thermocouple readings could indicate that the core was
4 uncovered?

5 A I don't believe that that was the subject of the
6 think-tank discussions. There may have been some separate
7 discussions with people who were in the think-tank outside
8 that room. I don't remember that being discussed in the
9 terms of your question in the think-tank.

10 Q Could you, then, expand on these discussions with
11 individual members or others?

12 A I could not, other than the people who were
13 working to get the readings, I would assume, had discussions
14 with people other than myself in the control room.

15 I am not aware of all these discussions is what I
16 am saying. I cannot relate to a specific discussion.

17 Q Are you conceding that there may have been
18 discussions of which you are not aware; is that right?

19 A That is all.

20 Q On March 28, did you reconsider your decision to
21 disregard the core exist thermocouple readings that were
22 taken by the instrument mechanics as you became aware of the
23 following things:

24 evidence of voiding in the loops and reactor
25 vessels;

1 the 700 to 800 degree temperatures on the extended
2 scale hot-leg read-out device;

3 the apparent recriticality;

4 some inference of loss of water from the reactor
5 vessel; and

6 the super-heated steam in the reactor cooling
7 system.

8 A Could you read those over again?

9 Q Evidence of voiding, of massive voiding in the
10 loops and the reactor vessel;

11 the 700 to 800 degree temperatures on the extended
12 scale hot-leg read-out device;

13 the apparent return to criticality; and

14 the super-heated steam in the reactor cooling
15 system.

16 A I did not perform further evaluation on March 28
17 of the in-core thermocouples.

18 Q You did not do that as a result of receiving any
19 or all of these additional bits of information?

20 A I did not ask for any further information from
21 those after that conversation that I have referenced that I
22 remembered.

23 MR. MOSELEY: Would you read his response, I
24 missed it.

25 (The reporter read the response as requested.)

1 BY MR. MOSELEY:

2 Q My question, really, Mr. Miller, was, did you
3 reconsider this decision in light of this other information?

4 A I think I have answered that I did not evaluate
5 the condition, or reasons for the condition of those
6 thermocouples from the time I had the initial conversation
7 forward. I did not go back to them in my mind.

8 Q Did you at any time that day discuss these core
9 exit readings again with Kunder, Rogers, Flint, Herbein, or
10 Chwastyk?

11 A I can't recall today than what I said in the
12 past. I can't recall any more today any discussion like
13 that. What I said in the past is my best recall. It is not
14 impossible that somebody could have asked for one of those
15 readings or gotten one without me knowing.

16 In other words, I am saying that I cannot testify
17 to all kinds of conversations. I can testify to what I
18 remember, and I can't remember any more today.

19 Q Today you don't remember any conversations with
20 Kunder, Rogers, Flint, Herbein or Chwastyk?

21 A Today, I don't remember.

22 Q In testimony to the special inquiry group Herbein
23 said that he believed you discussed these with him. Did you
24 discuss them with Arnold during your 10:00 to 10:30
25 discussion with him?

1 MR. REYNOLDS: Could we pull out the Arnold
2 testimony, or the Herbein testimony.

3 MR. MOSELEY: It is Herbein's testimony.

4 Let's go off the record for a moment.

5 (Discussion was held off the record.)

6 MR. MOSELEY: Back on the record.

7 During the period off the record, Mr. Miller
8 reviewed the testimony of Mr. Herbein on 9-19 to the special
9 inquiry group.

10 BY MR. MOSELEY:

11 Q In testimony to the special inquiry group, Mr.
12 Herbein said that he believed that you discussed the core
13 exit thermocouple readings with him. Did you discuss them
14 with Arnold during your 10:00 to 10:30 talk or discussion?

15 A I can't recall the discussion well enough to tell
16 you that any more than I would have in the past. I can't
17 remember it today.

18 BY MR. GAMBLE:

19 Q Did you say that you can't recall the details of
20 the discussion?

21 A I cannot recall the subjects. I can't recall
22 today specifically whether we talked about that on March
23 28. It is just not there.

24 BY MR. MOSELEY:

25 Q We, in recent testimony from Mr. Gilbert --

1 A Recently being this round?

2 Q Yes, this week.

3 He indicated that it is his recollection that an
4 entire set of readings from the core exit thermocouples was
5 taken before Mr. Porter left and returned to the control
6 room.

7 Would you explain to us the discussion that Mr.
8 Porter had, how many readings he provided to you, and your
9 knowledge of whether or not at that time Mr. Porter had a
10 full set of readings?

11 A At that time I was not aware of any more than four
12 or five, and I still remember that.

13 I was not aware of a full set of readings being
14 taken, and I am not even sure Mr. Porter was aware. I
15 recall one subsequent event in the week or two after where
16 the computer sheets were found after one of the instrument
17 foremen came back from vacation. It was my first knowledge
18 that those instrument readings had been taken.

19 I don't recall that until Mr. Bennett, I think it
20 was, I could be wrong in the name, came back from vacation,
21 and it was found that those readings were written down on
22 the computer sheets.

23 That is the extent of the knowledge I have, me
24 personally, at that time of the morning, 4:00 to 5:00. I am
25 also saying that I recall somebody finding those readings

1 days after March 28, and the reason being that the man was
2 on vacation. But, that is going back in my memory.

3 Q Do you recall Mr. Porter making more than one trip
4 to the room below the control room where those readings were
5 taken?

6 A I could not recall his whereabouts. I could not
7 begin.

8 Q Do you recall the approximate time at which Mr.
9 Porter gave you those thermocouple readings? Maybe if you
10 relate it to the time of the evacuation of non-essential
11 personnel, can you relate it to near, after, before; is
12 there any relation to that?

13 A I can relate it to my first hour, my first
14 hour-and-a-half from arrival, maybe, time-wise. It was
15 something I asked for very close to my taking control of the
16 situation, but I cannot say when exactly he came back to
17 me. I think that it was before the first think-tank
18 meeting, but I cannot put a time on it.

19 Q That first think-tank meeting was at what time?

20 A I am guessing, 8:30 to 9:00 o'clock. That is the
21 best I can do.

22 Q Okay.

23 Do you recall why the core exit thermocouples - -
24 these readings that were taken down below were not reported
25 to the NRC?

1 A The four or five readings that were taken were all
2 that I was aware of. I considered them unreliable, period.
3 That would have been my reasoning for not reporting those as
4 a specific parameter, personally. I don't recall anything
5 other than that.

6 Q Did you discuss with anyone the need to
7 communicate this, or the possibility of reporting these
8 potential high temperatures to either the State or the NRC?

9 A I did not discuss reporting the unreliability and
10 the range -- I did not discuss reporting thermocouple
11 information to anybody that I remember because of their
12 unreliability, not in terms of the potential high
13 temperatures that were in it, but just in terms of that
14 instrument not being a needed parameter to report.

15 Q I think you have already considered the question
16 of you considered the reportability of those to be.
17 Would you answer what you considered the reportability of
18 those to be now?

19 A With training in the use of them, the recognition
20 of them in the procedures, yes. If they had no been given
21 any more emphasis, no.

22 They have been given a different emphasis, so the
23 answer has to be based on today's emphasis. It would be
24 tough to answer in another context.

25 BY MR. STELLC:

1 Q Gary, I recognize you say the thought you had was
2 that those readings were unreliable, yet you say that to you
3 personally they said that the core was hot, at least that is
4 the thrust of the information you got from them.

5 As you look back now and recall being told, and
6 even at this distance recalling that that was an indication
7 of a hot core, what thoughts were on your mind when you were
8 thinking "hot core"?

9 A The only thought I can think was using the systems
10 available to encourage more heat removal, and that is, you
11 know, what can I do in the plant to accelerate or improve
12 heat removal to come out of the condition we are in. It was
13 the same thought.

14 Q Did you think that that hot core was failing
15 fuel? Did you know enough about fuel integrity to know that
16 those temperatures would fail it?

17 A The temperatures that I was given, you know, zero,
18 200, 400, and one high and one low, I did not evaluate that
19 against the core, Vic. I did not evaluate them in that
20 manner.

21 Q I was not using a number. I was using your word,
22 hot.

23 A Everything we had said that we had a hot
24 condition. I am just saying that that was one more piece of
25 information that said that. It did not change or add to the

1 action plan, and I was looking at it more from what can I
2 do.

3 Q But did not mean, not enough to fail fuel?

4 A I don't remember thinking about that the way you
5 just said it. It means that, yes, but I don't remember
6 thinking about the thermocouples versus the fuel. I don't
7 remember thinking about the thermocouples for more than 20
8 or 30 seconds. Then a lot of information and discussion
9 occurred subsequent to the 28th.

10 Q Forget all that.

11 A Yes, but that is hard to separate totally.

12 Q I understand that it is always hard to separate,
13 but I am trying to bring you back.

14 The information registered to you the thought that
15 you had a hot core, and I am trying to understand what you
16 mean when you say, hot core. If you want, we can use your
17 exact words but I don't know that they are important.

18 A I guess, I am saying that it did not cause me to
19 think anything different to the fact that I knew we were not
20 getting natural circulation, or had a good heat removal, any
21 more than anything else I had staring at me.

22 It did not add or subtract from what I already
23 knew. It did not seem to be a needed factor in the
24 evaluation at that time. I did not use that, is what I am
25 trying to say.

1 Q The concept of damaging of the core, then, never
2 really entered your mind?

3 A I did not say that. I said that the thermocouples
4 in relation to the indication of damage in the core was not
5 a separate item that stood out any more than the other
6 things that we were looking at, the radiation reading in the
7 building and the other stuff that told us that we had some
8 damage to the core.

9 Q Did you know enough from reading the FSAR and
10 other places to raise the question of metal water reaction?

11 A I knew enough to raise the question from my
12 reading of it. At that time, during the thermocouple
13 discussion which was very short, I don't recall any
14 connection of that to my knowledge of the FSAR, no.

15 Q Did the thought ever enter your mind of metal
16 water reaction?

17 A I can't remember, but certainly not at the time of
18 the morning when the thermocouple readings were reported.

19 Q If you talk about forming new junctions and
20 melting, what thought jumps out to you now when someone
21 says, melting and forming a new junction? Not then, the
22 28th, but now what do you think?

23 A I know, I think I recall today the melt point is
24 somewhere the same as the interim ECCS criteria, 2200 to
25 2300, that would indicate, you know, that the fuel was

1 beyond where it should be temperature-wise. That is today's
2 thought.

3 I don't know the exact temperature that would melt
4 those, but I think that it is in the 2200 to 2500 degree
5 range, but I am guessing.

6 Q Did you have a different thought on the 28th than
7 if you were melting and forming new junctions that these
8 were the kinds of temperatures you were talking about?

9 A I presented some of the reasons that I believe
10 were given for their unreliability, the ones that I recalled
11 in the testimony. I just did not go back and evaluate that
12 harder, that is all I can say. It was just a very short
13 thing, and not something that I got myself back to fully
14 evaluate as a part of the stuff that we were evaluating. I
15 just did not go back and think and ask questions.

16 Q I am not talking about a systematic, detailed
17 analysis. I am just talking about a thought process.
18 Forming new junctions, melting -- the morning of the 28th,
19 would your reasoning of it be any different than it is
20 today, given that someone says that you have formed new
21 junctions by melting.

22 On the morning of the 28th, do you have reason to
23 believe that you would have thought it any different?

24 A The only thing different in my mind would be
25 whether or not I made that thought process at that time, in

1 the time available. I mean, that is just one piece of
2 information, that I certainly would have thought about that
3 piece of information, the answer is, yes, but I did not go
4 back and think about it.

5 Q Would you have considered the possibility of the
6 core melting down?

7 A I would have considered the possibility of the
8 core being hot and damaged. I am not sure about melting.

9 Q I only use melt down of the core because of
10 melting the junctions.

11 A I did not connect that, no.

12 Q You did not think of it being that kind of hot?

13 A As of today, I cannot remember thinking of it
14 being that kind of hot, no. It connected to me that we did
15 not have -- That whole span did not jump out and cause me to
16 go further on that indication.

17 Q Okay. You have given me some, I guess, feeling of
18 the range of what hot was meaning to you.

19 A But I am also trying to tell you that this was not
20 part of the systematic evaluation of how hot was hot.

21 Q Clearly. One thing that is clear to me is that
22 there was no detailed analysis of what was going on. I am
23 not trying to create that impression at all. I know that
24 things were moving very, very fast. I appreciate that.

25 But, given a concept of hot, you were not

1 thinking, melt down of the reactor, and yet the core was way
2 beyond where it should have been. Did the question ever
3 enter your mind, what conditions could I have that would
4 allow me to get those kinds of temperatures -- whether the
5 thermocouples now are reading right or not is immaterial, I
6 now have this concept of hot without a number on it. What
7 is the core going to look like to get that way?

8 A I guess, it is hard for me to think of the
9 question in those terms, what does the core have to look
10 like to get that way, when I was coming at it from the
11 standpoint of what can I do not to have that condition
12 worsen.

13 I did not come at it the same way as I see you
14 come at it.

15 Q I am not trying to comment. I am trying to
16 understand what was on your mind in terms of how you
17 visualized what was happening in the core, given your
18 notion, whatever that was, of hot.

19 Let me give you another thing to think about. If
20 you think about taking the fuel out of the reactor and just
21 putting it in a pot of water, the fuel pool, it would be
22 cooled as long as you keep it covered with water. True?

23 A For some period, you have got to provide a cooling
24 system for that.

25 Q No, you don't need nothing.

1 A As long as you have a flow rate.

2 Q No, this is all I am going to tell you.

3 A Just let it sit?

4 Q Letting it sit in a pool, is your judgment that it
5 is okay?

6 If that fuel from that reactor, now three hours
7 later, instead of being in the reactor is in a fuel pool,
8 all I am going to tell you is that it is covered with water,
9 would your notion be that it is safe, that it is okay?

10 A No.

11 Q No? You think that it would get too hot if it is
12 covered with water?

13 A It would depend -- I relate it to being covered
14 with water, but I relate it to require some heat removal.
15 Therefore, I don't in my mind know how much or how big a
16 pool you would need so that you have just got enough natural
17 cooling.

18 If you just put it in the fuel pool --

19 Q Are you aware of experiments where that is what
20 they do?

21 A I am not aware of experiments where that is what
22 they do. I am aware of a spent fuel cooling system that has
23 got a back-up to it and is analyzed for so many days, and
24 that kind of stuff, from the FSAR.

25 Q But it does not force the circulation through the

1 fuel.

2 A Sure it does, through the pool.

3 Q But not through the fuel. It just sits there in a
4 pool of water.

5 A But the circulation is occurring in the pool.

6 Q Naturally.

7 A Yes.

8 Q As long as it is covered with water, that is the
9 only assumption that I want you to make, your notion is that
10 it is safe.

11 A I am saying that it is not my notion. My notion
12 is, as long as it is covered with water and has cooling
13 ability. If you just put it in the pool with no cooling
14 system, is it safe? Not according to the FSAR.

15 Q As long as it is covered with water, it is safe.

16 A Not according to the FSAR.

17 Q Sure it is.

18 A No, sir, it has a back up system, and the system
19 has to be good for so many days.

20 Q What do you do if it is unavailable as one of the
21 back up systems? You just keep a supply of water there.

22 A That is one of the things you do, but that is not
23 the way the analysis is made. It is not the way the book is
24 written. It is not the way the procedure is written.

25 Q But that is just to prevent evaporation of the

1 water, though.

2 A I think you will find in the FSAR heat
3 calculations, the number of days, the amount of heat
4 removal, the number of days available.

5 Q But the purpose being to keep the water in the
6 pool from boiling and evaporating.

7 A The purpose being to assure that the fuel is
8 cool.

9 Q I think we are passing each other again, Gary.
10 As long as the water remains as water, I either do
11 that by making up water that evaporates or I take the heat
12 out of the water to prevent it from boiling, that is the
13 only thing I am going to do, and I am going to keep the fuel
14 covered, do you understand that to be a safe condition for
15 the fuel?

16 A Covered with coolant, yes.

17 Q Okay.

18 Now, if I get back to the reactor, if I have the
19 reactor at this point, after the shutdown, covered with
20 water, would your feeling be that it was safe?

21 A I am having trouble relating just the static
22 thought of covering with water. I don't see it. My thought
23 is the same, only I am thinking that part of that coverage
24 involves the heat removal. You can't keep it covered
25 without the heat removal.

1 Pushing water across it keeps it covered, but you
2 are pushing heat removal. Just to say that you put a level
3 in there, it is hard for me to relate to that. You have got
4 to maintain heat removal.

5 Q Then your belief would be that you could still get
6 into trouble with the core even if it were covered with
7 water at that time?

8 A Part of getting into trouble would be loss of
9 water.

10 Q I was trying to explore that, and I have been
11 unsuccessful. Now, I am asking you another question.

12 If it were covered with water, do you think that
13 it could be damaged, get into trouble, over-heat, even if it
14 were covered with water all the time?

15 I am asking you to make only one assumption, that
16 nowhere in the transient did the core ever get uncovered.
17 Do you think that it would have the potential for creating
18 an unsafe condition?

19 A You are saying, if it had not been uncovered, and
20 it did not become uncovered, it could not become damaged.
21 Is that what you are asking me?

22 Q Yes.

23 A I am saying, I think that I have to think about,
24 but I think that I agree with that, that keeping it covered
25 to me is a part of the process of removing heat.

1 Q Let me get back. Those hot temperatures, did they
2 not tell you that you had an uncovered core, plainly,
3 clearly and unambiguously?

4 A Core uncoverage, going back to what I thought that
5 morning --

6 Q Forget that morning. Today, now, with all that
7 you know today, do you feel that there is but no question?

8 A Repeat that, no question but what today?

9 Q That that notion of hot that you had of the core
10 could only be explained by an uncovered core?

11 A That is what I know today. I would say, yes. I
12 am not versed in any of the steam conditions you would go
13 through. I am not versed today from any of the training
14 that I have been given since the accident over how you
15 progress into core damage like we did, and what happens.

16 I have read some stuff about what they think
17 happened. The answer is, yes, but I am not sure beyond that.

18 Q Today it is clear to you that that is what it
19 means?

20 A That what?

21 Q That warm-hot condition that you felt you had when
22 you got this information about the in-cores, that notion of
23 hot could only be caused by core uncover.

24 A You are saying, if I take today the data we had on
25 the 28th --

1 Q No, I am only going to take into account high
2 temperatures in the in-cores.

3 A You are saying temperatures of that magnitude.

4 Q Yes.

5 A Today, would I conclude that the core to see some
6 uncoverage?

7 Q Yes.

8 A The answer to that is yes today.

9 Q Now, rationalize for me how you could have thought
10 anything other than that that morning?

11 Make me understand coming to any other conclusion,
12 or help me understand.

13 A To try to help you understand what I was looking
14 for, I was not looking to determine core uncoverage. I knew
15 we had fuel damage to some extent, I did not know how much.
16 I knew that it was more than we had thought about. I did
17 not look -- I did not reach a conclusion.

18 Reaching a conclusion that the core was hot would
19 not have caused us to do anything different.

20 Q If the core was uncovered, then you would have
21 reached the conclusion, I have to keep water in until I can
22 conclude that it is covered. That would be a different
23 conclusion.

24 A We concluded that we had to put water in to
25 maintain coverage.

1 Q For a different reason.

2 A But the action would have been the same.

3 Q No. The action now is the indication of an
4 uncovered core is the in-cores, not the hot-legs because
5 that is up in elevation considerably.

6 A Now.

7 Q I said then, if the conclusion you reached then
8 was the in-core temperatures said, core uncover, then my
9 indication is keep putting water in until that indicator
10 goes away.

11 It depends on why you are doing it. It is very
12 important because, then, I am going to say, okay, this is
13 the indicator, it says, core uncover, to me. Keep adding
14 water until this indicator starts to let me conclude I no
15 longer have core uncover.

16 That would have caused you to go into, if you
17 will, an ad hoc procedure for the plant different from
18 anything you had, but it would have been the right one. You
19 could have done that. Indicator from the in-cores, the core
20 is hot, add water until they no longer said that it was hot.

21 A But you are saying that the action would have been
22 the same, and the indication to get to the action would have
23 been different.

24 Q Whether that action was effective or not would
25 have been entirely different.

1 A It is hard to judge the effectiveness of the
2 action.

3 Q Yes, that is what I am trying to get to. I am
4 trying to understand what it did not tell you, core
5 uncovering.

6 I am trying to understand, given that same
7 information then, why that thought was not raised. Did you
8 just blow it? Did you just miss it?

9 A I don't think we missed it. I don't feel we blew
10 it. I feel that we were looking at core coverage from a
11 standpoint of what can you do to do the maximum with the
12 systems available to assure --

13 Q Taking into account the core thermocouples?

14 A We did not take into account the core
15 thermocouples.

16 Q The only purpose of me asking the question is to
17 take into account the core thermocouples to deal with the
18 core uncovering question.

19 Let me see if I understand.. Are we agreed at this
20 time that you the feeling of a core uncovering, or not?

21 A No.

22 I have agreed that I did not know what the system
23 inventory was, and I have agreed that the only thing I knew
24 to do was to put water in, and that that is all we did.

25 Q I guess what we are dealing with is why core

1 uncovery did not come up as an issue with the in-core
2 thermocouples and what they were. I am trying to look for
3 what other engineering explanation can you possibly use.

4 A And I cannot come up with another engineering
5 explanation, but I also cannot come up with anything that
6 would add to what we did on the 28th.

7 Q Then, I guess, I will have to conclude -- Let me
8 ask if you agree with this conclusion -- that that was just
9 an error in judgment in interpreting how you got a hot core?

10 A I don't know that I agree with the conclusion of
11 an error in judgment of how you got a hot core. I was
12 coming at it from, how do you get a hot core stabilized.
13 How I got the hot core could not help me. How do I get out
14 of it with what I had available; how do I get out of it was
15 what was on my mind. That was the thrust, what do you do to
16 get out of it.

17 Q Let me try another one. It was an error in
18 judgment that monitoring the in-cores could tell you how to
19 get out of it.

20 A In my mind there was an error in judgment in the
21 whole program that we did not recognize and use the
22 thermocouples, period. That error in judgment carried
23 through to the day of the accident in my mind.

24 Q I am only talking about during the accident.
25 There was an error in judgment on the use of the

1 in-core thermocouples. Since the thermocouples information
2 went to you and stopped there, the error in judgment was
3 yours.

4 A The error in judgment on that day is my
5 responsibility. That error in judgment is not all we are
6 talking about. The error in judgment is programmatic for
7 the thermocouples, the lack of recognition of their value.
8 I carried on with that error, yes.

9 Q In fact, you have already made the point that
10 there was no training, and no procedure, and it would have
11 been very easy to have them, and had you had them thought
12 out in advance, it would have made life a lot simpler.

13 A From that standpoint, I agree with the words you
14 use.

15 Q I am talking about getting the information that
16 was asked for by you, and it got up to you. It could have
17 been used, but it was not. To try to wrap this up, the
18 reason it did not go any further was because of your
19 decision that it ought to stop there..

20 A It did not go any further in my mind for two
21 reasons. One, I did not go back and ask more about it; two,
22 the people did not bring it up again in the sessions we
23 had. People did not bring it out and start talking about
24 it.

25 I look at it two ways. I could have asked a lot

1 more questions than I did, but I just didn't. Two, people
2 could have brought them up.

3 Q People did not bring them up and discuss them to
4 use in the plant stabilization.

5 I think that I have as fair an understanding as I
6 can.

7 BY MR. CRAIG:

8 Q Gary, on the day of the accident, between 11:00
9 and 12:00, about 11:30 or so, there was a decision made to
10 depressurize the core flood tanks to make sure that the core
11 was covered. Is that correct? Is that your understanding?

12 A To get double assurance that the core was not
13 uncovered.

14 Q Your decision to go on core flood tanks to
15 increase primary system pressure was in the 11:30 time frame?

16 A Yes.

17 Q Prior to this time, you were aware that there was
18 no natural circulation in the primary system?

19 A Minimum.

20 Q What does that mean?

21 A There was some natural circulation. You could not
22 calculate it. You had low steam pressure. You had
23 indication of some heat removal, certainly minimum compared
24 to what you would have liked to have seen.

25 Q The delta T across the core was higher than you

1 would ever have expected to see.

2 A But looking at natural circulation, you can look
3 at things like steam generator down comer, steam pressure,
4 those kinds of things give you some idea, without using
5 those other indicators, if my memory is right, not knowing,
6 not having any procedures, or anything here.

7 Q My point is that the natural circulation could
8 account for very little heat removal.

9 A We counted on it for some, but not much, that is
10 right.

11 Q If we are talking percentage, three percent, five
12 percent?

13 A I don't think I can conclude today, even, what
14 percentage, other than you had to have water.

15 Q But there was very low --

16 A Very low --

17 Q -- heat removal.

18 A Very low.

19 I think I said in the previous testimony that the
20 pressure in the steam generator was 50 to 100 pounds, so
21 that tells you your answer, I believe.

22 Q It does.

23 You also were aware that hot-leg temperatures were
24 higher than you had ever expected to see?

25 A Yes.

1 Q You were aware that the core exit thermocouples,
2 that knowledge, that discussion, just had led you to the
3 conclusion, certainly coupled with the other things, that
4 the core was certainly hot, that it was a hot core?

5 A Yes.

6 Q You were also aware that there was super-heated
7 steam in the primary system.

8 A I am saying, I am not sure at what point or in
9 what part of the discussions --

10 Q Prior to the decision to depressurize?

11 A I think so.

12 Q You were also aware that you could not pump water
13 through the primary core to the core. There was no forced
14 circulation.

15 A Reactor coolant pumps.

16 Q There was no forced circulation.

17 A Other than make-up pumps.

18 Q Okay.

19 A There was no forced recirculation.

20 Q There was a concern for the primary system
21 inventory, and you were aware that there was a certain
22 amount of voiding in the primary system.

23 A Yes.

24 Q You were aware of the radiation levels inside
25 containment. Didn't this lead you to the conclusion that

1 thermodynamically the primary system was uncontrolled, or
2 uncontrollable?

3 A No.

4 Q Why not?

5 A It led to the conclusion -- I believe it led me to
6 the conclusion that the situation I was in was not
7 recognized anywhere, but not necessarily uncontrollable. I
8 felt that it was controllable as long as the safety systems
9 functioned.

10 Q What safety systems are you talking about?

11 A HPI. As long as I had that, I felt controllable.
12 As long as I had water inventory. I would have felt a lot
13 less controllable had had that degraded, that would have
14 changed my impression.

15 I did not think that we were near stability, but
16 that was not, you know, a question in my mind. We were not
17 in my mind, I believe, uncontrollable at that time.

18 Q What led you to believe that you were getting this
19 hot core stabilized?

20 A I think there is previous testimony that discusses
21 this. There was some progress through the afternoon hours
22 on the temperatures.

23 Q Up until that point?

24 A Up until that point, I concluded that the systems
25 we had would function, but we could not go on indefinitely

1 in that mode. We were asking questions like, what flow rate
2 do we need, with the B&W people. That kind of thing was
3 being asked that morning, and it was not being answered
4 yet.

5 Q What difference would it have made if they had
6 said to you, three hundred gallons, or four hundred gallons?

7 A Then that would have been what the make-up flow
8 rate would have been.

9 Q Then you would have assumed, based on that alone,
10 that you were getting the hot core stabilized, when you
11 still had all these other temperatures?

12 A We would have assumed that was one thing on the
13 way to stability only, okay.

14 Q How the depressurization, then, affect these
15 parameters, and indeed make some of them more severe?

16 A At what time did we commence the depressurization?

17 Q I am looking at the ENSEC chart, and it looks to
18 be -- Why don't we look at that chart, which is colorplate 3
19 of the Rogovin Report, and between 11:30 and 11:45,
20 approximately.

21 A Yes.

22 Q It would seem to me at that point, if you were
23 reasonably confident, for whatever reason, that there was
24 water in the core, essentially covering the core, if you
25 decreased pressure and you are already at super-heat

1 conditions, whatever is in there is going to flash to
2 steam.

3 A A lot of discussion occurred in the first couple
4 of hours about that depressurization in the roomful of
5 people I was in. I cannot begin to remember it all, but
6 there were pros and cons in the room. The consensus was to
7 do it. I made the decision to do it somewhat in the hope
8 that it would help the condition.

9 Secondly, the amount of water that we were pumping
10 at that time in the morning, I think we had a couple hundred
11 thousand gallons in already -- I don't know the numbers
12 exactly.

13 Q But you were also aware that you continued to vent
14 it out.

15 A Yes, and I was aware that four or five more hours
16 like that, I did not know the exact time frame, I would need
17 another method.

18 In my own mind, listening to all the reasoning,
19 that seemed like a possibility of getting more stability.
20 It did not become totally evident whether -- In my mind it
21 did not become evident that that solved anything when we got
22 done with it that day.

23 We accomplished it. I had told them that I did
24 not want water flow stopped during the evolution. Later on
25 in the day we went to another condition for different

1 reasons, from the stand point of pressure.

2 Q Did you view that as the only recourse at that
3 time?

4 A I viewed that as a recourse that as long as we
5 maintained the same water flow and other stuff -- I guess, I
6 don't remember that changing my mind of the severity of the
7 condition. I did not view it as a solution necessarily.

8 Q If you were concerned about running out of water
9 injecting into the primary system --

10 A That was beginning to become a concern.

11 Q You were aware that you had a time frame.

12 A I believe that I was even going to have people
13 look at bringing Unit 1 water south at that time.

14 Q You had already tried to increase pressure and
15 collapse the bubble.

16 A We had set for some period of time cycling that --
17 I said previously that there were a lot of factors in that
18 depressurization. In the President's testimony, I put
19 together as well as I could remember them the factors that
20 made me go with that decision. Today I am not doing any
21 better at remembering the factors.

22 But I believe that in that transcript I have said
23 some of the things like the block valve may stick, the
24 potential of the water inventory in the tank becoming a
25 problem.

1 This was one more way of maybe seeing or assuring
2 that the core was covered by flooding the core flood tanks.
3 That kind of reasons, I have said previously, I believe, and
4 I cannot do any better at it today.

5 Q When you go down the pressure, and you saw a
6 change in the core flood tank indication, at least it gave
7 the additional assurance that the core was covered, you were
8 already aware that the core was hot.

9 Why knowing that you had such a hot core and a
10 steam generation going on in the primary system which would
11 give you a certain pressure, did you believe that that
12 change in water level assured that the core was covered?

13 A I think I have said this as well as I can
14 previously. I just think that it gave me some confidence in
15 my own mind that it was not totally uncovered.

16 I guess we felt in the group a rapid draining of
17 those tanks might tell us something, or it might help to
18 tell us something, in addition the water going in was not
19 going to hurt. It went in right over the core.

20 Q You cannot have any kind of a rapid draining of
21 those tanks unless you have a large differential pressure.

22 A You cannot have a rapid drainage, but it would
23 seemed in our minds that day that them decreasing a foot or
24 two gave us some confidence.

25 Q Was there any discussion in the think-tank that it

1 didn't, in fact, do it, because you could not lower pressure
2 because of the steam generation in the primary system
3 holding primary system pressure up to limit the DP, to
4 minimize the change in level in the core flood tanks?

5 A I think the discussion in the group I had felt
6 that if we could get some differential, if they drained all
7 the way out, that might tell us more than if they just
8 stabilized.

9 I don't know that there was a good discussion of
10 the loop seals, or the pressure differentials to the degree
11 you were just talking about. I think that it was more of a
12 gross indicator than a specific indicator, or a calibrated
13 indicator.

14 BY MR. FISHER:

15 Q Gary, I would like to change direction a little
16 bit.

17 You previously testified that when you arrived at
18 work that morning, you assigned specific responsibilities to
19 several people. Is that correct?

20 A Yes.

21 Q You have testified that one of those people,
22 George Kunder, was assigned the job of being the
23 communicator, among other things?

24 A I believe so.

25 Q In that capacity, was he instructed to determine

1 what to communicate to people, or just to communicate
2 whatever was given to him by others?

3 A The set up I went into was based on training and
4 passed rules in the emergency plan for Three Mile Island,
5 which is a drill that I had run at the station in 1974
6 myself. Part of the way I ran that drill was to pick areas
7 for senior people, if I had them.

8 What I am coming to is that George would have been
9 expected by me not to have me tell him what to communicate
10 because it was based on trained condition emergency plan, so
11 that the emergency director did not have to specify exactly
12 what you do.

13 It was more of, this is your area. You do what
14 you do because you are trained, and because of your
15 experience. That was the way George was told by me to
16 communicate.

17 Q It was sort of up to him to seek out whatever
18 information needs to be passed on?

19 A Up to him from his knowledge of the emergency
20 procedures for Three Mile Island to assure that the right
21 knowledge is passed, plus anything specifically. That is as
22 well as I can tell you that the assignment was made.

23 Q Concerning the off-site prediction of 10-R per
24 hour gross rated -- In your 30-page prepared statement you
25 stated: At approximately 0730 or a little before, I had

1 received predictions of an off-site dose of 10-R at
2 Goldisborough. This was based on the reactor building dome
3 monitor which was still increasing, and from our past
4 experience with this source calculation we did feel that
5 these were reading this high." You went on to say some
6 other things after that.

7 From whom did you receive this prediction of 10-R
8 per hour?

9 A I think that it was Richard Dubeil. I think it
10 was Richard Dubeil who was put in charge of that area. That
11 prediction causes you to want to have somebody outside to
12 get a reading so you can get a correct source term.

13 Q Did you discuss at any time that morning this
14 prediction with George Kunder, or Jack Herbein?

15 A At that time in the morning, we had that
16 prediction. I was not talking to Jack Herbein. George was
17 right there. I took the action of getting a reading which
18 we had at the same time on the site in the plume, a reading
19 of zero almost, and asked for a helicopter to go to
20 Goldisborough with a team because it was 7:30 in the morning
21 roughly.

22 By the time I got to talk to Jack Herbein, we had
23 already corrected the source term, and had done the
24 calculation per the procedure. So that information was
25 updated to other information per the procedures and plan. I

1 think that it is still the way you do it today.

2 It tells you to get a reading right now in the
3 plume, that is what it told me. We did that. I think the
4 State was probably talked to by Dubeil about it, but I don't
5 know that anybody else was, and there may have been people
6 in the NRC radiation area that knew it.

7 It became a piece of information that was not part
8 of the criteria for any action, once you got a reading and
9 got a new source term, and got a new projection. So it was
10 only one thing that occurred.

11 The guy that was doing it was doing it as a part
12 of his training in emergency plan. You start out making
13 assumptions and making a prediction, and that prediction, he
14 knew, would be high every year in the emergency drill.

15 Q Do you recall specifically talking to George
16 Kunder about that the 10-R per hour reading?

17 A I don't recall talking to George about that.

18 Q Do you recall discussing it with anybody else,
19 other than Dubeil?

20 A Dubeil, and it could possibly have been discussed
21 in the first think-tank meeting, but as a part of the action
22 plan to get monitors out and recorrect that term, and get an
23 accurate projection.

24 Q To the best of your knowledge, do you know whether
25 this 10-R per hour figure at Goldsborough was reported to

1 the NRC at once?

2 A At that time in the morning, I don't know that.
3 The reason I don't know that is because the update of that
4 projection would have been the thing we gave them. I am not
5 sure what times that occurred.

6 What I am trying to say is, had it stayed 10, yes,
7 but it did not. The projection changed, and it changed at
8 the same time we are talking about.

9 Q Until such time as additional information was
10 available to disprove the calculated 10-R per hour figure,
11 would you say that that was a reportable figure?

12 A You are in a general emergency already, and that
13 is a reportable figure. I am not sure the timing of that
14 projection versus the timing of the reading on the site in
15 the plus -- I am not sure when the information would have
16 been pinpointed as this is a projection.

17 I am not even sure that that was a projection
18 longer than a minute or two as the official projection. I
19 am also aware that Dubeil felt it to be very inaccurate
20 because of his knowledge of this procedure.

21 Q Do you recall if it was reported to the State of
22 Pennsylvania?

23 A I think it was communicated to them, but it was
24 probably communicated in the same context that I just
25 communicated it to you, that we are getting a reading and

1 the reading will give you the accurate projection.

2 Q On the morning of March 28, 1979, what
3 instructions were you given with regard to information which
4 was to be reported to various outside agencies, including
5 the NRC?

6 A What instructions was I given?

7 Q Were you given any instructions by anyone on that
8 morning?

9 A No. I was not given any instructions on what to
10 communicate, or what not to communicate. I gave specific
11 direction that there would be nothing that was not available
12 to anyone. That was clear.

13 Q You say that you did give instructions?

14 A That instruction was put out in my first meeting.

15 BY MR. HOEFLING:

16 Q Excuse me, but what was that instruction?

17 A That there would be no information that would not
18 be made available in a priority of being able to answer all
19 the communications.

20 My memory is that we had a dedicated phone line
21 before 8:00 in the morning to some people, both in the NRC
22 and in the State. My direction was based on that phone line
23 being kept that way, and being dedicated to whatever they
24 needed. That would have been the context of my
25 instruction.

1 Q By the term, making information available, do you
2 mean, available upon request or to volunteer all the
3 pertinent information?

4 A I mean it both ways.

5 Q Back to the 10-R per hour prediction for just a
6 minute, do you know how it was determine that the 10-R per
7 hour prediction was not reportable?

8 A I think we felt that it was reportable. The dome
9 monitor at 7:24 in the morning, going through radar, was
10 reportable. It was a general emergency. That prediction
11 was made in that same time frame. It was as reportable as
12 the 8-R, but what is more reportable, or what is more
13 important would be the accurate projection that we would get
14 momentarily. It was the projection that people needed to
15 respond to per the approved procedures and plans. Yes, in
16 that context, that is the way I feel.

17 Q Was the determination not to report the 10-R per
18 hour figure, not the dome monitor reading but the 10-R per
19 hour figure that was determined from it, was the
20 determination not to report that based on the belief that
21 measurements had actually been made in Goldsborough?

22 A I did not say that there was a determination not
23 to report that. I said, I am not sure of the timing of the
24 availability of the 10-R versus the availability of the
25 reading to calculate the accurate projection per the

1 procedures.

2 I am saying, I am not sure of the exact timing and
3 nobody has been able to tell me when the 10-R -- I am
4 remembering that it could have been after 7:30, or it could
5 have been before. But I know that we had monitors on the
6 site in the plume right away. Within the first 10 minutes,
7 we would have had monitors on the site.

8 I am saying that the updated projection would have
9 been reported, depending on when the phone lines became
10 available, when people called back and asked for it. I am
11 also sure that Dick Dubeil would have discussed that, and
12 may have, with anybody that he talked to.

13 I am sure that he would have talked to State about
14 it because that is the people that we are responsible to
15 recommend to. I feel he did talk to them about that, and
16 they would have agreed with us to get the monitor out and
17 get the projection.

18 Q Let me state it differently. You initially had
19 the 10-R per hour in Goldsborough prediction. Is it
20 sufficient to discount that on the basis of an on-site
21 measurement, or should that prediction be discounted only
22 the basis of an actual Goldsborough measurement?

23 A I think you have got to know where the plume is
24 at. You are asking me for a detailed knowledge of the
25 procedure, and I am sitting here without it, but I believe

1 you have got to get a reading in the plume, and the plume
2 was not blowing for an hour-and-a-half.

3 So in this particular case, I think, there would
4 have been credibility in the prediction at the fence, maybe
5 being better at that point in time than Goldsborough. I
6 wanted a helicopter to Goldsborough because I did not think
7 that we could get there in that time of the morning fast
8 enough to beat the plume, had the wind been blowing faster.

9 I am just saying, if you are in the plume, I think
10 you can make that projection based on recalculating the
11 source term each time you get a reading, knowing the
12 meteorology and knowing where you are at. That morning, if
13 my memory is right, the wind virtually was not blowing.

14 BY MR. GAMBLE:

15 Q Mr. Miller, when you made the on-site
16 measurements, then, that is what caused you to discount the
17 10-R projection?

18 A Not discount, but further procedure to recalculate
19 the source term. Not discount. You still do it that way
20 today.

21 Q Did you continue your efforts to obtain an actual
22 measurement at Goldsborough?

23 A Yes, by helicopter. I asked for a helicopter from
24 the State police immediately. I wanted it faster than they
25 could give it to me. I had gotten helicopters before from

1 them for security problems. I believe that we got that
2 helicopter within 30 or 40 minutes. My times may be a
3 little off, but I think we had them in Goldsborough by the
4 time of our think-tank meeting, or close to it.

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1 Q Even though you had recalculated it you continued your
2 efforts to obtain the actual reading in Goldsboro?

3 A It was, the plume is going to be in Goldsboro next. You
4 follow it. When the wind changes you change the teams. That is
5 what it was doing. The wind was blowing a mile and a half an
6 hour towards Goldsboro. Therefore I wanted to be in Goldsboro
7 to get the plume. The wind had changed directions slightly so
8 we had to shift people to the observation center to get readings.
9 I have been saying you have to follow the plume. Then as we
10 progressed in the day we began to get more and more teams to
11 be all over in the diameter of the thing. That is the way I
12 believe the procedure is written and I haven't read it in a long
13 time. That is out of my memory.

14 BY MR. FISHER:

15 Q I have one last question and this concerns the reporting
16 more in general than related specifically to the 10 R per hour.

17 Was a list prepared that morning or did a list previously
18 exist of information that should be reported or should not be
19 reported to NRC?

20 A There was never a should be reported list that I have
21 known about anywhere. There isn't a list of stuff to be reported
22 to the NRC specifically that I remember. I described earlier
23 an emergency plan. There is a status sheet, and that status
24 sheet was also on the board in the control room which asks
25 some pertinent questions about ECCS, reactor building readings

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1 and dose projections, that kind of stuff. That information is
2 to be reported to anybody that is in the communications chain.

3 BY MR. GAMBLE:

4 Q Mr. Miller, you indicated that Mr. Kunder was respon-
5 sible for communications and then you were discussing that
6 Mr. Dubiel was making some notifications to the state. Would
7 Mr. Dubiel have been making those notifications for the direction
8 of Mr. Kunder or with the knowledge of Mr. Kunder? How did
9 that interplay work?

10 A I hope that interplay would tie together at my meetings
11 because you had to have Dubiel talking to BRP, Bureau of Radio-
12 logical Protection because of his intimate knowledge of the
13 subject. Kunder I would not have expected to be responsible
14 for those communications in my mind. I was looking more at him
15 to be the other type of communicator with management and with
16 the NRC. That is a dedicated BRP line where I think Dubiel
17 would be the other guy that I would look at to make recommendation
18 information to, say, Maggie Reilly or Gerusky because that is the
19 way it was practiced. That doesn't say George wouldn't have
20 talked to them, but I am just saying that particular communication
21 because of Dubiel's role in the emergency plan was his

22 Q Some of these earlier communications were before your
23 first management recall, as I recall.

24 A Yes.

25 Q Would Kunder routinely have been expected to have known

3 1 what Dubiel communicated to the state?

2 A Yes. He was right there in the same area of the control
3 room.

4 Q So they would have overheard each other's communications

5 A In my mind he would have been available of that knowledge
6 unless he was tied up on the phone with other things. I mean,
7 you know, but the availability of it would have been pretty
8 obvious. Then at roughly 8:30 or 9 I had to move the whole
9 ECS up there so the ECS up there so the whole thing was being
10 done in Unit II because that was the back-up ECS.

11 MR. MOSELEY: Okay. We will take about a 10 minute
12 break now.

13 (Whereupon, a recess was taken.)

14 MR. MOSELEY: Back on the record.

15 BY MR. MOSELEY:

16 Q Mr. Miller, your previous statements on the pressure
17 spike may be viewed as conflicting. Would you state for us now
18 what you knew about the spike on March 28th?

19 A You say my statements may be conflicting. I don't know
20 whether I want to go on and give you the third version a year
21 and a half later. I mean honestly I don't ---

22 MR. BLAKE: Maybe we could read those, Norm, the ones
23 you view as conflicting.

24 MR. MOSELEY: I thought we might get what your view
25 today is and then we would address the ones that might be viewed

4 1 as conflicting and you could explain any apparent conflicts
2 and we could approach it that way. I think that might be the
3 preferable way of approaching it.

4 MR. BLAKE: Do you want to take an opportunity, Gary,
5 to review your prior statements or do you just want to tell him
6 whatever it is that you recall right now and then we will go
7 that way?

8 THE WITNESS: I will go right now.

9 MR. BLAKE: Okay, why don't we do that then.

10 At the time that the spike occurred, you know, my
11 thrust was to be leaving the site, like, you know, making last-
12 minute preparations to go to the Lt. Governor's office. I believe
13 I was out in the control room. I don't remember looking at any
14 instruments relative to that incident. I do remember hearing a
15 noise. I do remember that Mike Ross, and I think William Marshall
16 Bubba Marshall is his name, nickname, was standing near me and
17 I think I asked what the noise was. I think I was told that it
18 was the ventilation system.

19 I think I had at that time no awareness of the spray
20 pumping starting that I can remember today or of the spike itself.
21 And I feel that is accurate because when I came in in the days
22 after the accident. I came back early Thursday morning because
23 there were only two emergency directors, Jim Seelinger and myself.
24 Then I believe I came back again either at 6 o'clock or 7 o'clock
25 Friday morning.

5 1 At that time I came through my normal office and Bill
2 Lowe was in there, a consultant, and I believe that was the first
3 knowledge I had of a hydrogen detonation, and in fact I went
4 up to the control room and asked to see the charts. I asked
5 Ivan Porter the instrument engineer.

6 I could be in error here, but I believe that Don
7 Haverkamp was up in the control room as one of your inspectors
8 heard me ask. The reason I was asking was that that was my
9 first knowledge of the hydrogen spike in my mind. That is the
10 way I piece it together today.

11 BY MR. MOSELEY:

12 Q Your reference to Haverkamp is a reference to Friday
13 morning, him overhearing a conversation?

14 A I think he overheard me ask for the charts to look at
15 that.

16 Q Okay.

17 A I think he told me that subsequent that he heard me,
18 subsequent to these events. I am trying to document in my own
19 mind the scenario and the recognition so that it is clear, because
20 times in terms of even days are very hard and some people don't
21 realize how hard.

22 Q I have a very vivid recollection of that problem.

23 A But even some of the people involved I am saying. So
24 I am trying to put together in time things that are accurate
25 versus recognition to be sure I am portraying it as it happened.

6 1 Q Now, let me refer to your 30-page prepared statement
2 and read you an excerpt from there and I quote.

3 "It should be noted at approximately 1400 I heard a
4 loud, deep noise, and at that time the reactor building spray
5 pumps started. Subsequently to the events of that day I learned
6 that was a 28-pound pressure spike which occurred in the reactor
7 building due to hydrogen."

8 This quote tends to indicate that you were aware that
9 the spray pumps were started at the time of the ---

10 A What I believe happened was if you read the format of
11 that testimony it was a result of a meeting I held with the five
12 key people within a time frame of two weeks of the accident. And
13 at that time I learned the spray pumps started. You know, I
14 believe what I mean in that testimony is not what I, myself,
15 recognized. I believe Mike Ross or one of the people in that
16 meeting told me the spray pumps started, in that meeting.

17 My recognition is that the testimony may not have been
18 written well enough. You know, I don't believe I knew it at
19 the time it occurred on the 28th, but I think I knew it as a
20 result of the discussion with the group.

21 Q It might help if I let you review this yourself. I
22 have a copy of your prepared statement here and I am trying to
23 find the page. Page 24.

24 (The document is handed to the witness.)

25 MR. MOSELEY: If you will read the sentence. The first

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sentence says "It should be noted that at approximately 1400 I heard the loud, deep noise and at that time the reactor building spray pumps started."

The next sentence starts "Subsequently to the events of that day" you learned that it was 28 pounds and it was due to hydrogen. The sentence structure tends to indicate from the first sentence that you knew of those things at the time and the things that you knew later were preceded by the subsequently.

Could you explain to us your intention in writing this?

THE WITNESS: This document was prepared by myself without any requirement to prepare it at the time that it was prepared. I gave it to the company, and in the letter I gave it to the company in I stated that this was a result of the discussion of that group of people.

I am saying that the way I wrote those words on the page 24 in my mind I don't feel that there is a conflict. I don't believe I knew the spray pumps started that day. I knew it when I wrote this, though, because the group I sat with had people in it that saw them start. I could be in error there in true memory, but I don't remember the spray pumps starting or knowledge of that.

BY MR. MOSELEY:

Q You have stated I believe this morning that you believe you were in the control room when this occurred.

A I believe I was out near the panels. I can't tell you

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exactly where, but I believe I was out there because I was getting you know, the last-minute preparations to take and go to the Lt. Governor's office, and I remember the noise more than anything else. And the noise turns out, I guess, to be unrelated, but it did turn out to be similar in time.

Q It is my understanding, Mr. Miller, when a pressure of 30 pounds is initiated this causes a large number of actions, a large number of alarms and valves to reposition and it is sort of an unusual sequence of events. Would you expect that this activity would have called your attention to these things?

A I don't agree with your understanding of the large number of things that are going to happen in addition. The 30-pound signal, and you know, we are back again at my knowledge of the safeguard system after a year and a half, but a 30-pound signal only starts the spray pumps. Everything else, if you had your safeguards, is actuated. So it is not an additional set of indications.

I am saying that the only thing that happens at 30 pumps is that two pumps come on.

Q Some of these actions take place at, what is it, four pounds?

A Some of them take place at 1,600 pounds in the reactor coolant, and then at four pounds and then at thirty pounds.

Q What I am saying is that there were a large number of alarms that were associated with this.

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1 A Not the 30 pounds. If the ES system had been reset,
2 and I can't remember that today, it would have been -- you know,
3 you would have to go back and look at the logic. I don't believe
4 there was an additional safeguards total actuation beyond where
5 we were that was that noticeable. That is what I am saying. It
6 wasn't in the context you are putting it.

7 MR. HARPSTER: I believe if you want to review it you
8 will find that there was and several of the valves repositioned
9 on the back panel.

10 THE WITNESS: But on the back panel.

11 MR. HARPSTER: There were a number of actions that took
12 place here.

13 THE WITNESS: Okay.

14 MR. HARPSTER: We have the testimony of many of the
15 people present in the control room as to their response to the
16 different thing that happened, for example, the suction valves
17 opening and the different valves repositioning in the intermediate
18 core cooling system, and things like.

19 THE WITNESS: But I am saying the context of the question
20 was this would stand out glaringly. I am saying the stuff you
21 mentioned, Terry, could have occurred without -- it wouldn't have
22 given you a sense of, Hey, something else just happened.

23 MR. HARPSTER: The question is based on the fact that we
24 have all this testimony from other people that you couldn't help
25 but notice it. In the control room the shift supervisor's office

10 1 emptied. People went around to all the different panels, and that
2 left us with an impression now, and certainly looking at the numbe
3 of things like every position and alarm.

4 You know, I can only remember standing next to I believe
5 Ross and Marshall. I can't remember anybody, you know, saying
6 to me, "Before you leave the site please go evaluate this new
7 set of conditions." I can't recall that kind of thing happening
8 in that control room. There might have been some discussions
9 among the operators about this, but I would have never heard
10 because I left right away. I am saying I was on my way out of
11 the control room as I remember, and I said, "Mike, there is a
12 noise." And I don't remember Mike telling me anything other than
13 what I have said. That is the basis for me saying that I didn't
14 have a recognition of a building spike and the ventilation. Had
15 I not been given an answer I would have persued it, and the
16 ventilation makes a heck of a noise, and we never heard it up
17 there, when it shifts, a big thud and not a click. I asked the
18 question and went on.

19 BY MR. MOSELEY:

20 Q Well, aside from the fact that we have testimony from
21 a number of people, you know, "It was obvious to everyone" is
22 the type of statement that these things had occurred.

23 We get into the timing problem. You have just stated
24 that you were on your way out of the control room to go to the
25 Lt. Governor's office. Yet, in some other testimony you have

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indicated that before you left for the Lt. Governor's office you saw the T-hot indications begin to converge. The information that we have from these plots, and this is the Rogovin plot that you are looking at, is that this didn't happen until after 2 o'clock which would mean that if you were aware of these changes of temperature then you must have been in the control room until at least 2:15 or 2:30, something in that time frame as I read it.

A Well, I think you can see some minimum response before 2 o'clock.

Q But not enough to get a whole lot of comfort from.

A No, but some indication of some response, and I think that is what I meant. It would be hard for me to just totally say I am accurate on the times even then.

Q What I am saying is if you had this knowledge enough to get comfort from, the more comfort you get the more time you have to have watched this if you look at these curves.

A But I am saying that the vergence you are talking about in the scales of the instruments up there could have been seen as starting at the point I was leaving.

Q Let's go on to another apparent conflict in your statement, in your previous statement.

In your statement to the IE investigators on May 7th you stated and I quote: "The reasoning there would be that up until 2 o'clock, and I am aware we had a hydrogen excursion, I

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1 was aware at 2 o'clock we had an excursion, but up until that
2 point we had not seen anything above four to five pounds in the
3 building."

4 Could you explain that in the context of what your
5 belief now is is what your knowledge is?

6 A Could I see that?

7 Q Sure. Page 26 of that.

8 (Document handed to the witness.)

9 (Short pause.)

10 THE WITNESS: I don't believe I said that I was aware
11 on the 28th anywheres. You know, I personally believe that what
12 I said here was that I am now aware that we had one. I don't
13 believe that I meant by those words that I was aware, and I am
14 putting that together in my own mind based on my knowledge of
15 what I did Thursday and Friday, you know.

16 I believe that when I talked to Donaldson, and that
17 is who this is, on May 7th, I believe I was looking at the time
18 frame of then versus what I knew. I don't believe I meant or
19 conflict here with what I knew the 28th. I believe that I
20 have thrown into this, you know, that I am, you know, maybe I
21 didn't say I am now aware of it. So I did not know it was
22 a hydrogen excursion at that time on the 28th. It is as simple
23 as that. I don't believe that that is a conflict here.

24 BY MR. MOSELEY:

25 Q Do you believe that this was improperly transcribed in

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1 some way, that you didn't say this?

2 A My words were the reasoning there would be that up to
3 2 o'clock I said the containment was stable. That was the way
4 I started out.

5 The question Donaldson asked me was about the containment
6 and unplanned releases. That is what he asked me. I said our
7 containment we felt was stable. The reasoning there would be
8 up until 2 o'clock, and I am aware we had a hydrogen excursion.
9 What I am saying is I am aware now that we had one. And I went
10 on to say I was aware at 2 o'clock we had an excursion. What I
11 saying is that my words here mean that I am now aware that we
12 had a hydrogen excursion on the 28th, not that I was aware on the
13 28th, and I don't feel there is a conflict. And I don't feel
14 there is a conflict with my actions that can be documented on
15 Friday.

16 I am pretty sure of my memory bank, and my recognition
17 and investigation of that proves to myself that my initial
18 realization was on Friday, and I just don't feel there is a
19 conflict.

20 Q Mr. Miller, we also have prior testimony from
21 Mr. Chwastyk, including testimony that he gave us this week,
22 that indicates he discussed with you the pressure spike and his
23 concern that there had been some kind of an explosion and that the
24 spray pumps had come on, and that this had preceded your trip
25 to the Lt. Governor's office and that he at that time asked

Note: See correction sheet at the end of this transcript.

14

1 permission to draw a bubble.

2 A And I don't remember any conversation with Chwastyk
3 about a hydrogen excursion. Chwastyk reported to Mike Ross, the
4 Operations Supervisor, and I don't remember any discussions with
5 Mike Ross.

6 Q Your statement was you don't recall any discussions
7 about a hydrogen excursion?

8 A With Joe Chwastyk.

9 Q Do you recall any discussions about the pressure spike
10 for whatever cause?

11 A Not with Joe Chwastyk I do not, nor with Mike Ross,
12 nor with anyone else on the 28th. I feel that on Thursday, the
13 29th, or sometime on Friday, one of those two days, people were
14 running around isolating electrical equipment because this
15 knowledge had just come out, and I thought Chwastyk was involved
16 in that. I don't think it is consistent with what other people
17 had said they remember either. When Donaldson was talking to me
18 about the containment, he wasn't at all pursuing this issue. He
19 was talking about why I felt it was stable. And I was saying at
20 that time it was stable, and I am saying in this testimony that
21 I now know we had a hydrogen excursion. My thought process
22 wouldn't have made sense in the Donaldson testimony otherwise.

23 Q Mr. Miller, Chwastyk also told us that he had caused
24 a survey to be made of the building, of the containment building
25 because he feared that the spike had caused damage to the

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15 1 containment because the spike had dropped off so rapidly. This
2 would be one explanation of why it had decayed so rapidly. He
3 also said that he had temperatures and pressures checked as a
4 result of his belief that the pressure spike had been real.

5 Were you aware of these actions on the 28th?

6 A No, sir, I am not aware of any of those actions and I am
7 not aware of any discussion amongst the group that reported to
8 me of those actions being taken.

9 Q I guess I am having some difficulty in understanding
10 the controls that were in effect if there were actions taken,
11 significant actions that were taken that you had no knowledge of
12 and this is one of some number. Different people have stated
13 that they were aware of this, or that or the other of these
14 significant things that we have talked about today. Somehow that
15 information did not flow to the think-tank, to you as the
16 responsible person. Can you explain the effectiveness of the
17 organization that was in being on that day?

18 A The people I picked for the command team were people
19 that I trusted based on their performance, experience, training
20 and the years of experience that I had with them, and I feel
21 that they communicated to me any information that was needed. I
22 feel that they were effective, and I still have confidence in
23 those same people today.

24 When you start talking to 30 or 40 people who were
25 around and had knowledge of this, I feel you are going to get

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16

1 everybody's view of what was done that they were thinking of
2 doing. I feel Mike Ross controlled operations. That is as simple
3 as that, and I dealt with him. I could not let myself get to the
4 point of talking to every control room operator and shift
5 supervisor who had thoughts about what was going on and what to
6 do. I very strongly felt Mike Ross was operations supervisor and
7 I depended on him and I would depend on him today. I don't feel
8 it was ineffective.

9 Q But for a management control system such you have
10 described to be effective there must be a flow of information
11 and we are talking about people who are reactor operators or
12 senior operators who had responsibility for the plant for taking
13 actions on that day and yet we find that information was not
14 apparently flowing upward to enable this think-tank to perform
15 its function.

16 A And I think it is a judgment over how much information
17 was flowing upward versus how much was not. We are not talking
18 about how much did flow up. We are talking about the instances
19 where it appears based on testimony long after the accident that
20 didn't flow up. I am not convinced of the accuracy of some of
21 the things that you have told me. I am just not convinced. I
22 feel that if something significant would have happened opera-
23 tionally in that control room Mike Ross would have informed me
24 of it. It is no different than 8:30 in the morning when the
25 water was turned off in the make-up pumps. I was informed of it

17 1 immediately. I don't feel that it was ineffective.

2 Q Well, surely you consider the pressure spike and concern
3 about the integrity of the containment to be a significant event.

4 A I consider that to be a significant event. I don't feel
5 that was analyzed as an event on the 28th.

6 MR. STELLO: Gary, I think in order to be in a position
7 to make responsible decisions you have got to have the
8 information. On that afternoon you had two things happen when
9 you had the pressure spike. You went through the SI signal
10 which was set at four pounds, and then you went up to the 30
11 pounds for the containment spray signal. Do you consider those
12 to be significant events; that is, I got a safety injection
13 signal and I got a containment spray signal?

14 THE WITNESS: I consider those to be events that should
15 be passed upward, yes.

16 MR. STELLO: You do?

17 THE WITNESS: Yes.

18 MR. STELLO: Your testimony is that they were not?

19 THE WITNESS: My testimony is they were not.

20 MR. STELLO: I find it very, very difficult if you had
21 an effective information system in place that that could be
22 missed. You know, when an SI goes off you get a whole bunch
23 of alarms going, true?

24 THE WITNESS: You get a bunch of alarms and an
25 actuation.

18

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1 MR. STELLO: And equipment starts to move.

2 THE WITNESS: Yes.

3 MR. STELLO: You have got valves that take new positions
4 The KE pumps start up. You had charging pumps start up that
5 were not operating and quite a few things happened in the control
6 room. You were present in the control room and I have a difficult
7 time understanding how you personally didn't recognize that. And
8 if you hadn't, how any information system would not get the
9 information to you. If you were in the control room today and
10 an SI went off would you have any difficulty recognizing it?

11 THE WITNESS: No.

12 MR. STELLO: Why didn't you recognize it that day? That
13 is a conflict I have a very, very difficult time with. The one
14 thing that all of us are aware of, sensitive to, everybody in
15 this industry, is if we get a safety injection signal, an ECC
16 signal, that is important and we are all trained to recognize
17 we just got it. How could you be standing there having had one
18 and not know it?

19 THE WITNESS: The only answer I can come up to with that
20 is, you know, I was on the way out of there and was relieving
21 the post and heading for the state. I feel that if I had stayed
22 there, you know, my recognition might have been better. I am
23 not trying to get over that question, but I just feel the
24 sequence I was in at the same time, you know, cause me, you
25 know, to be exiting the site and, you know, I wasn't concentrating

19

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1 at that time on that particular set of parameters. If the
2 people there concluded it was an instrument error, for instance,
3 it might not have gotten to me in a timely manner.

4 MR. STELLO: You are missing my point. I don't care what
5 anybody else was doing. I am just visualizing you standing there
6 when it happened and you were there. Now, the whistles and the
7 bells go. Equipment starts that was originally shut down. You
8 are standing there. Is this not something that you were very
9 sensitive to if you got an SI signal?

10 THE WITNESS: I am very sensitive to the SI signal, but
11 my sensitivity that day was already heightened to the crisis we
12 were in. It isn't like I was standing in the control room on
13 an operating day and I had an ES. It is like I had been in that
14 control room for five hours under a crisis situation and I can't
15 answer your question of why didn't this new thing cause me to
16 provide new emphasis on the situation because I already was putting
17 the maximum emphasis on it. I just can't answer, you know, the
18 question that you are asking me without considering the situation
19 I was in.

20 MR. STELLO: When you got back from the Governor's
21 office is it not normal to get briefed and find out what has
22 been going on while you were gone?

23 THE WITNESS: Yes, because I left somebody else in
24 charge.

25 MR. STELLO: Wouldn't you think that that was the most

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20 1 significant thing that happened while you were gone?

2 THE WITNESS: I am sure today that that was the most
3 significant thing that happened.

4 MR. STELLO: Well, what did they tell you when you
5 came back?

6 THE WITNESS: They didn't tell me about that.

7 MR. STELLO: What did they tell you?

8 THE WITNESS: I was on the phone from the Governor's
9 office with them, continuing flow, temperature data, heat
10 removal data. I don't believe that they, the command group, had
11 recognized that as an event that occurred due to a condition in
12 the building.

13 MR. HARPSTER: Who were you on the phone with, Gary?
14 Do you recall?

15 THE WITNESS: I am sure I called back from the
16 Lt. Governor's office because I was only in part of that meeting.
17 It is either Ross, Sellinger or Logan, and I am not sure who,
18 but I know I was on the phone over there. I think I called back
19 because Jack had asked me to call and check something, but I
20 just remember trying to find a phone to make a phone call because
21 I was in only part of that meeting over there. I am just saying
22 that I can't put together the reasoning of it being concluded
23 to be an instrument error and that it wasn't concluded rightly
24 or wrongly by the group to be an actual. That is the basis that
25 it wasn't communicated to me is what I feel.

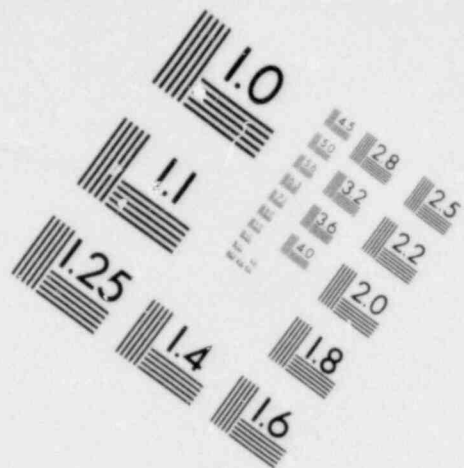
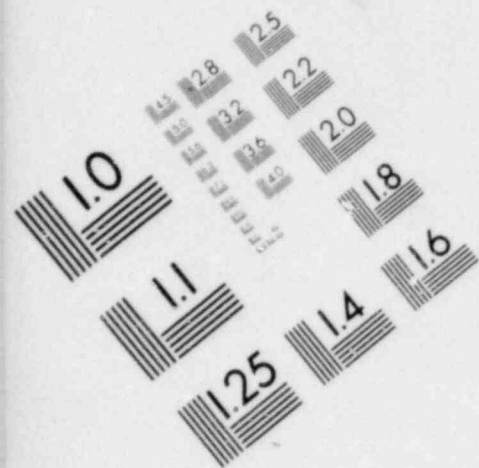
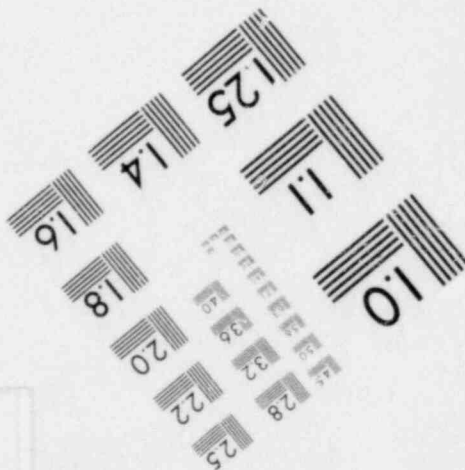
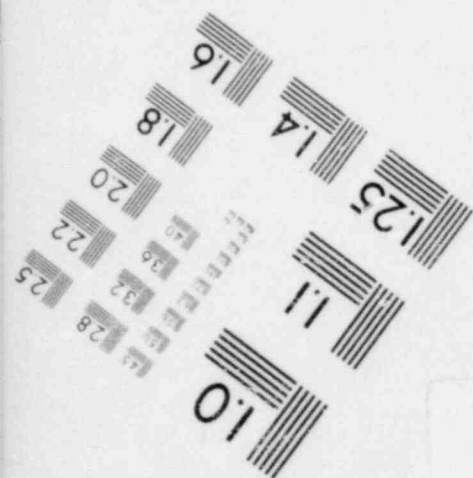
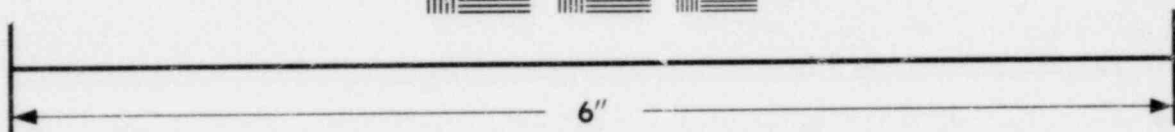


IMAGE EVALUATION TEST TARGET (MT-3)



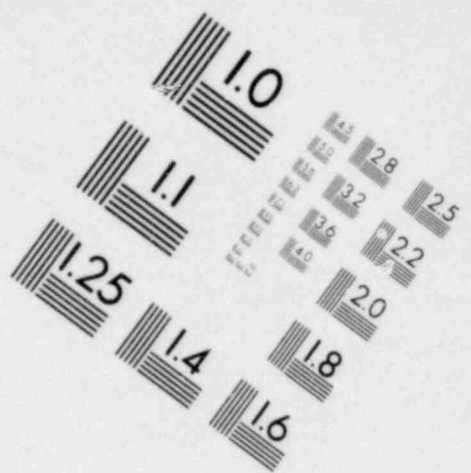
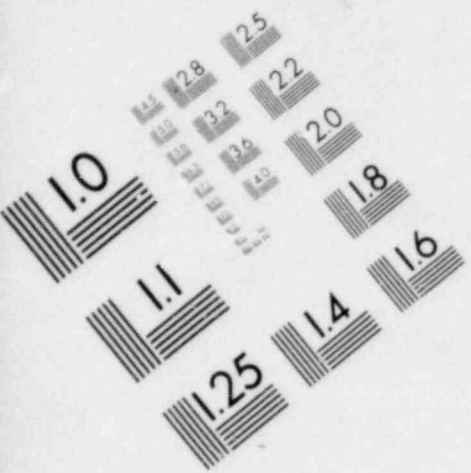
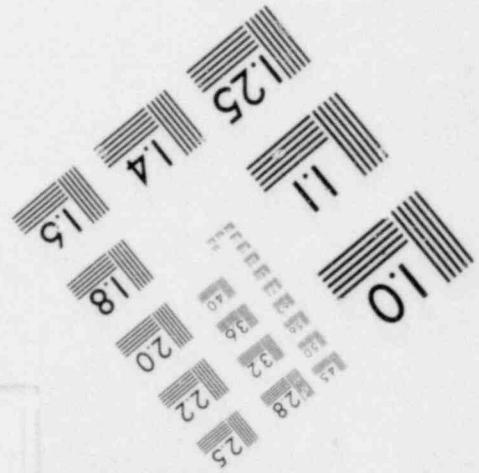
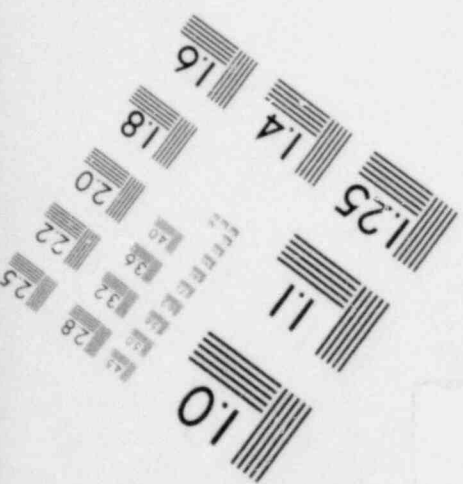
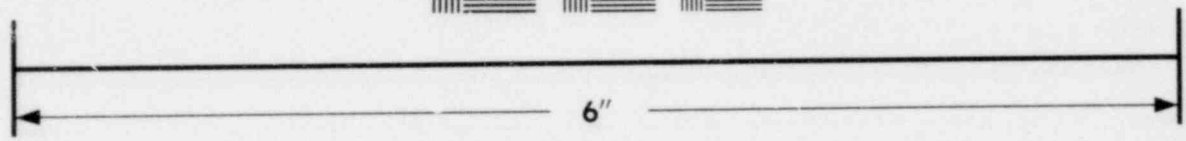
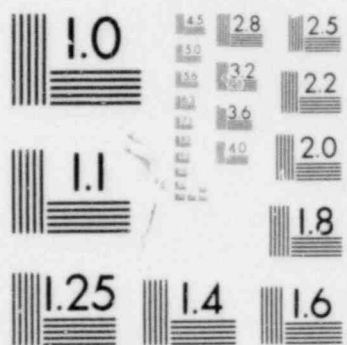


IMAGE EVALUATION
TEST TARGET (MT-3)



21

1

MR. CRAIG: That might account for the 28 pound spike on the pressure instrument. What about the rest of the actuations that took place at four pounds?

2

3

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THE WITNESS: I believe that we had ridden through a four-pound signal before that day at 9 in the morning and we were letting steam and water out to the environment anyway. I don't know that that would have been recognized as an ES signal in light of the situation of the plant.

9

MR. STELLO: Were you aware of the one in the morning?

10

11

THE WITNESS: I am aware of it now because I can go back and look at the charts.

12

MR. STELLO: Oh, you were not aware of it that day?

13

THE WITNESS: The one at nine o'clock?

14

MR. STELLO: Yes.

15

16

17

THE WITNESS: I can't remember, Vic. You know, we were adjusting pressure, too, so you would have gone through the set point.

18

19

20

21

22

MR. STELLO: I guess I sort of feel that whoever is in charge of operations in the plant, the guy that has got the ball, that the major things that go on someone is going to tell him. And if there isn't this sense of responsibility instilled in the people -- let me back up.

23

24

25

You understand that part of what we are trying to understand if the information flow at Three Mile Island was very bad. We are trying to learn from that experience about what it

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22

1 is that we should do as a regulatory agency to not let this
2 happen any more.

3 One thing that is becoming clearer to me from your
4 answers is that we are going to have to assure that an organiza-
5 tional system is set up so that the important pieces of informa-
6 tion flow to the right people. I thought you were the right guy,
7 you were the decision-maker and that the information should have
8 flowed to you. You are saying that it didn't get to me. I am
9 trying to understand why.

10 You know, you want to go back and say, gee, if I were
11 doing it again I would be kicking a bunch of putts around with
12 the way these guys responded. They ought to know what is impor-
13 tant and tell me. What happened? Where did the information flow
14 come apart?

15 THE WITNESS: It is your conclusion that we are talking
16 about on the information flow and not mine. We are not talking
17 about all of the information that did get passed and we are not
18 talking about all of the communications that did occur and we
19 are not talking about all the decisions that had to be made. We
20 are talking about some things that obviously are important, and
21 we are talking about two or three things in the context of a
22 lot of things. And I think it is pretty hard to conclude that
23 the whole system was just faulty. I think it is easy to conclude
24 that it has got to be a lot better, yes.

25 I don't have the same conclusion about the people that

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23

1 I had that I was dealing with not being able to pass information
2 to me.

3 MR. STELLO: Well, maybe you ought to take a paragraph
4 or two and tell us what information flow that was good, that was,
5 you know, useful and helpful and caused you to react. What were
6 they telling you? How long were these meeting typically?

7 THE WITNESS: It is hard to remember, but it probably
8 took ten to twenty minutes because each guy spent a couple of
9 minutes.

10 MR. STELLO: Out of?

11 THE WITNESS: We attempted to do it every hour. That
12 was the goal. We probably didn't do it every hour.

13 MR. STELLO: So you were briefed ten to twenty minutes
14 every hour ---

15 THE WITNESS: It probably went an hour and a half or
16 an hour and forty-five minutes, and a guy, depending on the
17 convenience of the situation, would have spent -- you know, a
18 lot of dedicated time was spent to assuring the emergency plan
19 was going on, assuring all those readings were being taken,
20 discussions readings and where, discussing projections and
21 where, discussing -- you know, people were out looking at the
22 drawings for the plant and discussing what action would be
23 taken next there. There was a lot of information that flowed
24 there that was vital to the next decision.

25 MR. STELLO: Do you notice you left out in your

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24

1 description, in what you just described, what was happening to
2 the plant?

3 THE WITNESS: I didn't leave it out.

4 MR. STELLO: Well, I didn't hear it.

5 THE WITNESS: I said that was being looked at in the
6 control room along with the drawings.

7 MR. STELLO: No, no, in your briefings. I want to know
8 did your briefings include a description of what happened in
9 the plant, each and every briefing?

10 THE WITNESS: Each and every briefing included -- to the
11 practical extent a guy would discuss his area. Ross would
12 discuss his area which was operation of the plant.

13 MR. STELLO: Give me the most vivid recollection of
14 a typical Ross briefing. What did he tell you?

15 THE WITNESS: He told me the status of I believe the
16 make-up pumps, the status of the temperature readings, the
17 status of the steam generator, parameters on heat removal, that
18 type of discussion and the recommendation for what to do next.
19 That would have included anything major in the plant, and that
20 would have been the intent of it. That is exactly how at 8:30
21 in the morning I was told that water was going to be secured,
22 the make-up flow. That type of discussion would have been brought
23 to my attention and I would have acted on it.

24 MR. STELLO: He told you he was going to secure water
25 and you told him "Don't you dare"?

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25

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1 THE WITNESS: That is right.

2 MR. STELLO: Okay. So when you got an important piece
3 of information you were able to react on it. Temperatures,
4 pressures and steam generator parameters are fairly operational
5 type stuff, but something that is an indication of an accident,
6 an SI signal, and that doesn't get passed on. Yes, I would have
7 to say that the information flow wasn't working. The two times
8 that I could see is 9 o'clock in the morning -- all the training
9 says if ever you have an accident there is a signal you are going
10 to get, an emergency core cooling signal, and you had it twice,
11 and in neither briefing were you told about it. I find that hard
12 to accept, hard to accept in the context now that that was the
13 right kind of information flow.

14 THE WITNESS: I guess we are already in a general
15 emergency condition in the plant which is the most severe
16 procedure and plan you can get into, and I guess an ES signal
17 would have meant a lot more if we were operating as opposed to
18 being in a general emergency and trying to cope with it with the
19 plant conditions we knew existed. A loca wasn't something that
20 would have made a difference in this crisis because we were
21 already in as severe a crisis as we ever could get into. So
22 therefore the information passing was related to the actions we
23 were trying to take within the plant. The indication of an
24 accident, we already had indications of a problem beyond anything
25 we had been trained to respond to. So an ES signal is important

26 1 but the situation we were in was more severe than that.

2 MR. STELLO: Well, in any case, it is clear from what
3 you have said that that information did not reach you. That
4 much you are clear on. Is that a fair understanding, and by
5 that information now I am specifically referring to the actions
6 that occurred when the safety injection signal came on in the
7 morning and the actions that occurred when both the safety
8 injection and the containment spray signal came on in the
9 afternoon? It is correct then to say for those things your
10 communications system on information to you did not bring it to
11 your attention, it failed?

12 THE WITNESS: The safety injection in the morning, my
13 memory isn't clear enough on today over whether that might have
14 been discussed in the meeting of the group. The spike in the
15 building, I am sure, was never, or its attendant actuation was
16 not discussed with me.

17 MR. MOSELEY: Could we add to this list of things
18 the inferences of core uncover from the nuclear instrumentation
19 again which people who were participants in your think-tank have
20 described that they concluded?

21 THE WITNESS: Who were the people? There were five
22 people or six people in that group. How many of them have said
23 that?

24 MR. MOSELEY: Let's see, it was ---

25 THE WITNESS: Kunder?

27

1

MR. MOSELEY: Yes, Kunder said that he concluded that.

2

THE WITNESS: When you say people, who else?

3

MR. HARPSTER: Let me tell you some of the information

4

we have been given, Gary, that cause these doubts. Your core

5

physics many from B&W, John Flint, has testified, and other people

6

have testified that they talked with them, yet he explained to

7

any number of people the early voiding of the core.

8

Let's start with the nuclear engineers who were directed

9

to look at this by George Kunder. He talked with Wilkerson,

10

Benson and Crawford, and they have all testified that it was

11

Flint who explained to them the explanation of the leakage.

12

Kunder became interested, this is his description,

13

and discussed it with Flint because of what he had overheard.

14

Flint has testified that he has described it to Rogers and

15

explained what that meant along with the attendant indications

16

which he used as confirming, including what he was getting as

17

information from the thermocouples, the SPNDs, the superheat

18

explanation, the inability to raise the pressure beyond the

19

relief set point so you couldn't coolapse a bubble, and that this

20

was discussed with Rogers and Rogers said he would bring that in

21

to your group.

22

These were a lot of the indications of early core

23

voiding in the morning. In addition to that, we have other

24

information that has been given to us of major parameters like

25

that which we get concerns from members of your group but we

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28

1 can't get it into your discussion in there.

2 George Kunder reported to Don Haverkamp at 9:30 that
3 morning that he could be assured the core was covered. He
4 described to Haverkamp that the core was being cooled by super-
5 heated steam. He didn't understand it, but it was being cooled
6 by superheated steam and he had a concern for building up a boron
7 slurry in the bottom of it.

8 We have all sorts of concerns like this that we have
9 been unable to get them into you. It gives us real doubts as
10 to whether or not the information -- how did it flow. These
11 same people have talked -- let me take one example further to
12 show you how extensive it was, the early morning core voiding,
13 that explanation.

14 Bill Zewe, your shift supervisor who was in charge at
15 that time, he discussed this with Flint. Ed Fredericks discussed
16 it with him. Ed Fredericks asked him to verify that it was
17 superheated steam. This all came back to Rogers, the concern
18 over this.

19 Once again, we don't get it into the think-tank
20 discussion. That would have certainly helped you throughout
21 the day had you known that those people had concluded early
22 in the morning that that core had been voided at some time.

23 We also have conclusions drawn from the fact that the
24 extended scale readout device that thermocouples by themselves
25 if you didn't make a conclusion there -- now we have people on

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29

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1 your staff saying well, once we got the extended scale hot-leg
2 bridge hooked up, yes, we may not have believed this, but now
3 we have something we have confidence in. Here is a 700-and-some-
4 degree reading, and if we don't believe the multipoint recorder
5 by itself, we now have two things that are telling us we have
6 got these high temperatures. These are real.

7 Those types of things, I don't hear them being discussed
8 in your think-tank. People aren't telling you those things and
9 yet they are telling us, gee, we had these concerns. If I look
10 at the data that was punched out by your operators on the computer
11 that morning -- I reviewed outputs of your utility alarm paper
12 and your data printer. The things that they were punching up
13 which show up in real time interspersed with the time delays,
14 these are real concerns. All you have to look at is what data
15 they punch up to see what their concerns are. That doesn't
16 need testimony. You can look and see the data they retrieved to
17 try and see where they are going.

18 Now, we can't get that information into your think-tank
19 discussions. Maybe I am not as eloquent as Vic, but I am having
20 problems getting this flow of information into the think-tank.

21 MR. MOSELEY: That wasn't a question you should respond
22 to.

23 MR. HARPSTER: I am trying to give you an example of
24 the problems we have had from the testimony we have been given
25 where there is information available in the plant and people are

30

1 discussing it, your staff is discussing it, but it doesn't -- it
2 is discussed with those people by members of your think-tank, but
3 it is not discussed by the think-tank, only by members of the
4 think-tank with people on the staff.

5 MR. STELLO: I think you ought to add, Terry, you are
6 not suggesting that all of those individuals said they told Gary.

7 MR. HARPSTER: No, I am not; that is right.

8 MR. STELLO: You are searching for the same thing I was
9 which is what caused the information flow to break down.

10 MR. HARPSTER: We get the information flow to them
11 discussing these parameters with people in the control room, but
12 that is as far as the discussions went.

13 MR. STELLO: Let me postulate a theory, Gary.

14 THE WITNESS: Let me say one thing. I am only one guy
15 with a memory and I am trying to exercise it a long time after
16 right now.

17 MR. STELLO: Let me postulate a rationale why that
18 might happen as I know it often does with me. I am very busy
19 and people want to come in and say something to me and the phone
20 will start to ring and I may be on the phone for long periods of
21 time and I really don't have time to talk to people, so while
22 I would like think I am being briefed in these ten or fifteen
23 minute briefings that you talk about, you know, were they the
24 kind of a thing where people really had an opportunity or were
25 there so many frequent interruptions with you off the phone and

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31 1 getting on the phone during the briefings; in other words, were
2 you so damn busy you couldn't really listen to say it simply?

3 THE WITNESS: I don't think I was so busy I couldn't
4 listen, but I was certainly suffering over a slight overload of
5 items that needed action versus time available.

6 What I am saying is the meetings were set up by me to
7 try and force some of what you are talking about, to force a
8 basis for the next action. And, yes, it was very busy, and, yes,
9 there were a lot of phone calls and pressures. I was probably
10 busier than I realize today, Vic, busier than I would be in the
11 same situation in the office you are talking about.

12 MR. STELLO: Let me ask you to recall that this morning,
13 and I don't know that I am going to be able to quote exactly
14 what you said, but my recollection is that you said something
15 like you had an awful lot of time to spend on the phone and that
16 you were spending at least fifty minutes of an hour on the
17 phone. Am I correct in recalling that that is the kind of
18 atmosphere you had of spending 50 minutes of an hour?

19 THE WITNESS: If I said the phone only I was not correct.
20 I was saying that in an hour the time left for thought, analysis
21 and where are we at, I am saying that time was minimum compared
22 to the number of activities, including the phone communications,
23 that had to go on in that hour, the number of thing that had to
24 have an answer from me in that hour. You know, time was just
25 precious. It is a simple as that.

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I tried to set up the meetings to force the whole thing to slow down enough so we could talk.

MR. STELLO: How many people were in the think-tank?

THE WITNESS: I think it is five, six or seven plus the NRC people would have been off in one corner.

MR. STELLO: Well, if it was a ten-minute meeting and there were seven people you left them 1-3/7ths minutes each.

THE WITNESS: I said five minutes a guy and it could have been ten and twenty minutes, and I said it could have been every two hours versus an hour because of the timing. The goal was an hour. In some cases, for instance, Dubiel would come in and brief me on his emergency plan. I wouldn't need him to sit there any longer than seven minutes, five minutes. He would tell me where the teams were, where the plume was or where the projection was, what was going on with the state, and I could let him out of there. I might keep some guys in there longer because some of the people had licenses, Sellinger or Ross and them, and therefore I would have wanted their input on the plant site of it. Do it would depend on the guy and the activity.

I had to have a briefing from Ross and Dubiel and from some of those people that I had specifics to know what they were doing. Some of the other people were there as a part of their ability and experience.

MR. MOSELEY: Let's move on to another subject.

33

BY MR. MOSELEY:

Q Mr. Miller, prior to departing for the briefing of the Lt. Governor, what instructions were you given with regard to the specific information that was to be gathered for that briefing?

A I just can't recall all of the information. A lot of it was in relation to the emergency plan, I am sure of that, and our readings, and our locations of readings. A lot of it involved the emergency plan because that is our tie to the state. Our strongest tie to the state would have been in our recommendation, and then it was probably some other specifics that Jack might have requested, and I just can't pin down all of them, but it would have been of the plant status plus a heavy concentration on the emergency plan and the actions being taken under the plan. The Lt. Governor is the emergency director, right?

Q Right. Would this include the status of systems, systems that were in use or not available for us and so on?

A I think it would have included status of systems like the reactor coolant pumps being off and the water flow into the core. I am sure it included that, but I can't go back and remember specifics. For instance, there was discussion about steaming, you know, into the atmosphere. That kind of thing, yes, the obvious important things. You know, I am not sure of all of the things that Jack asked for. I can't remember them today.

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34 1 Q What about potential for further degradation?

2 A Oh, I think the stuff we gathered, including the
3 emergency plan, was gathered in preparation to state where we
4 thought the plant was at in the core, you know, at that moment.

5 Q But I am asking the potential for further degradation;
6 in other words, a projection of possible future problems or
7 worsening of a problem or problems that may be ongoing at that
8 time.

9 A I think what I am trying to say is that the information
10 gathered was to meet the requirement to present the status of the
11 plant and of its stability plus where we thought we were going
12 to go. Part of that implied in my mind is the core degradation.

13 Q I guess I differentiate between the status of the plant
14 now and what you plans are for the plant. I differentiate that
15 from what may become a problem or what may deteriorate. So I
16 would like for you to respond, if you would, to that particular
17 aspect, that is the potential possibility for deterioration.

18 A And what are you really specifically asking?

19 Q Whether or not you were given instructions in preparing
20 for the Lt. Governor to include that type of information in the
21 briefing?

22 A And I can't remember being given specific instructions
23 on those lines, but I am saying that I feel that the information
24 picked to be obtained had that thought implied in it.

25 Q But you don't recall specifically?

35 1 A I don't recall specifically being asked to bring three
2 or four eligible things relating to that exactly. I think we
3 looked at the overall situation and that is a part of it.

4 Q Did you prepare any notes for this briefing?

5 A I did not really do the preparation for the briefing.
6 I had George Kunder do it as I remember it, and I don't remember
7 whether he had notes or not. Knowing George, my assumption today
8 would be he had certainly written something on some scratch paper
9 maybe not a report type thing but certainly something. He would
10 have had to assemble a history on the projections. I am sure
11 he did some of that.

12 Q Did you anticipate participating actively in the
13 presentation?

14 A In the Lt. Governor's office?

15 Q Yes.

16 A I anticipating being in there with Jack and answering
17 questions that he felt might be directed to me.

18 Q In order to fulfill that mission did you personally
19 prepare any notes for it?

20 A No, I didn't personally, but I used the period in the
21 car. We had a guy drive us. I used the period in the car for
22 the discussion with George rather than have George do it twice,
23 as I remember it, so that Jack and I would both have the same
24 type of information.

25 Q Did you say that you did prepare some notes in the car?

36

1 A I did not prepare any notes. I am saying that I
2 purposely didn't have time to prepare notes and I had wanted to
3 utilize the period in the car to get briefed so I didn't prepare
4 any notes even then.

5 Q Okay. I am going to ask you a series of things and
6 were these discussed.

7 First, core uncovering or its possibility, was that
8 discussed?

9 A I think the assurance of maintainin core uncoverage
10 was discussed as a part of our action on the water injection.
11 I don't remember a discussion of core uncoverage.

12 Q Let me go back to the previous question. Did you say
13 that part of the reason that you may have not given attention to
14 the pressure spike was because you were preparing for the Lt.
15 Governor's briefing?

16 A I was assuring that the preparations were made and we
17 were ready. I was looking for George, for instance, I believe,
18 and this type of thing, you know, just in a general str'e of
19 getting ready to go and making the arrangements to go.

20 Q But you weren't yourself collecting data?

21 A Not to my recollection, no. I was trying to assure
22 that it was being collected and where was it at, you know, were
23 we ready because the time was becoming short as far as our time
24 to get there versus the scheduled time in Harrisburg, that type
25 of thing.

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Q Again going back to the list of things that may have been discussed in the trip, was superheat discussed?

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A I can't recall.

4

Q Was plant stability?

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A I believe it was discussed as a part of the discussion of the conditions of the plant.

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Q Would you go a little further?

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A Well, the fact that we were injecting water, that type of thing, how much water was and what would be the sources of the water and what kind of pumps were running and what kind of availability of electric power there was, you know, was that connected to the emergency plant stuff from a stability standpoint yes. I am saying the information was designed, I think, to show that point.

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Q Then what you discussed or what was discussed was providing the information on which a conclusion might have been reached on stability by either yourself or Mr. Herbein?

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A No. I wasn't even aware of why we had to go to the Lt. Governor's office. I wasn't involved in the decision of the company to go there. All I knew was we needed to be able to provide an accurate status of the plant. That is what I am trying to say and that was the way I approached what we were doing.

24

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Jack, in my mind, was the leader of the discussion at the meeting, you know. I am not sure in my own mind who even

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1 called that meeting.

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MR. STELLO: Did you ever think of telling them I don't think I ought to go?

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THE WITNESS: I considered not going.

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MR. STELLO: Why didn't you tell them I need to be here, I am in a crisis?

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THE WITNESS: I guess I felt, or I had the impression that it was very important that that be done and that just the decision of who do you pull out of the plant to send was, you know, it would have been desirable to send nobody from the plant. You know, I could have consciously said no one is leaving this plant, and there was probably some of that dialogue that occurred, and, you know, I think I was impressed with the importance of that meeting and that it was going to be brief and I would, you know, at the time I left I made a judgment that I could leave for a period of time as long as I could communicate with the plant and as long as I could get back reasonably soon.

You know, the Unit II superintendent was licensed in Unit II, and I felt pulling anybody in that team would have been -- anybody you pull you lose something I guess is the way I felt.

The other alternative would have been that we will not send anybody, and I did not take that approach. I considered that approach and I discussed why we even had to go. I am sure of that. The importance of that meeting I was impressed of

39 1 coming down the other way.

2 MR. STELLO: Well, there was another alternative and
3 that is to call somebody over from Unit I and let them get
4 briefed at the plant and let them go down. If you felt it
5 was more important for you to be there and have someone try and
6 get briefed and send them, that would not have seemed unreasonable
7 to me.

8 Let me tell you why I am asking the question so I
9 don't mislead you. What I am trying to decide is whether your
10 decision to leave the plant was because you felt fairly comfort-
11 able that the plant was okay. And if you do, I might make sure
12 that you do understand that the thought that is in my mind in
13 asking the question is that that is inconsistent with what you
14 have told me so far today.

15 THE WITNESS: I feel that I had a real problem with
16 even having to go, and I feel I expressed that problem that day
17 in dialogue. I can't remember specific discussions. I had a
18 problem with why we even had to go from the plant. I also felt
19 obligated to consider on the other side the importance of
20 providing senior people in the state government with accurate
21 as we could be information on what was going on in the plant.

22 Calling somebody from Unit I I would have had to call
23 somebody and it might have taken more time to get them up to
24 speed, and the time factor of the meeting didn't allow very much
25 time. It almost had to be somebody with some familiarity so they

1 could assembly the required information.

2 As far as Unit I goes, you have got to remember at that
3 time I had Unit I people already pretty involved in the Unit II
4 control room. The Unit II operations supervisor wasn't here so
5 I had the Unit I operations supervisor and I had the Unit I
6 superintendent.

7 I felt that the two people that I had a choice between
8 were possibly Joe Logan and myself if we had to go. I did not
9 agree to go. I did not agree with the necessity to go, but I
10 responded to what I thought was a very important requirement to
11 go.

end Simons
Minson
fols. at
1:10 p.

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1 BY MR. STELLO:

2 Q Were you ordered to go?

3 A I was not ordered to go. I am saying that I
4 objected to even having to go, yes. But I would not have
5 left if I had thought I would not leave without any thought
6 of comfort.

7 Q I don't understand and you are confusing me. You
8 are telling me that you did not want to go. You did not
9 believe that it was appropriate for you to go, but you
10 went. This leads me to conclude that somebody told you,
11 "You go."

12 A I did not say that. I said that I became
13 impressed on two items. I became impressed that that
14 meeting was a vital meeting, that is one factor. I was also
15 in my own mind aware of the necessity to continue to work
16 the situation that we had in the plant.

17 I am saying that forced to evaluate and decide --
18 I had to send someone, that is what I am saying. I had to
19 send someone out of the plant.

20 Q Were you directed to do that?

21 A I don't think I was directed. I would say that I
22 was under extreme pressure to do that, and to do that
23 because of the importance, because of the level of
24 management in both the State and my organization that it was
25 coming from.

1 Q Who told you, Herbein?

2 A To my knowledge it was Herbein, but I can't
3 remember the specific discussion.

4 BY MR. MOSELEY:

5 Q Mr. Miller, Mr. Herbein has testified previously
6 that he asked you to release Kunder to go with him to brief
7 the State, and that you insisted that if Kunder was going,
8 you should go also. Is that your recollection?

9 A That is not my exact recollection, but I can't
10 recall it exactly.

11 I can recall strong dialogue on even going, that
12 is as well as I can do today. The decision over who to
13 send, and who went, I think was arrived at in a consensus
14 between Herbein and myself, as opposed to anybody telling
15 anybody, this is the way it will be.

16 The necessity of the meeting was discussed,
17 minimizing the impact on the plant was discussed, and that
18 sort of thing. And, you know, leaving the unit to the
19 superintendent in charge of Unit II was a perfectly
20 allowable option. I don't see any conclusion being reached
21 on my comfort feeling.

22 My feeling was that it was important that these
23 people know what was going on, and the responsibility we
24 felt to the situation. I felt that we had to live with two
25 things at the same time that were going to be hard to live

1 with.

2 BY MR. STELLO:

3 Q Let me get the continuity of your thought process
4 for me.

5 IF you had to do it again, would you go, knowing
6 what you know now?

7 A Would I personally go, or would I send someone?

8 Q Would you personally go?

9 A I would decide that in the crisis again. I cannot
10 decide that sitting here in the room where I can think about
11 Unit II's accident. In an emergency of this type, I would
12 be less hesitant to leave now than before, but I would make
13 the decision at the time based on where we were at the
14 time.

15 MR. STELLO: Why don't you finish your questions.

16 BY MR. MOSELEY:

17 Q Let me pursue that a little bit. Do I understand
18 that you were not ordered to go by Herbein?

19 A You understand that I don't believe Herbein
20 ordered anybody specifically to. I think that there was
21 strong dialogue over even going, and I think that there was
22 a consensus over who went. The consensus was arrived at
23 after a strong discussion over why are we even going, and
24 then the impression on me that it was very important to go.
25 Therefore, nobody told anybody who would and who

1 would not go, like, that is the way it will be. Nobody
2 could tell me who to send. I had to say that. Jack was not
3 my boss as the emergency director.

4 Q Was it your impression that Mr. Herbein would have
5 been happy to have taken Kunder without you?

6 A I think the word "happy" is not the right word. I
7 think Jack would have accepted anybody that I gave him,
8 except nobody. I am saying that there was a dialogue over
9 who to send, and how to minimize that impact on the
10 operation versus the situation.

11 Q Let me just ask you this question. Is it possible
12 that you did not want Kunder to go with Herbein without you
13 because of Kunder's concerns, that were perhaps more strong
14 than yours, about the situation at the reactor, and he might
15 excite the people at the State?

16 A No.

17 Q A couple of other questions.

18 A I think you should know that my concerns over
19 Kunder were not at all related to that. I had no concerns
20 over Kunder. George is an engineer and does very detailed
21 work, and sometimes George will provide so much information
22 that it is hard to draw conclusions.

23 I have no concerns over anything George would have
24 brought out that was significant. I wanted to be sure that
25 he got the information requested, and he was not aware of

1 everything. He was not aware of all of the discussions I
2 had with Dubeil at times.

3 I felt that it was the best match to assure a lot
4 of data, a lot of information, and a lot of the decision
5 process. That is the best I can do today on why.

6 BY MR. GAMBLE:

7 Q Were there some significant things he was not
8 aware of?

9 A I would think that he could have been unaware of a
10 lot of the things in the emergency plan. I don't know
11 that. He is more plan oriented to the radiation area. He
12 would not have been aware of conversations with the State,
13 possibly with Dubeil. He would not have been aware,
14 possibly, of some of the stuff Ross was doing.

15 Q How was he brought to the State to communicate
16 these items?

17 A He went around and got the information. I even
18 think he was up in Unit I getting information at one point,
19 I just got out of my memory bank. He went around and got
20 the kind of information. He knew everybody there. He had
21 been there since 5:00 in the morning, also.

22 BY MR. MOSELEY:

23 Q In view of his, let us say, attention to the
24 detail, why was he needed as a part of this group? Why
25 wouldn't you have been sufficient?

1 A Because Jack is a very detailed questioner, and I
2 did not want to be not in a position to provide him a lack
3 of detail, I guess.

4 I picked George because I thought he had the
5 minimum impact on what was going on, and certainly had
6 enough time there and knowledge of what was going on. I had
7 no reservations on George.

8 Q A couple of quick questions along this same line.
9 Who set the time for the briefing?

10 A I don't know. I believe I may have caused it to
11 be delayed. I am not sure I can remember that. I may have
12 said, I cannot make it then, or something. But I don't know
13 who set the time.

14 Q Was there sort of a deadline time that the
15 Lieutenant Governor must be briefed before time X?

16 A It is tough to remember that. My mind says that
17 it was 2:30 or 3:00 o'clock, but I can't remember that. I
18 cannot remember why.

19 Q But there was sort of a deadline time?

20 A I think there was sort of a time when we were
21 supposed to be there, and I can't remember that. I may have
22 been told that, and I may have given myself up for that.
23 The 2:30 sticks in my mind, but I can't remember.

24 Q So this may have had some significant influence on
25 the pressure on you to not delay beyond that time?

1 A Some pressure to meet that time, yes. I think I
2 knew that the president of the company somehow was
3 involved. I think I knew a lot of that stuff. Yes, that
4 put some pressure on my mind, secondary to what was going on
5 there, but pressure, yes.

6 BY MR. GAMBLE:

7 Q Mr. Miller, about how much time was there between
8 when you heard about the meeting, and when you left for the
9 meeting; do you have any recollection?

10 A I think I heard about it somewhere in the
11 noon-time, and maybe it was after. I think it was at least
12 an hour, but it is hard to remember. Not ten minutes as
13 opposed to an hour, that is what I am trying to say.

14 BY MR. MOSELEY:

15 Q Going back to our list of things that might have
16 been discussed during the trip to Harrisburg. Was the
17 primary system inventory, or inventory deficiency discussed?

18 A I think so, as far as the condition of the pumps
19 not starting, and the reasoning for that some of that. I
20 believe some of that was discussed.

21 Q And related to this as an indication of
22 insufficient primary system inventory?

23 A Yes.

24 Q Was the extent of core damage discussed?

25 A From the standpoint of radiation reading, and

1 stuff -- I cannot specifically remember.

2 Q Was the inability to establish forced flow
3 cooling, or natural circulation, or effective natural
4 circulation discussed?

5 A I am pretty sure that was discussed and the
6 actions that we had taken.

7 The potential for the situation deteriorating?

8 A I can't remember in what terms that would have
9 been discussed. The situation deteriorating, or the
10 situation we had versus where we were going was discussed.
11 I am not sure we tried to think of ways it could
12 deteriorate, and we discussed those. I think we were
13 discussing more where we were at, and where we were going,
14 and implied in that is that concern to me. That is the best
15 answer I can give you on that.

16 Q Was the pressure spike discussed?

17 A No.

18 Q Were you given any guidance, specific or general,
19 as to what was or was not to be discussed during the
20 briefing?

21 A The only guidance that I was given would be that I
22 would be available to answer on details. There was nothing
23 that was discussed relative to not talking, not discussing.
24 There was no information that was specifically labeled, not
25 for discussion.

1 As far as the leader for the meeting, it would
2 have been Jack, with me available to amplify and help him,
3 without any restriction over what I would be allowed to say,
4 or could say.

5 Q On the other side, you were not given any guidance
6 as to what was to be discussed, other than responding to
7 questions.

8 A Other than I assumed from the discussions we had,
9 it would have been Jack's position to brief and answer
10 questions.

11 Q To your knowledge, was anyone else given guidance
12 as to what was to be discussed or not to be discussed during
13 the briefing?

14 A Not to my knowledge.

15 Q Were you given any guidance by anyone with regard
16 to, let us say, putting the best light on the situation, or
17 not volunteering unnecessary information, or something of
18 that nature?

19 A I can't remember any direction of that nature.

20 Q To your knowledge, was anyone else given guidance
21 in this regard?

22 A Not to my knowledge.

23 Q The thought comes to mind that perhaps Mr. Kunder
24 may have been given such guidance. Are you aware whether he
25 was or was not given such guidance?

1 A I don't remember him being given any guidance like
2 that.

3 Q To the best of your knowledge, which of the
4 following -- again I have a list of items -- were discussed
5 with the people assembled at the Lieutenant Governor's
6 briefing. And, I will also add here that I am aware that
7 you were not there during the entire period, so of course
8 only speak to those things which occurred while you were
9 there.

10 Was the core uncovering or its possibility discussed?

11 A I think assurance of core coverage was discussed
12 and the actions that we were taking to assure water flowing
13 to the core. I don't have any other memory of any
14 discussion along those lines, other than I am sure we
15 discussed the actions we were taking to maintain water.

16 Q But there was knowledge or suspicion that the core
17 may not be uncovered at that time, and that was not
18 discussed.

19 A I don't understand what you mean by that
20 question.

21 Q There was knowledge that the core had not been
22 uncovered, and might be uncovered at the time you briefed
23 the Lieutenant Governor, is that right?

24 A What do you mean by that? Do you mean some of the
25 discussion we have had here today?

1 Q Yes.

2 A I am trying to say that the information assembled
3 was assembled to show the plant status, no differently than
4 what we discussed earlier, what was recognized and what
5 wasn't. There was no attempt not to provide information
6 along any lines.

7 Q But at the time you were briefing the Lieutenant
8 Governor, Mr. Kunder has testified that he was aware that
9 the core had been uncovered earlier, and he had some
10 suspicion that there was a possibility of continued
11 uncovering. You have testified today of your knowledge or
12 thoughts along this line.

13 My question is, was this discussed at the
14 Lieutenant Governor's briefing?

15 A I don't remember it being discussed, and in the
16 car either on the way over.

17 You have said that George has testified that he
18 had this knowledge. You did not tell me George testified
19 that this was the knowledge that he briefed us on on the way
20 in the car.

21 Q That is correct, I did not say that.

22 A I don't remember any of that discussion in the car
23 or in the Governor's office.

24 Q Again, I am asking whether or not these things
25 were included in the Lieutenant Governor's briefing. Was

1 super-heat discussed in the Lieutenant Governor's briefing?

2 A I can't remember.

3 Q Was plant stability discussed in the Lieutenant
4 Governor's briefing?

5 A I can't specifically remember how -- I am sure
6 that part of our purpose was to discuss the condition. I am
7 not sure how that was discussed. I may not have been in
8 there if that was discussed.

9 Q Was the primary system inventory, or the
10 deficiency in the inventory discussed in the Lieutenant
11 Governor's briefing?

12 A It was part of the information assembled. I don't
13 remember if it was or it wasn't. I don't remember being in
14 there when that was discussed.

15 Q Was there discussion of the extent of core
16 damage?

17 A I personally cannot remember yes or no on that
18 today.

19 Q The inability to establish forced flow cooling or
20 effective natural circulation, was that discussed?

21 A I can't remember. I believe that I was probably
22 in half of that meeting, you know.

23 Q I understand.

24 A I could have been in less than half, I don't
25 remember. I know I was out of it a lot.

1 Q I understand that.

2 Q Was the potential for deterioration or further
3 deterioration of the situation discussed in the briefing
4 while you were present?

5 A I personally cannot remember.

6 Q Was the pressure spike discussed at the Lieutenant
7 Governor's briefing while you were present?

8 A Not while I was present.

9 Q Could you explain to us what your perception of
10 the tone of the briefing for the Lieutenant Governor was?

11 A My perception was that it was to provide an
12 accurate, objective status of the plant and our actions.
13 The tone of the meeting was very formal in that aspect.
14 Also, to answer any questions. I have no other recollection
15 of the tone of the meeting.

16 Q You conclude that tone despite the series of
17 questions that we have just gone through on what you believe
18 was included in the briefing?

19 A You asked me for my impression of the meeting.
20 You have asked me a lot of specifics about what was
21 discussed in the meeting, and the fact that I don't remember
22 is just that I don't remember. There was enough information
23 assembled to have a discussion in that meeting from where we
24 thought we were going at that time.

25 I conclude that on the way we approached the

1 meeting more than the "I don't remembers" that you have had
2 me put out here about whether I remember this in the
3 meeting, which was a long time ago.

4 I am saying that my "I don't remembers," and my
5 impression of the meeting I don't think should be coupled in
6 my mind.

7 Q I guess I would have expected the basis for that
8 conclusion of the tone to have had a more lasting
9 impression, but if that is your recollection, that is your
10 recollection.

11 A I think when you go through a period of a month
12 where you work every hour of the day, except for very few,
13 it is very hard to remember a year and a half later. I
14 think it is unreasonable for a human being. I don't think
15 you can verify medically that that is possible. I really
16 believe that.

17 It has been a year and a half. It made a heck of
18 an impression, but I had four weeks of impressions, four
19 weeks of them, and I don't think that it is a reasonable
20 conclusion on your part.

21 MR. BLAKE: He was also not in a good part of the
22 meeting, which may be why he does not remember.

23 BY MR. MOSELEY:

24 Q Was the Lieutenant Governor told that the
25 situation was under control?

1 A I believe, and I cannot remember specifically, but
2 I believe that he was told the situation as it was. I don't
3 know whether the words "under control" were specifically
4 used. I don't think we told him that it was uncontrolled.
5 That is the best I can remember.

6 Q If we used the word "stable," would that fit
7 better?

8 A Stable at that time, but not stable final,
9 certainly not stable permanently.

10 Q Does it mean to you that the Lieutenant Governor
11 was told this differentiation, that it was temporarily
12 stable, but not finally stable?

13 A I don't mean temporarily stable. I think,
14 providing him the information at that time of where we were
15 going at that time. So I am saying, the operations of the
16 system, and that type of thing. I don't think that the
17 impression was that it was unstable, and that is the best I
18 can recall.

19 I don't believe that it would have been like, we
20 have got it into final cooling mode. I don't think we had
21 any problem recognizing that, and that is the context of
22 that.

23 BY MR. CRAIG:

24 Q Did you feel that the hot core that we talked
25 about earlier was stable at this point?

1 A No.

2 Q Did you tell the governor that you did not think
3 that the cooling mechanism for the core was stable or
4 unstable?

5 A I did not personally tell the Lieutenant Governor
6 about the cooling mechanism of the core. It was reported to
7 me by people that one of the only methods of heat removal
8 was minimum staunch steaming. It is hard to communicate on
9 a complex thing like this with someone who has no knowledge
10 of anything about it.

11 You are asking the question like you and I are
12 talking. I think we tried to communicate to him the plant
13 status in his terms, without restricting anything he could
14 ask. In fact, he came to the plant the next day, if I
15 remember right.

16 BY MR. STELLO:

17 Q Did he ask you if it was safe?

18 A I can't remember, Vic. I can't remember whether
19 he asked -- I know in the initial part of the meeting,
20 people had their own monitors out. There were other State
21 people in there.

22 Q Wasn't the whole purpose of the meeting for the
23 Governor to try to decide whether it was or it was not
24 safe? It has got to be the bottom line.

25 What impression did you want to leave with him,

1 that it was safe, or that you didn't know?

2 A In my mind, I wanted to leave everybody with the
3 impression that it was serious, and that actions were being
4 taken to evaluate and place it into stability, into final
5 stability.

6 That same impression should have been in his mind
7 the next day, when Jim Silinger took him through the plant,
8 or on Friday -- I could be off on that. I am sure he toured
9 the plant either Thursday or Friday, and I believe that it
10 was Thursday.

11 Q There is no comparison between the state of mind
12 of Thursday, and the state of mind on Wednesday?

13 A There was a state of mind on Friday that was in my
14 mind, where I sat in the control room, of the same state as
15 Wednesday. The state of the plant on Thursday certainly was
16 not what it was on Wednesday, but it certainly was still
17 serious.

18 Q I guess we are allowed to differ. My view of
19 Thursday was in orders of magnitude more favorable than
20 Wednesday.

21 A I am thinking in the control room because as late
22 as Friday, I don't think that it was orders of magnitude,
23 and I am talking all the people up there, your people, my
24 people.

25 Q I was there on Friday, so don't say all because I

1 did not have that view.

2 A A lot of your people up there had that view.

3 BY MR. MOSELEY:

4 Were any logical problems on site discussed in the
5 Lieutenant Governor's briefing?

6 A The part of the meeting that I can remember was
7 when it began. We discussed the way we were monitoring, and
8 whose teams, and whether they had any teams, and who had
9 instruments.

10 I cannot remember how far in the discussion we got
11 about the plant. It may have been discussed that the plant
12 was seeing more radiation than the outside, and that was
13 obvious to all of us. The plant people were receiving the
14 most radiation because the plume was not moving. The
15 highest readings were on the site all the time that whole
16 day.

17 I am saying that that could have been discussed
18 from the standpoint that the public was not receiving any
19 radiation. The workers of the plant were. I am saying that
20 this is the only way I know that would have been discussed,
21 not as a significant item, though, because it was not
22 significant to the public responsibility -- to the general
23 public.

24 Q I am searching for was it discussed, or are you
25 saying that it could have been discussed?

1 A I don't remember either way.

2 Q Was the magnitude of the activity levels inside
3 containment and the aux building discussed?

4 A I am sure that that was a part of the information
5 that we had. I can't remember whether that was discussed
6 while I was there.

7 Q During your testimony to the House Committee in
8 May of 1979, you were asked by Congressman Chaney about
9 information you were to give to the State so that they could
10 make a decision on evaluation.

11 Your response, in part, says: "The judgment part
12 is based upon what I know the plant is doing, so I must give
13 them input into whether I think the consequence in the plant
14 is going to get severely worse quickly."

15 The question is, do you believe that information
16 supplied to the state on March 28 was what they required to
17 make a judgment on evacuation?

18 A There was communication generally with the State.
19 It was not designed to be a trip to the Lieutenant
20 Governor's office. The communication channel was one of a
21 dedicated communication line to the State BRP which was set
22 up from the time we started, and everything and anything
23 that was required was transmitted.

24 I feel that we certainly can transmit a lot more
25 information today that has been analyzed about TMI .1. I

1 think that at the time we transmitted enough information to
2 respond to respond to their inquiries.

3 I don't feel that that chain of communication was
4 not exercised, and I am not talking about the Lieutenant
5 Governor's meeting. I believe that the communications with
6 the State were as required by the emergency plan, and that
7 was the channel.

8 Q The items that we went through that I asked
9 whether they were discussed with the Lieutenant Governor,
10 were any or all of those, to your knowledge, passed on to
11 the State through these other channels, to the best of your
12 knowledge?

13 A Some of those were passed on through the other
14 channels. I am not aware of all the stuff that was or was
15 not passed. I am just not specifically aware.

16 The State had radiation experts, they had a
17 nuclear engineer. I am sure that their questions were
18 responded to in addition to the stuff required to be passed
19 on by the emergency plan, and that is all that I can
20 remember.

21 Q We will go through this list quickly, and then you
22 can respond.

23 A What list?

24 Q The same list.

25 A For what?

1 Q For your knowledge of whether this was transmitted
2 to the State.

3 A In specifics.

4 Q Yes.

5 A This is the dedicated communications channel?

6 Q That is whatever channel was used.

7 A There is only one channel, the channel in the
8 emergency plan. That is the channel required in my mind,
9 and that is the channel I will discuss.

10 I am not aware of other discussions in the company
11 with the State that might have occurred. That is what I am
12 trying to say.

13 Q There was one channel between the plant site and
14 the State, is that what you are saying?

15 A There were communications in the emergency plan
16 which were maintained continuously.

17 Q Which would have been the communication which you
18 would have been referring to when you were responding to
19 Congressman Chaney.

20 A Yes. To my recollection, yes.

21 Q Core uncovering or its possibility?

22 A Again, assurance of core coverage, and actions
23 being taken to maintain water would have been the way it
24 would have been presented, I am sure.

25 Q But that is sort of the other side of the coin.

1 A And that is the side I think was presented.

2 Q Super-heat?

3 A I will say, George Kunder or Dick Dubeil could
4 have passed that information. I did not personally pass
5 that information. I did not personally pass information. I
6 did not personally get on the phone with the State, so you
7 are asking me questions to which I am only going to be able
8 to give you opinions.

9 Q You should be able to give me what you have
10 knowledge of.

11 Primary inventory?

12 A That is part of the plan, and tha would have been
13 communicated in talking to people on the other end. They
14 have no idea what this things looks like in some cases.

15 Yes, it was passed, but I am not totally certain
16 of the understanding of it. Yes, it would have been
17 information that would have been passed. Most of the
18 information passed was in the nature of the emergency plan
19 which would have emphasized radiation actions.

20 Q Would it have emphasized status information as
21 opposed to interpretations of that status information?

22 A Probably to some degrees, yes.

23 Q Do you think that we could characterize these
24 things as more interpretations of information than simply a
25 status of information?

1 A Those things that are on your list?

2 Q Yes.

3 A Yes.

4 Q Would you characterize them in that way?

5 A In some cases, yes. In some cases, they are
6 generic as opposed to a specific piece of information being
7 passed.

8 Q Then my question, which I interrupted you in
9 answering, was: Is it your view that the information that
10 was transferred was more strictly plant status than
11 interpretation type information?

12 A It is my view that I cannot today remember exactly
13 conversations that I was not involved in well enough to
14 state that, that is all. I can't state that and say that
15 this is my memory.

16 I don't have a memory of that data. I know who
17 was on the phone, and I know the kinds of things that were
18 talked about. It is tough to remember, and it is tough for
19 me to answer that today.

20 Q Let me approach it from this way. You have
21 referred to, I believe you called it a status sheet or a
22 check sheet as one part of the emergency plan. Does this
23 emphasize the conclusive type of information or the
24 evaluative type of information, or simply status type of
25 information?

1 A In my mind, it has some of both, but it has more
2 specifics on the plant, and then heavy emphasis to what is
3 going on with the monitoring of the off-site.

4 Q With whom did you conduct telephone conversations
5 during the period of time that you were in the Lieutenant
6 Governor's office?

7 A I have been asked that before, and I don't
8 remember who I talked to back at the plant. It could have
9 been Logan, or it could have been Sellinger. It could have
10 been Ross. It could have been anybody who got on the
11 phone.

12 I am pretty sure I called back pretty soon after
13 the meeting started. I can't place it.

14 Q Do you recall the substance of any of those
15 discussions?

16 A I don't today.

17 Q Do you believe, or do you recall that there was a
18 discussion of the telephone conversation that Mr. Arnold had
19 with the site during the time that you were gone?

20 A I do not recall that.

21 Q You don't recall that being discussed?

22 A No.

23 Q During the return trip from the Lieutenant
24 Governor's office, was this discussed?

25 A I don't remember.

1 Q Do you recall if there was any discussion of
2 whether the briefing left the desired impression or had the
3 right impact or the desired impact?

4 A I feel that I just wanted to get back. I don't
5 remember any discussion over the effect of the briefing. I
6 had no interest in that, and I don't believe that I would
7 have had any. I just wanted to get back.

8 Q Were there any actions taken back at the plant,
9 when you arrived back at the plant, based on the briefing?

10 A At some time during that day, we stopped steaming,
11 and I don't remember whether this was before or after.
12 There were times when the ventilation lines were changed,
13 but I cannot relate them.

14 I don't think that there was specific action as a
15 result of that meeting, but there could have been more teams
16 put out, there could have been more State people along with
17 the teams. That kind of thing could have occurred but I
18 cannot remember specifically.

19 I remember the initial question on who was
20 monitoring, and that is the only reason that I bring that up.

21 Q After your briefing of the Lieutenant Governor,
22 jumping back to that for a moment -- I am sorry, this
23 question goes back to 9:00 a.m., going back to that time
24 when you had a discussion with the Governor's Office, which
25 whom was that discussion held?

1 A I don't remember. Do you have it?

2 Q I have here what is a transcription of a
3 discussion that you had with George Troffer during which you
4 discussed a telephone discussion with him that you had had
5 earlier.

6 A When that conversation occurred there, I was not
7 the only guy in the room discussing with George Troffer. I
8 had people like Dubeil in the room. That was on a phone
9 box. Troffer was up there with Dick Klingaman, as I
10 remember, I think, in Reading.

11 Q I have heard the tape as well as read this
12 transcript, and it is a group conversation.

13 A My people there expected by me to provide
14 information so we get it over to Harrisburg quickly, and
15 that is why I had other people in there with me.

16 Q Maybe we are not communicating. I am talking
17 about the discussion with the Lieutenant Governor, or
18 whoever you were talking with on the other end of that
19 phone, which this tape discusses. What I am interested in
20 asking about is the other conversation, which we do not have
21 a transcription of.

22 A I don't remember today the other discussion.

23 Q You don't remember that discussion at all?

24 A I don't remember the details of it.

25 Q On March 28 -- Wait, before we leave that, to your

1 knowledge, were other transcriptions made of any other
2 telephone conversations that you participated in on that
3 day?

4 (The witness read the document.)

5 A Let's go back, when you talk about conversations,
6 are you talking about Maggie and Dornsife? That is what is
7 referenced in here. Dornsife is a nuclear engineer. That
8 is what it says in here. I did talk to him, at least that
9 is what I am saying in this transcript.

10 Q I did not, from reading this, conclude that they
11 were the only people involved in that conversation. I had
12 the impression from reading that transcript that you are
13 referring to a conversation, again, where there is a group
14 on a speaker phone.

15 A That is what I am trying to say. I think there
16 might have been some discussion with Dornsife, with Maggie
17 with Dubeil and myself, and anybody else. When I say, I, I
18 mean us. That is the best I can do. I cannot personally
19 remember.

20 Q Okay.

21 A And that could have been parts of conversation
22 where I would have maybe talked for a minute, and not kept
23 myself on the phone with some of those people.

24 Q The opening part of this tape begins, "The
25 Lieutenant Governor, I had no choice but to talk to him." I

1 conclude from that that the Lieutenant Governor was included
2 in that conversation.

3 A It could have been his office, and I don't
4 remember today. It would have been pretty early.

5 Q It would have been around 9:00 o'clock.

6 A It could have been way early when we made the
7 notification of the general emergency. That would have been
8 when he would have gotten notified, I assume, by the
9 emergency plan.

10 Is there anything on their end that exists of any
11 of these meetings?

12 Q I don't know.

13 The question that I think you have not responded
14 to is, were any of your other telephone conversations
15 recorded, to the best of your knowledge?

16 A Anything that I had that was recorded has been
17 made available. There is othing else I have, or know of
18 that someboiy has not taken. I don't remember all the
19 recordings that I have made in the last year-and-a-half, but
20 I can remember that none of the ones that I am aware of are
21 unava'iable.

22 I honestly cannot find out who else has got them,
23 and I find that frustrating at times.

24 Q Did you make this recording, or did someone else?

25 A That was made in Reading. They were recording,

1 and I was not.

2 Q On March 28, did you make or were aware of any
3 other Metropolitan Edison and GPU employees who made
4 calculations as to the extent of failed fuel based on the
5 data from the containment dome monitor, or other
6 instruments?

7 A Other than what? Other than the Floyd calculation?

8 Q I did not have another "than," and if you want to
9 say, other than Floyd's.

10 A What is the other that you are referring to? Read
11 the question to me again.

12 Q On March 28, did you make or were you aware of any
13 other employee of Metropolitan Edison or GPU who made
14 calculations as to the extent of failed fuel based on data
15 from the containment dome monitor, or other instruments?

16 A What does any other person refer to?

17 It is obvious to me that Floyd has testified many
18 times that he made the calculation in Lynchburg, and I am
19 wondering what we are talking about other than Floyd. That
20 is what I am trying to ask, and I think that it is a fair
21 question.

22 Q I will exclude Floyd, if that will help you.

23 A If you exclude Floyd, then the question does not
24 make sense.

25 Q I believe it does.

1 A To me it doesn't, unless I am misunderstanding
2 it.

3 MR. BLAKE: Why don't you repeat it one more time.

4 MR. MOSELEY: I think that the problem is the
5 "other."

6 BY MR. MOSELEY:

7 Q Metropolitan and GPU employees, and there is
8 yourself. Other than yourself, all others whom I am asking
9 about, excepting Floyd, did you or any other employee, to
10 your knowledge, make these calculations. That is the
11 question.

12 A To the extent of core damage.

13 Q Yes.

14 A Dubeil in his mind might have been thinking from
15 the activity level that we had a failed fuel pin or
16 something like that. I am not aware of anybody making any
17 calculation of fuel damage based on that reading, other than
18 I am sure Dick Dubeil concluded from the readings that he
19 had, you know, fuel degradation.

20 I don't think that he made a calculation. He did
21 not make a calculation that I was aware of, but I am sure in
22 my group he had an awareness of that, but not a calculation
23 like Floyd made, though, that is a calculation direct from
24 the dome monitor reading.

25 Q That was the thrust of the question, it was the

1 extent of fuel damage, not whether or not there was fuel
2 damage.

3 A Yes.

4 Q Your response is, you are not aware of anyone
5 doing that?

6 A No.

7 Q We have a series of questions that relate to
8 reporting which we will address now.

9 Would you describe the Met Ed policy with regard
10 to reporting information to the NRC, and this as of March
11 28, of course, or prior to?

12 A The Met Ed system incorporated all the
13 requirements of the regulations for reporting. In addition
14 to that, the Met Ed way of doing business was to call the
15 Commission in anticipation of any -- The policy was to be
16 anticipatory, and not get in the position where the
17 Commission was not aware of what was going on, and that
18 policy was followed to the day of the accident.

19 I don't know how to answer the question other than
20 making it available. This event is very hard to
21 characterize with the normal Met Ed policy of reporting.

22 Met Ed called the NRC on almost everything that
23 was a potential for a tech spec or a system condition that
24 could become unsafe. This condition became totally
25 different in my mind than the --

1 If you will go back and look before the accident,
2 you will find a continuous dialogue between people like
3 myself, or Sillinger, or the Unit I superintendent with the
4 NRC on a multitude of items, reportable and not reportable.
5 That was the policy.

6 Q Is this policy written in any form that you are
7 aware of? Is there a written policy and procedure for
8 this?

9 A The official reporting was written in the
10 licensing procedures. As far as the communication with the
11 NRC, it was a management policy, when you had a
12 conversation, you documented it.

13 Q Is this written someplace?

14 A I can't remember. I certainly was implemented. I
15 don't remember where it might have been formalized. It
16 could have been in our administrative program, but I cannot
17 remember. It certainly was part of the directives, and it
18 can be demonstrated from past communication.

19 Q Let's address ourselves to the time period before
20 you arrived first, and we will subsequently address
21 ourselves to the time you arrived.

22 Prior to your arrival, who was responsible at the
23 site for reporting information to the NRC?

24 A In my view, the Unit II superintendent would have
25 been the ultimate responsible party.

1 Q Specifically, Zewe?

2 A No, that would have been Joe Logan. He would have
3 carried, in my mind, the ultimate responsibility. Bill Zewe
4 might have been in a key position, and might have assumed
5 the role of emergency director. I am not totally sure of
6 that interaction, but Joe Logan would have been the senior
7 guy at the plant, and before him George Kunder.

8 Q Let's start, then, at the time period of when the
9 event occurred. When Zewe was in there before these other
10 people arrived, did he have that responsibility?

11 A Yes.

12 Q I don't know which came first, or if Kunder was
13 the first one. At the time Kunder arrived, would he then
14 assume this responsibility by some organizational structure,
15 or in what manner?

16 A George was the Unit 11 technical superintendent.
17 He was also fairly new in the position. I think had he been
18 there for a year or so, by the structure we had, he would
19 have assumed the senior role at that time. During that day,
20 Zewe's personal knowledge during that period, Zewe's
21 personal knowledge of the plant and the situation, you know,
22 made in my mind both of them responsible for that
23 communication.

24 George is senior to Zewe on the organization chart.

25 Q But he is not in a line function.

1 A He is the technical superintendent of Unit II.

2 Q But does Mr. Zewe report to you through Mr. Kunder?

3 A That is right. Mr. Zewe reports to me through the
4 Unit II operation supervisor to the Unit II superintendent,
5 who also had Kunder reporting to him.

6 You are asking me who was responsible, and I am
7 telling you, probably Zewe, but I don't think George had
8 zero responsibility.

9 Q Okay.

10 Then when --

11 A At the time we are talking about there was a site
12 emergency. There was no declaration of an emergency. Bill
13 Zewe was the shift supervisor and in charge of the plant.
14 He was responsible. George was responsible to do what he
15 could to support the plant. That is the best way I can
16 describe it.

17 Q I am trying to understand the passage of this
18 responsibility.

19 A Okay.

20 Q Rather than ask questions, let's try to see if you
21 can give me the transition as you view it from the time the
22 event occurred until you assumed it. Maybe that will be the
23 easiest and quickest way to get there.

24 A I think that the Unit II operation supervisor was
25 not in the area. Normally, he would have come in probably

1 first, and he would have assumed operational charge. He
2 would have been the senior licensed guy. He was not
3 available.

4 Under that situation that morning, I look at Bill
5 Zewe as being responsible. I look at Joe Logan having the
6 responsibility to assume that responsible when he arrived
7 and understood it. That would have been the way the
8 transition, I feel, organizationally was supposed to be.

9 Then Joe Logan's responsible, either Joe Logan or
10 myself, management-wise, you know, should end up with the
11 ultimate responsibility of the unit. Had Joe Logan been in
12 his job a year, let us say, I might have gone to the
13 observation center, and assumed some of Jack's role while he
14 came there.

15 Once we were in the emergency, site in general, I
16 was needed inside the plant by Joe Logan, and by Sillinger,
17 and by Ross. That is the reason that I assumed the role
18 that I did. Essentially, I assumed the superintendent's
19 role, and that is the way I look at it.

20 I was station manager, and I really was not a part
21 of the emergency plan, other than I had been superintendent
22 of Unit II, and had been the guy that ran all the emergency
23 drills.

24 So I am saying, you are asking how it should have
25 worked, and it should have worked that Joe Logan took the

1 plant, and it should have worked that he kept the plant. In
2 my mind, that is how it should have worked. I felt
3 obligated to do my part because of the structure that we
4 were in organizationally.

5 That is the best that I can describe it, and I
6 hope that answers the question.

7 Q I think it does. Let me just see if I can
8 summarize it.

9 In your view, Kunder never had the sole reporting
10 responsibility.

11 A In my view, no. He had a significant
12 responsibility, that is all.

13 Q I might add at this point, just to let you know
14 why we are going through this line of questioning. One of
15 the things that we need to be able to carry out as part of
16 our job responsibility in this investigation, is to
17 determine what people believe are reporting requirements,
18 and how they are implemented.

19 You might be interested to know that Mr. Kunder
20 and Mr. Zewe believed that they had reporting
21 responsibilities when they were there, and currently.

22 A I am trying to reflect that when the organizations
23 change due to the loss of people in the industry, you cannot
24 implement today a new structure that is going to work that
25 way today. That is why I described the chain that I

1 described.

2 Q We are still talking about your policy. What were
3 the criteria for determining what was considered to be
4 reportable?

5 A Are we using reportable with the same definition
6 that we arrived at this morning?

7 Q Reportable will include, I think this is the
8 definition, written reports and transferring of information
9 during events, or as a result of events.

10 A I feel that the formal definition of reportability
11 is that contained in the licensing procedures meeting the
12 regulations, and that the definition of reportability during
13 a general emergency was to be contained in the emergency
14 plan. Beyond that, to attempt to assure that any
15 information of significance is made available is the
16 policy. That is the best criteria, or formalization that I
17 can give you.

18 Q Would the formalization of that in terms of
19 informing people of what their responsibilities written in
20 any place that you can cite?

21 A During a general emergency, it was written in the
22 emergency plan and implementing procedures. It said what
23 the shift supervisor shall do, it said what the operation
24 supervisor shall do. That was the implementation document
25 we were in, the emergency plan and its procedures, of which

1 there are a large number, that cover communications and all
2 the specifics, and I am talking without any of that
3 information in front of me.

4 I am trying to give you an accurate answer on
5 formalization. Once we get into an emergency, I see it as
6 being in the emergency plan definition of what was going on
7 and to be included in that plan.

8 Q So for the emergency plan time period, it is
9 covered there. There is another series of events which
10 require written reports, and there are instructions for
11 those.

12 A The technical specifications have reporting
13 requirements in them.

14 Q Then there is this other category of verbal
15 reporting information during an event or as a result of an
16 event.

17 A The obligation to provide information that is
18 judged to be needed, yes.

19 Q I am asking, is that formalized?

20 A I don't believe so. It was not at the time.

21 Q Did the company policy -- we are talking now March
22 28 and prior -- tend to stress events in the best light in
23 reporting them?

24 A I don't believe there was that tendency. There
25 was no tendency to express events in either light, in the

1 best light or the worst light. It was objective.

2 Q Did this company policy stress volunteering of
3 information when reporting?

4 A It stressed volunteering it, and if anything it
5 stressed over-reaction as opposed to under-reaction. It is
6 very hard to relate that to the crisis situation. In other
7 words, prior to the day of the accident, the policy would
8 have been just to make doubly sure that the communications
9 flow looked to over-react to the side of too much
10 information, as opposed to try to ferret out what was
11 strictly required by regulation.

12 On the 28th, it is hard to describe implementing
13 that when you are in such a significant situation.

14 Q Did this company policy stress the reporting of
15 unverified information, although it could have some
16 potential significance?

17 A Did it stress the reporting of unverified
18 information, I don't believe so. It is hard to answer. I
19 don't believe the formal documents did. I don't believe the
20 informal policies addressed it. Unverified information is a
21 judgment in itself.

22 Q Yes. You don't believe that this was addressed
23 either?

24 A I don't believe it was, no. I think the policy
25 would have been to provide accurate information to the

1 degree you could. The other part of it, I have not come at
2 it from that side.

3 Q Did the company policy in any way restrict what
4 was to be reported to the NRC?

5 A Not to my knowledge.

6 Q Did the company policy stress that if there was
7 doubt about a potential reportable item, it should be
8 reported?

9 A I can't state if that was formalized, like
10 emphatically stated, but it was implemented that way.

11 Q On March 28, did you feel, or did you have a
12 feeling that information should not be volunteered to the
13 NRC?

14 A On March 28, I had the feeling that all
15 information should be made available to the NRC. In other
16 words, I feel I took care to at least be sure of their
17 access, and that included that meetings. It included
18 requesting any suggestions from them with the knowledge that
19 I was responsible for any decision, and that was
20 specifically discussed in the early meetings.

21 BY MR. STELLO:

22 Q Do you think it is possible that the fact that the
23 NRC representatives were at the meeting inhibited some of
24 the people who now we know got conversations outside of the
25 meeting suggesting problems. That because the NRC was in

1 the room where you were having those meetings that inhibited
2 the flow of information to you?

3 A I can give you my opinion.

4 Q That is all I am asking for.

5 A My opinion is that it did not, and the reason for
6 that would be that the people who were there were known
7 personalities. There was no reason to, that I know of, and
8 in fact, I remember who was there, and some of these people
9 had been on the site and had known us for a long time. But
10 I don't feel that there was an inhibition.

11 If somebody felt that and did not tell me, I did
12 not know. I did not feel that, and it did not disturb the
13 meeting.

14 BY MR. MOSELEY:

15 Q On March 28, did you have the feeling that simply
16 answering some specific questions asked by the NRC fulfilled
17 the reporting requirements?

18 A No. I felt that this fulfilled one small part of
19 the cooperation that I felt was needed.

20 When you say, what are the requirements for March
21 28, I think that when you go into a site emergency and a
22 general emergency at 7:00 in the morning, then everything in
23 that control room became reportable information.

24 The priority and amount, and the way you give that
25 is hard to determine, but I did not feel that anything was

1 not reportable once we got into it. I did not want anything
2 not to be available, and that is the best answer I can
3 arrive at. That is the feeling that I have today.d

4 Q Other than the pressures of the things that were
5 going on, did you feel any influence or pressure that
6 affected your decision to report or not to report items to
7 the NRC?

8 A No, I did not feel any influence other than I
9 wanted them to access whatever they needed. I wanted to be
10 in a position where there was no question about the
11 availability of information.

12 Q We are in the final sequence here, and it will not
13 be very much longer. I have a series of questions about the
14 documents that the NUREG 0600 identified as missing, and I
15 would like to pursue that a little bit.

16 The reason for this information not being
17 available has not been identified. Specifically, it
18 includes several specific times for the alarm status
19 printout, several specific times for the utility typer
20 output, the analogue trend recorder No. 2 for the entire day
21 of March 28.

22 Can you explain, or do you have any idea of what
23 happened to this data?

24 A I think that there was an attempt made in the
25 early days to collect that data so that it did not get

1 lost. The attempt may have lost some of the data, is my
2 feeling.

3 The second thing is, when you come to that
4 computer and that utility typewriter, you have to understand
5 what happens when you wipe the memory on the thing, and what
6 happens when it shifts one to the other. I am not sure, and
7 maybe that is being pursued, but there is the possibility
8 like if the alarm typewriter gives out, the utility
9 typewriter shifts. There is that kind of thing. I cannot
10 explain it any better than that.d

11 We felt that there was some loss of information
12 from the control room during the early days, but we were
13 trying to collect everything. So the stuff that you are
14 saying is missing, I think that it is a small percentage,
15 but it does not mean that it was not important.

16 Q Have you been involved or overheard conversations
17 concerning this data?

18 A No.

19 Q In terms of its whereabouts?

20 A In terms of its whereabouts, I have not.

21 Q What efforts have been made by Met Ed to locate or
22 explain this or other missing data relating to the
23 accident?

24 A I think that I am not the guy who should be asked
25 that in Met Ed. I am not trying to give an improper answer,

1 but I don't believe that --

2 Q Can you tell us who?

3 A In my mind, it is Arnold and Herbein ultimately
4 responsible for looking for that. I don't know who they
5 have assigned to it.

6 BY MR. STELLO:

7 Q The question is, do you know if an effort was made
8 to locate it?

9 A Not specifically, I don't know.

10 BY MR. MOSELEY:

11 Q Do you know non-specifically?

12 A That is a bad answer. I know there have been
13 attempts to locate all kinds of information. I don't have a
14 specific awareness of that, that is what I am trying to say.d

15 BY MR. STELLO:

16 Q It is Herbein and Arnold that are doing it?

17 A It is Herbein and Arnold who hold the ultimate
18 responsibility.

19 BY MR. MOSELEY:

20 Q Also indicated as missing is the data that
21 represented some trending of parameters that was printed out
22 during the day, I believe by John Flint, which I also
23 believe may have been transmitted or brought into the shift
24 supervisor's office from time to time. It has not, or some
25 of it has not been found.

1 Can you explain, or do you know, or do you have
2 any idea of what happened to this?

3 A I do not.

4 Q Have you been involved or overheard conversations
5 concerning this?

6 A Since the 28th?

7 Q Yes.

8 A I have overheard conversations about people
9 throwing some of it away. I have no names. I overheard
10 that, that is all. I have heard discussion, not specifics,
11 though.

12 Q You have heard discussion, but you don't remember
13 who was involved in those discussions?

14 A I have heard hearsay. I heard of discussions that
15 occurred on the loss of some of the information, which may
16 have been inappropriately thrown away in the control room.

17 Q We will accept hearsay. Would you explain to us
18 what your knowledge is, by whatever means you obtained it?

19 A I don't have any means.

20 Q What have you heard?

21 A You asked the question, have I heard anything,
22 Okay. I am saying that in the early days, probably six to
23 eight months after the accident occurred, when there was
24 more information than is missing today being looked for, I
25 had heard that some of the information might have been

1 thrown in the control room.

2 One guy, Ivan Porter, told me that some of his
3 information he found in the trashcan, and that kind of
4 thing. I have not taken an interest in any of those
5 specifics, nor have I pursued any of them.

6 Q Nor do you have any specific knowledge of those
7 specifics things that might have happened to specific pieces
8 of paper.

9 A That is right. Nor do I know what specific pieces
10 of paper were thrown away.d

11 MR. MOSELEY: Thank you, Mr. Miller. We
12 appreciate your time and the efforts that we have put you
13 through here this morning.

14 (Whereupon, at 1:20 p.m., the interview was
15 concluded.)

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NUCLEAR REGULATORY COMMISSION

This is to certify that the attached proceedings before the

in the matter of: METROPOLITAN-EDISON (TMI II) - INTERVIEW OF GARY
PAUL MILLER

Date of Proceeding: 9-5-80

Docket Number: _____

Place of Proceeding: Harrisburg, Pa.

were held as herein appears, and that this is the original transcript thereof for the file of the Commission.

Mary C. Simons

Official Reporter (Typed)

Mary C. Simons

Official Reporter (Signature)

NUCLEAR REGULATORY COMMISSION

This is to certify that the attached proceedings before the

in the matter of: METROPOLITAN-EDISON (TMI II) INTERVIEW OF GARY PAUL MILLER

Date of Proceeding: 9-5-80

Docket Number: _____

Place of Proceeding: Harrisburg, Pa.

were held as herein appears, and that this is the original transcript thereof for the file of the Commission.

Patricia A. Minson

Official Reporter (Typed)

Patricia A. Minson

Official Reporter (Signature)

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EDWARD B. CROSLAND
COUNSEL

October 6, 1980

*NOT ADMITTED IN D.C.

Norman C. Moseley, Director
Division of Reactor Operations Inspection
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr. Moseley:

Enclosed are corrections to the interview transcripts
for the following individuals:

<u>Name</u>	<u>Interview Date</u>
Robert C. Arnold	September 5, 1980
Donald A. Berry	September 3, 1980
J. Robert Gilbert	September 3, 1980
John G. Herbein (2 pages)	September 5, 1980
Gary Paul Miller	September 5, 1980

Sincerely,

E.L. Blake/bas

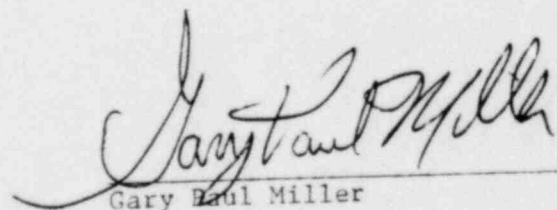
Ernest L. Blake, Jr.

bas

NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

Corrections to the September 5, 1980, Interview of Gary Paul Miller:

<u>Page</u>	<u>Line</u>	<u>Change</u>	<u>To Read</u>
1	21-22	ADD VICTOR E. STELLO AND - - FISHER	
38	11-12	were recognized	were <u>not</u> recognized
40	18	nuclear	nucleate
121	9	For purposes of clarification in explaining the response to the "Donaldson" question the statement would be made more clear as follows "What I am saying is I am aware now, <u>on May 7</u> , that we had one, <u>on March 28</u> ."	


Gary Paul Miller