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IN THE MATTER OF:

THREE MILE ISLAND SPECIAL  
INQUIRY DEPOSITION

**POOR ORIGINAL**

DEPOSITION OF:

*Grier*  
BOYCE H. GRIER

Place - BETHESDA, MD.

Date - Friday, September 28, 1979

Pages 1 - 84

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

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In the Matter of:           :  
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THREE MILE ISLAND           :  
SPECIAL INTERVIEWS         :  
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*Swir*  
DEPOSITION OF BOYCE H. CORIER

Room 9109  
Maryland National Bank Bldg.  
7735 Old Georgetown Road  
Bethesda, Maryland

Friday, September 28, 1979  
8:33 a.m.

BEFORE:

For the Nuclear Regulatory Commission:

GEORGE T. FRAMPTON, JR., ESQ.  
GEORGE RIVENBARK

C O N T E N T S

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WITNESS:

EXAMINATION

Boyce H. *Gucc* Corrier

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E X H I B I T S

EXHIBIT NUMBER:

IDENTIFIED

17

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1 MR. FRAMPTON: On the record. This is a deposition  
2 of Mr. Boyce H. Grier, being taken by the U.S. Nuclear  
3 Regulatory Commission's Special Inquiry Group on Three Mile  
4 Island at Bethesda, Maryland, on September 28th, 1979.

5 Present in addition to Mr. Grier are Mr. Rivenbark, Mr.  
6 Frampton of the Special Inquiry Group.

7 MR. RIVENBARK: Boyce, I have been delegated the  
8 Commission's authority to take your oath. Would you raise  
9 your right hand?

10 Whereupon,

11 BOYCE H. GRIER

12 was called as a witness and, having been first duly sworn,  
13 was examined and testified as follows:

14 EXAMINATION

15 BY MR. FRAMPTON:

16 Q Mr. Grier, you, I believe, received a letter dated  
17 August 27th from Mr. Rogovin explaining the purpose of this  
18 interview, your rights in connection with it, and the fact  
19 that some or all of the transcript of the deposition may  
20 actually become public information.

21 A I did.

22 Q And have you read that letter? And do you have any  
23 questions about it?

24 A I have read the letter and I have no questions.

25 Q And you brought with you today a resume?

1 A Yes, I have.

2 MR. FRAMPTON: Let's have this two-page resume of Mr.  
3 Grier marked as Exhibit 17 of this date.

4 (Exhibit No. 17 identified.)

5 BY MR. FRAMPTON:

6 Q As I said before we started, I think we would like  
7 to begin by taking you through the events of March 28th and  
8 the three or four days thereafter. I believe you said in  
9 prior testimony and interviews that you were told about the  
10 incident at Three Mile Island shortly before 8:00 o'clock on  
11 March 28th. And shortly thereafter you talked to Mr. Davis  
12 at headquarters in Washington after several attempts to get  
13 through to him; is that correct?

14 A That's correct.

15 Q And the first telephone contact from Region 1 to  
16 the Unit 2 control room from Mr. Smith's office in Region 1  
17 was then broken and reestablished in your regional incident  
18 response center?

19 A That is correct.

20 Q I believe the first group of inspectors to go to the  
21 site left about 8:45 in the morning?

22 A Yes.

23 Q And then was there a second group that left or a  
24 second car shortly after that?

25 A That's correct. The first car was called an

1 emergency vehicle, which is a stationwagon. There were five  
2 inspectors in the first group. The second car there were two  
3 inspectors.

4 Q Did you have any role in deciding who would go with  
5 that first group of people?

6 A The persons selected to go were decided by Mr. Smith  
7 and Mr. Brunner. I was aware who was going, but did not have  
8 any particular involvement in their selection but did not  
9 object to the ones being assigned to go.

10 Q One of the things that has been noted in that  
11 connection is that Mr. Haverkamp who was then the project--  
12 principal contract inspector for TMI did not go with the  
13 first group, but rather stayed in the incident response center.  
14 Do you recall why that was and whether that was discussed at  
15 the time, what his role ought to be?

16 A I do not recall any discussion on that. I don't  
17 know. I cannot answer why Mr. Brunner decided to send Higgins  
18 and Baunack before sending Haverkamp. I think there was some  
19 perhaps advantage to having Haverkamp in the office with his  
20 familiarity to be available to answer questions. But there  
21 was no particular reason that I am aware of that he was not  
22 sent with the first group.

23 Q You don't remember that being discussed at all?

24 A No, I do not.

25 Q Do you remember whether someone was designated as the

1 team leader for this group or, in effect, a supervisor that  
2 was going to organize the people when they got to the site?

3 A I am not aware of discussion at the time. I know  
4 there is some confusion on this part. The position I have  
5 taken, I believe in accordance with our Region 1 incident  
6 plan, there is a statement that if the project inspector is  
7 not in the team, that the emergency planning officer --  
8 will be in charge of the team. That was Dr. Gallina and he  
9 fulfilled that role. So I have viewed him as being in charge.

10 I believe Mr. Smith may have indicated that Mr. Neely  
11 was in charge, but I haven't viewed it otherwise, but I  
12 understand there was confusion on their part.

13 Q When you say there was confusion, was there confusion  
14 when they got to the site?

15 A I don't think so. There is confusion afterwards  
16 in different people saying who was in charge, so I guess there  
17 must have been confusion, but I don't think it caused any  
18 problem.

19 Q I got the impression from reading some of your prior  
20 testimony that after people were dispatched to the site, you  
21 yourself spent a good part of the day in the incident response  
22 center? Is that accurate?

23 A Yes, I was there essentially full time from when it  
24 was manned at about 8:00 until I left sometime 8:00 or 9:00 in  
25 the evening.

1 Q Do you remember what the initial information was  
2 that you had from the Unit 2 control room? And I am talking  
3 about 8:00 and perhaps 11:00 o'clock when the inspectors who  
4 had gone to the site first got into the control room. During  
5 the period when there were no NRC people on the site.

6 Roughly do you remember what kind of information you were  
7 getting, what information you were getting, and what idea --  
8 how serious the problem appeared to be during that time?

9 A I am not sure that I remember any details, of course,  
10 the initial information was that they had the turbine trip  
11 that had resulted in a transient. I don't know the precise  
12 time now, but sometime, I think, before inspectors were on-site  
13 at 10:00, we had gotten some idea of the difficulty they were  
14 in. But I can't now recall specific details of that.

15 I presume you have reviewed the tapes of the telephone  
16 conversations between Region 1 and the site. And I believe  
17 those would tell you what information was relayed at what  
18 time generally.

19 Q Do you recall that when Mr. Higgins and Mr. Neely  
20 got to the Unit 2 control room, did they make some kind of  
21 a general comprehensive report or status report when they had  
22 gotten there and looked over the situation? Do you recall  
23 them calling in and saying we are here now, we have looked  
24 at it and here is what the situation is?

25 A I think generally, though it may have been more in



1 terms of gathering information in response to questions, I don't  
2 remember that there was any comprehensive report, because we  
3 had been in continuous communication with the control rooms  
4 through the licensee. So we had developed the information  
5 and plant status, I think, by the time they got there. So  
6 my recollection is that the initial effort was to obtain  
7 information in response to questions that we developed.

8 Q I would like to shift for a minute and ask you about  
9 Wednesday and perhaps jumping ahead as well and ask you what  
10 you can recall about the various telephone links that were  
11 in place. We have had some difficulty figuring out exactly  
12 when headquarters at Bethesda actually was tied in to one of  
13 the control rooms and when it wasn't.

14 A Initially, we had the line to Unit 2 control room  
15 from the regional office and we had a line from the regional  
16 office to the incident response center, so we were relaying  
17 information.

18 Q But those lines weren't tied together at the beginning?

19 A That's right. My recollection is that it was about  
20 11:00 to 12:00 o'clock at the time they were tied together,  
21 tied together in a conference circuit. But the precise time  
22 I am not sure.

23 Q You had also had a line into the Unit 1 control room  
24 from fairly early in the morning?

25 A Yes, after the inspectors got to the site, we had

1 Dr. Gallina in the Unit 1 control room, which was their  
2 emergency operations center where the radiological-environmental  
3 information was being developed. So we had two lines down, one  
4 to Unit 1, one to Unit 2 after our inspectors got on-site.

5 Q Then it was shortly after that or some period after  
6 that that headquarters said we want to be directly tied into  
7 Unit 2 control room?

8 A Yes.

9 Q Did that mean that they wanted you to get out of that  
10 loop? Or do you remember what happened next?

11 A At the time I know I had discussions with Norm  
12 Moseley. At the time he requested or informed me that  
13 headquarters was doing that. I raised the objection because  
14 I thought that would, in effect, put the regional office out  
15 of any control because the direct communications between  
16 headquarters and the site would obviously take over.

17 My objections did not prevail. So the circuits were  
18 established and indeed to a great extent I think we were  
19 simply monitoring the communications between headquarters and  
20 the site, at least for Unit 2.

21 Q But my question is whether you were able to listen  
22 in?

23 A We were. We had, on that particular circuit, we had  
24 a speaker phone in our operations center, so we were able to  
25 listen to the communications and that is where some of them are

1 recorded on our tapes during the first day, I guess. So, yes,  
2 and we were also able to talk. There was some communication  
3 between headquarters and Region 1 and continued between Region  
4 1 and the site, but there was also the direct communications  
5 between headquarters and to the site.

6 Q So on the afternoon, on Wednesday, you remained tied  
7 into Unit 1 directly?

8 A Yes.

9 Q And you had a pipeline into the phone hookup between  
10 headquarters and Unit 2?

11 A That's correct.

12 Q Was that like a conference call? Could somebody  
13 break in and say, hey, this is Region 1?

14 A Yes, we could.

15 Q But it was headquarters directly that was really  
16 sort of controlling that circuit?

17 A Yes, that is my idea.

18 Q You remember how long that stayed that way?

19 A Well, there were changes in the phones over several  
20 days I know, but that continued for several weeks as my re-  
21 collection. We still had, essentially, that conference  
22 circuit. After we had the large group on-site starting on  
23 Friday there were phones tied into that same circuit. The  
24 trailer where NRR, Denton was operating the IE trailer control  
25 room and Region 1 and headquarters were all tied together on

1 the same circuit.

2 BY MR. RIVENBARK:

3 Q That isn't real clear to me. Now, on the same  
4 circuit do we mean that one line between Unit 2 and headquarters  
5 that the region could listen into were on the same circuit?  
6 Would you describe those connections between the site and the  
7 region a little?

8 A At sometime after we were on-site, there were  
9 essentially five, I believe five phones all tied together  
10 on a conference circuit, the Unit 2 control room, Region 1  
11 headquarters, the trailer at the site where Denton was, and  
12 the trailer at the site where the IE office was. So we were  
13 essentially all tied together.

14 Q On one line?

15 A Yes. So we could from the trailer, from my office  
16 at the site monitor communications between control room and  
17 the operations center.

18 Q Were there other lines in addition to those?

19 A Yes, I am sure there were.

20 Q From those same points?

21 A Yes. There were a number of phones set up in addition  
22 to the circuit that was kept open all that time.

23 Q A number of other circuits or just lines that you  
24 had to ring up?

25 A I guess all of the others who had to ring up. This

1 was the only circuit that was kept open continuously I believe.

2 Q To the best of your understanding, then, the region  
3 had the capability to ring up directly Unit 1, Unit 2, Denton's  
4 trailer, and headquarters -- the IE trailers and headquarters?

5 A Yes.

6 Q On other lines?

7 A Yes. Now, I am talking -- well, I don't remember  
8 when that capability was really set up, but I am talking maybe  
9 as late as Monday; Sunday, Monday, something like that.

10 BY MR. FRAMPTON:

11 Q Do you remember what the telephone hookup situation  
12 was on Friday morning when there was the evacuation flap? We  
13 know that Region 1 and the Unit 2 control room were tied in,  
14 but do you recollect whether people in headquarters at  
15 Bethesda could get on that line to the Unit 2 control room?

16 A Yes, they could.

17 Q So that was still in place?

18 A That was still in place.

19 Q So if somebody in the incident response center in  
20 Bethesda had wanted to get the Unit 2 control room, all they  
21 would have had to do was to pick up the telephone?

22 A That's correct.

23 Q On Friday morning?

24 A Yes.

25 Q So it is your impression that that three-way circuit

1 continued on through Thursday and Friday?

2 A Yes, and on --

3 Q And beyond?

4 A Yes, two weeks or so at least and these other circuits  
5 were added on to that. That is my recollection.

6 BY MR. RIVENBARK:

7 Q Could headquarters also listen in on the Unit 1 line  
8 that the region had open?

9 A I don't think that was a three-way circuit, George.  
10 That was between Region 1 and the Unit 1 control room. Now  
11 there was a line put in to -- between Region 1 and headquarters.  
12 I am not sure of the location of the terminal on the headquarters  
13 end, whether it was in the operations center.

14 I have some impression it may have been in Jim Sniezek's  
15 office, but there was essentially a hot line put in between  
16 those two points. And when we moved to the site in the trailer,  
17 that circuit continued. We had a hot line -- George Smith had  
18 a hot line to Jim Sniezek.

19 Q From the trailer?

20 A Yes, initially that was set up from the Region 1  
21 operations center.

22 BY MR. FRAMPTON:

23 Q Let me go back to Wednesday and ask you about telephone  
24 communications and other communications that you had to deal  
25 with, other than with the site. I think you mentioned in one

1 of your President's Commission depositions that a lot of people  
2 had to be assigned to help Mr. Abraham answer telephone calls  
3 from the press. Was that a significant burden during the  
4 first day on the regional office?

5 A Yes, it was. Mr. Abraham was overburdened with  
6 telephone calls, and then, of course, in the afternoon he  
7 decided to go to Harrisburg. So he left with a large backlog  
8 of calls to be responded to, plus calls were continuing to  
9 come in. So we assigned people who were not directly involved  
10 in the operations center to handle those calls and principally  
11 with my assistant Gary Snyder, two section chiefs from the  
12 safeguards branch, Jim Joyner and Jim Devlin. Those are the  
13 three that I believe were principally involved. From time to  
14 time there may have been others.

15 They, essentially, over the next few days spent the full  
16 time responding to inquiries from the press and the public.

17 Q Did you have any kind of statement drafted up for  
18 them to read or release or anything like that?

19 In other words, what were they telling people who called?

20 A They were just responding to questions as best  
21 they could. They would come to the operations center from time  
22 to time to be brought up to date as to what the information,  
23 the latest information was. But, no, there was no prepared  
24 statement.

25 Q Do you know whether Mr. Abraham or anyone else in

1 the region talked to headquarters about this problem? Was  
2 there any discussion of saying to these people, call Washington.  
3 Don't talk to us? Or whether there should be some central-  
4 ized press thing, rather than just having people answer  
5 questions?

6 A No. I was not involved in any discussion like  
7 that. I am not aware of any.

8 Q I am not suggesting there was. I am just curious.

9 A No. Our general practice in Region 1 is when we  
10 get a call from a member of the public or press whoever gets  
11 it will respond to it as best he can. And so that general  
12 procedure was followed here, too.

13 Q And the incident response center itself who was  
14 designated to actually be on the telephone to the site and  
15 how was that done?

16 A We had the two stations. The one for operational  
17 information and the line that went to Unit 2 and another  
18 station for the radiological-environmental information. The  
19 operations branch under Mr. Brunner manned the phones that went  
20 to Unit 2 and he assigned the inspectors or sometimes section  
21 chiefs to that position. Mr. Smith made the assignments for  
22 the other communication channel.

23 Q What do you recall about the impressions that were  
24 being gathered in the incident response center during that  
25 first day as to the status of the plant? Was there a concern



1 or awareness that continued over the day that the situation  
2 was not stable?

3 A Yes, I think so. I think there was concern recogniz-  
4 ing that the core was not being cooled because all of the  
5 pumps were turned off. And, of course, as the levels of  
6 radiation, of radioactivity, were being detected, there was  
7 concern. No question.

8 Q What do you recall about requests being made from  
9 Bethesda or from people at Region 1 during that first day  
10 for in-core thermocouple temperatures? Do you have a  
11 recollection of that information being requested of the  
12 licensee?

13 A No, I don't. I have had occasion just in the  
14 last few days to look back at our Region 1 tapes from the --  
15 because of a question about when the information on thermocouple  
16 readings was known. I was unable to find any recorded  
17 indication that that information was asked for or received.

18 I don't have a clear recollection of when I first became  
19 aware of temperatures as high as 2500 degrees. I just haven't  
20 been able to associate that with anything so that I can identify  
21 the time. But I don't find anything to say that we were aware  
22 of that during Wednesday anyway.

23 Q What about hot leg temperatures?

24 A I believe that information was being received  
25 regularly.

1 Q Do you recall any discussion or evaluation of what  
2 as the afternoon went on of what the implications were of  
3 those temperatures continuing to stay high?

4 A No, I don't recall any particular discussion of that  
5 point in the operations center.

6 Q I may be mistaken but I think I recall in your  
7 prior depositions that you mentioned that the incident response center  
8 was aware of the decision made in the control room to try to  
9 blow down the system around 11:30 or noon to depressurize and  
10 go on decay heat?

11 A Yes. My understanding at that time was that the  
12 objective was to get on the decay heat removal system which  
13 meant reducing pressure, yes.

14 Q Do you remember whether there was any conversation  
15 about whether that was a good idea or a bad idea about the  
16 decision in any way?

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1           A           I don't have any specific recollection. It seems  
2 to me it may be later on in the afternoon that there may  
3 have been some discussion about that not being the way to  
4 go. But I don't have any specific recollection.

5           Later the objective became one of getting the primary  
6 pump back into operation sometime late on Wednesday  
7 afternoon.

8           Q           At the time that the decision to depressurize  
9 was made then, you don't remember a discussion being held to  
10 evaluate that decision?

11          A           No, I do not.

12          Q           We have had some indication that there was a  
13 recommendation or strong suggestion made from NRC  
14 headquarters in Bethesda after that decision was made to  
15 depressurize -- in other words, that a message was received  
16 from headquarters, saying you ought to try to depressurize  
17 -- but that that message came several hours after the  
18 control room people had already taken that course. Do you  
19 recollect any kind of suggestion like that coming from  
20 Bethesda, say, at 1:00 or 2:00 o'clock in the afternoon?

21          A           I don't have any specific recollection. It does  
22 seem to me, as I indicated, I recently reviewed the tapes  
23 from the Region I center, and it may be that that is  
24 something that is recorded in the tapes. I am just not  
25 sure.

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1 MR. FRAMPTON: Let's go off the record for a  
2 minute.

3 (Discussion off the record.)

4 MR. FRAMPTON: Back on the record.

5 BY MR. FRAMPTON:

6 Q We were talking off the record about what the tape  
7 capability was and what tapes were made in Region I of your  
8 telephone conversations. Maybe you can describe that for  
9 us.

10 A Yes. As I indicated, the line to Unit 2 control  
11 room, which included the Region I operation centers and the  
12 headquarters incident response center in Region I, we had a  
13 speaker phone on that circuit. We set up a recording with a  
14 tape recorder similar to the recorder you have here, a  
15 microphone and -- actually, it was a miniature cassette  
16 recorder. So, the conversations on that line from the  
17 speaker phone were recorded for the first 24 hours or so.  
18 And those tapes have been transcribed, and they are  
19 available, and we were able -- which may be of some  
20 assistance to identify the voices -- so the speakers are  
21 identified on our transcripts.

22 Q You transcribed these tapes in Region I?

23 A Yes.

24 Q And identified the voices insofar as you could?

25 A That is correct.

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1 Q I think you mentioned that Bob Bernero has a set  
2 of the transcripts?

3 A Those have been provided, and I know Mr. Bernero  
4 had them earlier. If I can provide -- I can provide another  
5 copy if you need them. We have copies. I didn't bring it  
6 with me. It amounts to about this much (demonstrating). I  
7 believe it was some 22 of the miniature cassettes.

8 Q Was this taping part of the emergency plan or some  
9 preset procedures?

10 A It was an ad hoc decision.

11 Q I think you said before that later on in the  
12 afternoon there may have been some discussion about whether  
13 depressurization was the right way to go. What do you  
14 remember about those conversations? And do you recall  
15 whether anybody at the site was involved in them at all, or  
16 whether anything was communicated to the site about those  
17 conversations?

18 A I don't have any specific recollection of those  
19 discussions. It is just my general recollection that that  
20 was discussed and that the decision was made to repressurize  
21 and start the primary pump rather than attempt to  
22 depressurize and go on decay heat during Wednesday  
23 afternoon. And about 8:00 o'clock, they got the primary  
24 pump back into operation. I don't remember any specific  
25 conversations on that regard.

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1 Q Well, the licensee did make that decision  
2 beginning in the late afternoon sometime. I was wondering  
3 whether you recall any discussions at Region I as the  
4 afternoon went on about whether the licensee was not having  
5 success in depressurizing and ought to change its course or  
6 any discussions during the afternoon at the observation  
7 center about what strategy to take to cool the core?

8 A I don't recall any particular conversations.

9 Q Do you remember whether there was any concern in  
10 the Region I incident response center about the core  
11 possibly being uncovered at any time during the day?

12 A I know there was discussion about the fact that  
13 there were voids in the system, which I think were thought  
14 to be steam voids in the primary legs and in the top of the  
15 vessel. I don't remember any particular discussion about  
16 the core itself being uncovered. But we were aware of the  
17 voids in the system.

18 Q Do you remember whether there was any discussion  
19 of whether voids in the hot legs over a long period of time  
20 would automatically lead you to be concerned about whether  
21 the core was covered?

22 A I don't remember any discussions to that effect,  
23 no.

24 Q Is that the kind of thing that one would  
25 ordinarily conclude as a result of seeing those kinds of

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1 hot-leg temperatures over a period of time? In other words,  
2 can you continue to have hot-leg temperatures that are way  
3 above saturation and still have -- for a long period of time  
4 -- and still be pretty assured that the core is continuing  
5 to be covered?

6 A I guess you would not be sure of that.  
7 Particularly with no pump running, of circulation in the  
8 system. You would not be cooling the core.

9 Q Do you recall whether any suggestions or  
10 recommendations or directions were given from Region I to  
11 the Unit 2 control room during that day? In other words,  
12 were there any occasions on which someone said, somebody  
13 from NRC Region I said, to the licensee, "You have got to do  
14 this or you have got to do that"?

15 A I don't think that there was any direction of that  
16 nature given. I think our conversation, almost totally, was  
17 in terms of gathering information, relaying it to  
18 headquarters.

19 Q What did you perceive the role of the inspectors  
20 who were on site to be?

21 A Well, I viewed Ed as just that: of gathering  
22 information and providing that information to headquarters.  
23 So, I think there were investigators in terms of gathering  
24 information and communicating to headquarters.

25 Q In your mind, would they have had the authority to

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2 people or try to do that?

3 A They certainly could have objected and advised the  
4 licensee not to take a particular action. The inspector  
5 does not have the authority to order. If the licensee did  
6 not respond to the advice of the inspector, then it would be  
7 necessary for him to go to headquarters and get the order.  
8 The authority to issue orders is retained by headquarters.

9 Q So, if there was a very substantial disagreement  
10 between an inspector and the licensee about a major  
11 operational step, he would have to come back to you and you  
12 would have to go to headquarters to sustain the authority to  
13 tell the licensee to do or not to do something?

14 A That is correct.

15 Q Let me ask you about your knowledge of the press  
16 briefing, or I guess what started out to be a briefing of  
17 the lieutenant governor on Wednesday. Did someone call you  
18 to request that NRC people who were knowledgeable about  
19 plant status go to brief the lieutenant governor?

20 A I believe the request came from Mr. Abraham, who,  
21 of course, by that time was in Harrisburg in the governor's  
22 press office. I am not sure what time he got there, but  
23 that is where he set up operations. And he requested -- I  
24 don't recall whether I talked to him directly or not, but  
25 the request came to me for people from the site to be at the



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1 press conference to assist him. And as a result, we  
2 directed Gallina, Higgins, and [REDACTED] to go to that meeting  
3 or briefing. [REDACTED] turned out to have some contamination on  
4 his shoes, I believe. He was held up at the site. So, as a  
5 result, Gallina and Higgins were the only two that went to  
6 that briefing.

7 Q When Mr. Abraham called you, he knew there was  
8 going to be a press briefing of some kind?

9 A Yes, that is my recollection.

10 Q And he basically was looking for support for  
11 himself?

12 A Yes. Somebody who was on site or who had been on  
13 site and was familiar with the situation.

14 Q And do you know who arranged for Mr. Higgins and  
15 Mr. Gallina to go? Was that you or someone acting on your  
16 instructions called the site?

17 A Yes. I don't recall whether Mr. Abraham  
18 specifically requested the individual or just where that  
19 decision was made. But with Dr. Gallina, in effect, being  
20 in charge, and Mr. Higgins being in the Unit 2 control room,  
21 I think they were two appropriate ones to go.

22 Q Did you understand that this was coming from  
23 Mr. Abraham himself, alone, or was he saying that the  
24 lieutenant governor or the governor wanted somebody up there  
25 who knows what is going on in the plant? Do you remember

pv BWH 1 that?

2 A I guess I don't remember specifically, no.

3 Q Do you remember what the status of the plant was  
4 when the NRC inspectors left to go into Harrisburg? What  
5 was happening at that time?

6 A No, I don't remember exactly. It was sometime  
7 late Wednesday. I believe it was before the primary pump  
8 had been restarted. My recollection is it was something  
9 like 6:00 o'clock or so. I don't recall exactly.

10 Q Do you remember discussing with either Mr. Abraham  
11 or with Higgins and Gallina what they were going to report,  
12 what they should say, what they should convey in terms of  
13 the seriousness of the situation or the status?

14 A I did talk to Dr. Gallina before he left, and  
15 specifically instructed him that he should be open and tell  
16 it like it was. I don't remember that I specifically talked  
17 about technical details of the situation. But I was clear,  
18 I think, in my instruction that he should respond as best he  
19 could.

20 Q How about with Mr. Abraham, do you remember  
21 whether you talked to him about what kind of general picture  
22 he was in a position to convey?

23 A No, I don't. I don't recall having discussed that  
24 with him at all.

25 Q What was your own impression of the situation at

pv BWH 1 that time?

2 A As I recall, there was continuing concern because  
3 it appeared things were not improving. The situation in the  
4 reactor core was still not under control, if you will,  
5 because the core was not being cooled, and with the  
6 radiation levels that were being reported, there was  
7 recognition that there had been core damage or fuel  
8 failure. I don't think at that time I had any appreciation  
9 of the real extent — extensive damage.

10 Q Did you consider at the time whether you might be  
11 reducing your reporting capability in the plant while it was  
12 still unstable by having these people go off to the press  
13 briefing?

14 A I don't know that that was a particular  
15 consideration. Certainly, that was affected. But we had  
16 sufficient people to continue to man the telephones. We  
17 sent additional people during the day, I guess, one  
18 additional reactor inspector and the section chief.

19 Q Who was the additional reactor inspector?

20 A Bill Raymond. And Rick Keimig, the section  
21 chief. But the additional people that were sent, they were  
22 sent in order — the recognition that things were not  
23 improving, that we were going to need to continue to man  
24 essentially through the evening, and they were not sent  
25 because of the press, the governor's press conference. I

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pv BWH 1 didn't mean to imply that.

2 But I viewed it an important consideration to have people  
3 go to that press conference with an attempt to provide some  
4 of the answers to questions that were arising.

5 Q There has been some suggestion or evidence that  
6 the lieutenant governor and the governor, after being  
7 briefed by Met Ed people earlier in the day on Wednesday,  
8 were rather dissatisfied as to whether they were getting the  
9 straight story, and it was that dissatisfaction that caused  
10 them to want to find out from the NRC what the NRC thought  
11 about it.

12 Do you remember talking about that with Mr. Abraham, or  
13 do you have any knowledge of that?

14 A No. That message did not come to me. I don't  
15 recall a request for inspectors, that the request for  
16 inspectors was based on that at all. But I just don't have  
17 any recollection.

18 Q When you left the incident response center in  
19 Region I on Wednesday, I think you have testified before  
20 that you left Mr. Allen, your deputy, in charge, and he had  
21 been sent home by you earlier so he could get some sleep so  
22 he could fulfill this responsibility.

23 A That's correct.

24 Q At the time that you left, the main pump had been  
25 restarted?

pv BWH 1 A Yes. It was sometime after 8:00 o'clock that I  
2 left.

3 Q And was there a general feeling in Region I that  
4 the plant was now stabilized, that the accident was over  
5 pretty much?

6 A I think there was some optimism, the fact that the  
7 pump had been restarted, that represented an improvement.  
8 And I think there was some optimism that things would  
9 continue to improve, yes. I don't think there was any idea  
10 that the accident was over, though.

11 Q Let's move on to Thursday, and perhaps you can  
12 tell us just very briefly what you were doing on Thursday.  
13 Did you spend a good part of Thursday in the incident  
14 response center itself, or were you holding meetings or  
15 what?

16 A No, I spent all day Thursday again essentially in  
17 the incident response center. When I got back to the office  
18 on Thursday morning, I did call of my branch chiefs together  
19 with Mr. Allen for a brief meeting. As I recall, I  
20 indicated to them that we ought to be considering -- in  
21 terms of what was going on at the site, it was still the  
22 objective to get the cold shutdown, to identify the  
23 releases, the source of the releases, and stop them, to  
24 determine the magnitude of the releases, and, finally,  
25 establish the sequence of events.

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pv BWH

1       So, I think, Thursday morning still I had in mind that  
2       the primary objective was to get to cold shutdown. I  
3       remember when I walked into the incident response center and  
4       reviewed the status board; it was quickly recognized that  
5       there had been essentially no change in plant status since I  
6       went home the night before. The conditions were essentially  
7       the same.

8       Q       Let me interrupt you for a moment and ask about  
9       the status board. Is that something you had put up on  
10      Wednesday?

11      A       Yes. We had -- again, as we indicated, we had the  
12      two communications channels, essentially two stations, in  
13      our incident response center, and adjacent to the  
14      communications with Unit 2 control room we had a blackboard  
15      which a status of the plant was maintained on.

16      On the other side of the incident response center,  
17      communications with Unit 1, the environmental radiological  
18      information, we had again a status board and maps on which  
19      that information was being maintained.

20      Q       Do you remember whether it was the status board  
21      updated every hour or every so many hours? Was there any  
22      regularity to that on Wednesday at all?

23      A       As far as operational information goes, yes, I  
24      think so. I don't remember exactly when we started keeping  
25      the board on reactor status, but it was being maintained

pv BWH 1 regularly as information came in.

2 Q Do you remember what plant parameters were up on  
3 the blackboard that were regularly displayed?

4 A Pressures and temperatures, that sort of thing. I  
5 am not sure when this was done, but at some time one of the  
6 inspectors had sketched the system, a schematic of the  
7 primary system, reactor vessel, the piping, the steam  
8 generators, pumps, and so on. The information on the status  
9 was being maintained at the various points on the  
10 schematic.

11 That was with chalk on a blackboard. So there is no  
12 record of that information, unfortunately.

13 Q I believe on Thursday you had requests from a  
14 number of congressman and senators to have people help them  
15 brief them and so forth.

16 A That's correct. Some of that information, it  
17 seems to me, came in late Wednesday that they were going to  
18 be there on Thursday, and we were asked to make preparations  
19 for assistance and so on.

20 Q Were you asked directly in some cases, or was it  
21 mostly headquarters?

22 A Headquarters wanted the region to provide -- well,  
23 we were requested in one instance to arrange transportation  
24 from the airport, secure rental cars, provide drivers, and  
25 that sort of thing.

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pv BWH 1 Q When you say "in one case," do you remember what  
2 that particular group was?

3 A No, I do not. It may have been Senator Hart's  
4 group, but I am not sure.

5 Q Do you recall whether anyone balked at that in  
6 view of the magnitude of the task?

7 A I objected. We did not have resources to do that  
8 sort of thing, of course. We are at least 75 miles away or  
9 more from Harrisburg. I did attempt to see whether or not  
10 we could possibly do it if it came down to a final decision  
11 that we had to do it, and I did find a couple of inspectors  
12 from the construction branch who were not otherwise  
13 involved. They were put on notice to be available to go,  
14 but in the end they did not go.

15 The only thing that I did specifically was to send the  
16 state liaison officer, Tom Elsasser, who had been in the  
17 office and, among other things, he had been responding to  
18 some congressmen who were calling. He was handling that  
19 aspect of responding to requests for information. And so I  
20 did ask him to go. He went on short notice and was there  
21 for the briefing on Thursday afternoon.

22

23

24

25



1 Q So the original request from headquarters had been  
2 to provide transportation and escorts and everything for a  
3 party of Congressmen and Senators?

4 A Yes, that was the request I got.

5 Q And that wasn't ultimately done?

6 A That's correct.

7 Q But in fact, there were some inspectors who spent a  
8 good part of Thursday, I think, meeting or briefing Congressmen  
9 and Senators, isn't that right, on the site?

10 A Yes, there were briefings at the observation center.  
11 Our mobile lab had set up at the observation center, and that  
12 was essentially our point of operation.

13 Phil Stohr, who was in charge of the mobile lab, and  
14 Rick Keimig, the section chief who had gotten over there  
15 Wednesday evening, were both involved in the briefings of the  
16 Congressmen.

17 Q And then I think that Mr. Higgins and Mr. Gallina  
18 and Mr. Abraham were all involved in another briefing of the  
19 Governor on Thursday; is that right?

20 A That's right.

21 Q What do you recall about how that came about, if  
22 you were involved or if Region I was involved?

23 A My recollection of that is -- well, I had sent  
24 Keimig, the section chief, on Wednesday to specifically take  
25 charge of all of the IE effort at the site, as senior man.

1 It was my intent that he should be the one to go to the  
2 briefing on Thursday. But he became involved in briefing the  
3 Congressmen and in those tours. And the call from Abraham  
4 came for assistance again, to go to the Governor's office.  
5 Keimig was not available.

6 Abraham specifically asked again for Gallina. He felt that  
7 Gallina had done a good job on Wednesday night, and he asked  
8 that he go back again. And I don't remember whether he  
9 specifically asked for Higgins, but again, there was need for  
10 a reactor inspector. So, since Higgins had been before, I  
11 directed that the two of them should go again.

12 Q Do you recall what you were told the purpose of the  
13 second briefing was? Was it another daily update or had  
14 anything changed in the situation that caused Mr. Abraham to  
15 be asked to do this or to want to do it again on Thursday?

16 A My understanding, it was just an update, as I recall.

17 Q What do you recall about information that was being  
18 received on Thursday about the releases, off-site releases,  
19 or about the venting of the makeup tank and any relationship  
20 it had to these periodic releases?

21 A Well, I guess I don't have any specific recollection.  
22 I know that the releases were continuing. But I don't remem-  
23 ber any particular discussion in association with the makeup  
24 tank.

25 Q It appears that, at least in the Unit 2 control

1 room, as early as Thursday morning, they were venting the  
2 makeup tank and observing releases. And as early as late  
3 afternoon on Thursday, they had made a correlation between  
4 these two things. They knew that venting the tank would, in  
5 some unexplained way, result in some off-site releases. And  
6 there are notes that show that people in the control room  
7 were aware of that.

8 Do you know whether that awareness got communicated to  
9 Region I on Thursday afternoon or Thursday evening as to where  
10 these periodic puffs were coming from?

11 A I just don't know. I don't recall. I don't remember  
12 any discussion that there was correlation, no.

13 Q Was that something that you remember being aware  
14 of when you went home on Thursday night?

15 A I don't recall.

16 Q How was the information that was being received from  
17 the Unit 1 control room or from the IE van on site being  
18 reported and displayed in the incident response center? Did  
19 you have sheets of paper that were --

20 A We have log sheets. Both positions were maintaining  
21 log sheets, and those are available, for operational data  
22 coming from Unit 2 and the radiological-environmental coming  
23 from Unit 1. There are separate logs. And as I indicated,  
24 there were -- there was a status board and map charts on the  
25 board or adjacent -- on the wall adjacent to this position,

1 where the information was being plotted to some extent.

2 Q Do you remember getting information about a 3,000 MR  
3 release over the stack on Thursday?

4 A I don't recall that that came to my attention at the  
5 time. It was received in Region I, is in our logs, and I  
6 know George Smith was aware of it. But I have no recollection  
7 of being aware of that at the time.

8 Q What about figures like 1,000 or 1200 or 1300 MR  
9 immediately over the stack? Were those the kinds of reading  
10 that you recall at all from Thursday?

11 A I don't recall being aware of them at the time,  
12 which I guess is your question. I am aware of that from  
13 looking back at the logs, but I do not recall being aware at  
14 that particular time, no.

15 Q From looking back at the logs, I think they show  
16 that there was one 3,000 figure.

17 A That's correct.

18 Q And were there some other figures that were around  
19 1,000, or only one other? Do you remember that?

20 A One other is my recollection. There was another one,  
21 which may be 1200. I am not sure now. But I think there was  
22 another one, 1,000 or more greater.

23 Q You don't recall there was any discussion of the  
24 fact that there were periodic releases during Thursday at the  
25 time?

1 A No, I do not.

2 Q Do you know what the route of information was for  
3 this radiological information from Unit 1 back to the incident  
4 response center? Who was getting these figures in Bethesda,  
5 if you know?

6 A The station, as I indicated, in Region I was manned  
7 by one of George Smith's inspectors. He assigned someone  
8 there. My understanding is that on the other end of the phone  
9 in Bethesda was someone from Jim Sniezek's division. I have  
10 heard from time to time Leo Higginbotham or Jack Metzger or  
11 Jay Cunningham; those individuals, maybe others, were in the  
12 incident response center.

13 The data were being reported to them.

14 Q We have been told in a previous deposition, I  
15 believe it is, that there was a request on Thursday evening  
16 to pull together all of the numbers for Thursday in some kind  
17 of a format and telecopy that to Bethesda. Did that happen  
18 when you were still there, or do you have any knowledge of  
19 that request?

20 A I don't have knowledge of the request. I have  
21 knowledge, from having looked back at the logs, that that  
22 information is all compiled. I believe it was compiled at the  
23 site by John Sirabian and faxed to Region I and subsequently  
24 to headquarters.

25 Q Was that a trend data or was that as it is now,

1 picture?

2 A Just a listing, is my recollection.

3 Q Of the readings for the day?

4 A Yes.

5 Q Do you remember -- you say that was compiled at the  
6 site originally?

7 A Yes, that is my impression.

8 Q And faxed to Region I?

9 A Yes.

10 Q Would that have been from the van? Did they have a  
11 telecopier machine?

12 A Maybe it was on the telephone. I don't believe we  
13 had a fax at the site at that time. We did have on Friday.  
14 I don't believe they had one on Thursday. So I guess I am  
15 wrong. So it must have been tabulated by telephone in  
16 Region I and then faxed to headquarters. Maybe that is the  
17 way.

18 Q I know we have these sheets of paper, but I don't  
19 happen to have seen them myself. Have you seen them?

20 A Yes.

21 Q How much paper is involved? Is this two or three  
22 pages?

23 A Yes. My recollection, it is -- I don't remember  
24 exactly, but it is several pages, yes. It is in the log  
25 sheets from -- from the radiological-environmental information.

1 Q Let me ask you some questions now about Friday  
2 morning, March 30th. When you came into the office, was there  
3 any conversation about the fact that there had been a 1200 MR  
4 release that you recall?

5 A Not that I recall, no.

6 Q So you don't recall anybody saying to you they have  
7 this release, they are doing this, they are doing that?

8 A No.

9 Q Do you remember when you came in on Friday, did you  
10 go to the incident response center?

11 A Yes.

12 Q And was there any new information conveyed to you  
13 at that time?

14 A Not anything particular that I recall.

15 Q So your impression was that, again, status was the  
16 same as it had been the night before?

17 A That's correct.

18 Q And then, I believe, you testified before that the  
19 first notion you had that something was out of the ordinary  
20 was when someone from the site called and asked whether the  
21 NRC had recommended evacuation. Is that right?

22 A Yes, that's correct. We began getting reports, and  
23 I believe they came from the mobile lab initially. They may  
24 have had a radio. They were hearing radio reports about  
25 evacuation. And about that time I got a call -- got a request

1 to call or to talk to Tom Gerusky from the State of  
2 Pennsylvania Bureau of Radiological Health. And he asked me  
3 if NRC was recommending evacuation or had recommended evacua-  
4 tion. I had received no such information from headquarters,  
5 so I could not confirm one way or the other, and I told him I  
6 would see what I could find out and call back.

7 So I attempted then to find out from headquarters. And  
8 specifically, I believe I talked to Norm Moseley, to inquire  
9 whether NRC was recommending investigation-- evacuation. He  
10 said, as I recall, that at that time there was some confusion,  
11 and he did not know what the position was. He would have to  
12 call me back.

13 Subsequently he did call back and confirm that the Chairman  
14 had recommended. I called Gerusky back with the confirmation,  
15 and he had gotten confirmation through his own channels in  
16 some way, I believe.

17 So we were not informed in the Region I center, the Region I  
18 center, in any way in any discussion of evacuation or recom-  
19 mendation.

20 Q Do you remember talking to whoever was in the  
21 incident response center and asking what this was all about,  
22 what could have given rise to it?

23 A I don't remember now whether I questioned that with  
24 Moseley or not specifically. We got the reports some way  
25 that the recommendation had gone directly to the Governor's



1 office by Doc Collins. So I think we were aware of that. But  
2 as far as any discussion or basis for it, I don't remember  
3 that there was any. I was not involved in any.

4 Q Was anybody in your incident response center in  
5 Region I aware of what might have triggered this?

6 A No, not that I know.

7 Q I believe it was Dr. Gallina who told us that he had  
8 some conversations with George Smith. Would Mr. Smith have  
9 been there that morning?

10 A Yes. My understanding of what Dr. Gallina's  
11 testimony is or has been is, when he came in on Thursday  
12 morning, he was aware of the discussion of evacuation from  
13 Met Ed operators. They were asking him what was going on, why  
14 was NRC recommending it. And Gallina was somewhat upset  
15 because he, in his view, did not see any change in the situa-  
16 tion and any basis for evacuation.

17 So he called the regional office to find out what was  
18 going on, and I guess talked to George Smith.

19 Q And Smith talked to you then?

20 A Or Smith may have gone to headquarters to try to  
21 find out independently of my going to Moseley. But yes, there  
22 was discussion, I think, of the question at the time.

23 Q It appears that both Dr. Gallina and Mr. Smith knew  
24 that there had been periodic releases the day before and knew  
25 what the numbers were, and they didn't see any particular

1 need to be concerned.

2 A. That's correct.

3 Q My question is whether they communicated that to you  
4 at the time, whether you were informed in Mr. Smith's or  
5 anybody else's trying to communicate this back to Bethesda  
6 saying, look, you guys don't know what is going on, this is  
7 not really anything different than what has been happening for  
8 the past day and a half. Do you remember any of those kinds  
9 of discussions with Bethesda?

10 A. No, I don't remember any particular discussions on  
11 that line. As I indicated, when I raised the question with  
12 Mr. Moseley, I didn't -- he was unable to confirm it, really,  
13 to give me any understanding of what was going on. I had the  
14 impression he was not involved with the decision.

15 Q So I think you say that you learned, then, from  
16 Moseley that the Chairman of the Commission had made a recom-  
17 mendation. What did you learn that that recommendation was?

18 A. As I recall, first the information was that the  
19 Chairman had recommended evacuation within five miles of the  
20 plant. Shortly thereafter, I believe my understanding was  
21 that that was changed to recommend evacuation of pregnant  
22 women and pre-school children. So I think my recollection is  
23 that I had -- first it was everybody, the evacuation of the  
24 five-mile radius, and then that was changed, modified to just  
25 pregnant women and pre-school children. But I don't remember

1 how long. I would say within less than a half-hour or so.

2 Q Did Region I or its inspectors on the site then have  
3 any role to play in assisting in that evacuation or advisory?

4 A No.

5 Q So there was nothing that you were then called upon  
6 to do when something like that happens?

7 A No.

8 Q In your conversations with Gerusky, what was his  
9 attitude toward this?

10 A Well, he was upset. And when I called him back to  
11 confirm that, yes, there had been a recommendation from NRC  
12 to this effect -- which, of course, as I indicated, he had  
13 become aware of -- his response to me was something like, yes,  
14 I know, the state is ordering evacuation to save face for  
15 NRC, words to that effect.

16 My understanding was he saw no reason for evacuation, but  
17 the state was acting because of the NRC's recommendation.

18 Q In this time period, did you ever hear or learn that  
19 the initial decision to recommend evacuation was a mistake or  
20 based on inaccurate information? I am talking about now just  
21 on Friday itself.

22 A No, I don't remember any particular discussion of  
23 that, no.

24 Q Did you or anyone else in Region I who you talked  
25 to on Friday have an understanding of the basis for the

1 evacuation advisory, whether it was current releases, feared  
2 releases, future problems, degradation of plant status, or  
3 what?

4 A No, I don't think we had any good understanding of  
5 that.

6 Q I think that afternoon you flew to the site with  
7 Mr. Smith, right?

8 A That's correct. I received information that a  
9 large group of NRC from headquarters was going to the site.  
10 My information came from Dudley Thompson, and I believe his  
11 instructions were that either my deputy, Mr. Allen, or myself  
12 should go to the site. It was my decision to go and to take  
13 George Smith.

14 We requested a helicopter to be there 2:00 o'clock Friday  
15 afternoon or so. The helicopter was late, and I believe we  
16 finally got off about 3:30 from the Region I parking lot. We  
17 stopped to refuel en route. So it was about 4:30 when we  
18 arrived at the site.

19 Q Did you have conversations that day or later with  
20 Mr. Smith about the chain of events that led up to the  
21 evacuation advisory?

22 A I don't recall that I did, no.

23 Q Do you remember him telling you about any conversa-  
24 tions he had with headquarters about, what is the need for  
25 this, what is the basis for this?

1           A           No. The only discussion I remember in the helicopter  
2 en route had to do with the bubble and some discussion and  
3 concern on Mr. Smith's part in that regard. But I don't  
4 remember that being associated with the evacuation recommenda-  
5 tion.

6           Q           What was his concern about the bubble specifically?

7           A           The discussion about the size of it, I think the  
8 release if the bubble should be released, was his concern. We  
9 had no discussion about explosion that I recall.

10          Q           When you say "released"?

11          A           Recognition that what we had estimated size at the  
12 time of something like 1500 cubic feet, as I recall, at  
13 2,000 pounds, and what this would mean at atmospheric pressure.

14          Q           If the system were depressurized.

15          A           Yes.

16          Q           Was there concern that the bubble would expand?

17          A           Yes.

18          Q           And prevent cooling?

19          A           I don't know that that was -- I think it was more  
20 on the line of the volume of gas that had to be dealt with if  
21 it should be depressurized and get out of the vessel. I  
22 remember that was the essence of our discussion.

23

24

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pv BWH 1 Q Now, when you arrived on site, the Denton team  
2 also arrived?

3 A Yes.

4 Q Friday afternoon?

5 A They were already there. They arrived earlier.  
6 That is correct.

7 Q And you attended a meeting about 6:00 o'clock in  
8 the house that belonged to Met Ed that had been turned over  
9 to Mr. Denton?

10 A That's correct.

11 Q And was that an NRC meeting?

12 A Yes. Denton had called everybody together  
13 essentially to see who was there, I think, and who was in  
14 charge, and the need to get organizational arrangements  
15 straightened out, some discussion by -- the status, I  
16 recall, of the plant, and really preparing Denton to go meet  
17 with the governor, which followed shortly thereafter.

18 Q So, the main purpose of that meeting, in addition  
19 to getting NRC people organized, was to get Denton as much  
20 information as possible?

21 A As to what was going on. Right.

22 Q Do you remember what kind of communications he had  
23 at that point, other than a telephone, in that house?

24 A The telephone is all I am aware of.

25 Q Were there any White House communications people

pv BWH 1 there?

2 A Not that I was aware. Now, what I can tell you,  
3 we were involved in -- my people -- were involved in getting  
4 the trailers set up. We had ordered a trailer -- I yru  
5 #recognized sometime earlier that we were going to need some  
6 facilities on site. The mobile lab which we had been using  
7 as the IE operations center, of course, is not equipped at  
8 all. The van is completely taken up with laboratory  
9 equipment.

10 So, my administrative officer, Mr. McOscar, had made  
11 contacts about a trailer to be set up for IE use, and had  
12 ordered a trailer that came from somewhere in the -- I was  
13 going to say the King-of-Prussia area, but I'm not sure; it  
14 might have been Lancaster. But the trailer had to be pulled  
15 over to the site.

16 When we got there, the -- there were arrangements being  
17 made through Met Ed for a number of trailers to accommodate  
18 all of the NRC people. The trailer that we had ordered  
19 arrived first, and was promptly commandeered as Denton's  
20 trailer, because -- I was not there, but it was described to  
21 me that somebody was waiting there with a "hot line" to the  
22 White House to put into that trailer. So the first trailer  
23 that arrived was set up as Denton's trailer.

24 I had two people from my safeguards branch who had gone  
25 over earlier in the day. They had taken the thermofax

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pv BWH 1 equipment and maybe other supplies, and they had gone from  
2 the office with the intent of returning to the office. But  
3 I asked them to stay and I used them to assist in making the  
4 administrative arrangements -- trailers and telephones and  
5 so on.

6 So, they were involved in this trailer being set up for  
7 Mr. Denton's trailer. And the "hot line" to the White  
8 House. And that time, I would guess, was after 6:00  
9 o'clock. I don't remember exactly, but sometime that  
10 evening there were trailers placed on site.

11 Q Then you remained on site directing the IE people  
12 for a fairly long period of time thereafter?

13 A Yes. We had gotten assistance from the other  
14 regional offices and had a number of people, perhaps the  
15 order of 50 or more, by that time, total. So, I was  
16 involved in setting up the organizational arrangements for  
17 the IE people, the shift manning, the trailer facilities,  
18 the communications facilities, that sort of thing, directing  
19 those activities.

20 I was there continuously until the weekend -- the  
21 following weekend, April 8 or so, and I was back home for  
22 about 24 hours and there for another week continuously, and  
23 then off and on since.

24 Q I take it, as of Saturday you had IE people in the  
25 control room, both control rooms?



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1           A           No, Unit 2 control room. We were essentially set  
2 up in three organizational units involved in the various  
3 activities. There was the reactor operations unit, which  
4 maintained an operations inspector -- at least one; I guess  
5 two later and maybe more, in the Unit 2 control room. And  
6 in-plant health physics effort which maintained the  
7 radiation specialist in the plant; and the environmental  
8 effort.

9           Now, George Smith was over both the environmental and the  
10 in-plant HP. We had a survey team collecting environmental  
11 data, and a group coordinating all of the data from the  
12 radiological assistance teams. The DOE effort. They were  
13 controlling the helicopter, airborne surveys. All of that  
14 was under the environmental group which was under  
15 George Smith.

16          Q           Did the IE trailer have a direct line to the Unit  
17 2 control room, or radio contact with the IE inspectors  
18 there?

19          A           It had a telephone line to the Unit 2 control  
20 room and radio communications with Unit 2 control room. We  
21 received assistance from the forestry service. They arrived  
22 on site sometime late -- late Friday -- with mobile radios,  
23 communication setup. And they set up in one part of the IE  
24 trailer and provided a communications service.

25          Q           Did NRR also have people in the Unit 2 control

pv BWH 1 room on a regular basis reporting to the NRR trailer?

2 A Yes, I believe so.

3 Q Do you know why the two separate organizations  
4 within the NRC each had to have its own watch and people  
5 communicating to its own trailer?

6 A No, I don't think there was very clear definition  
7 of the organizational responsibilities. Initially, there  
8 was some effort to integrate the organizations. Some of the  
9 IE people were involved in procedure review, for instance,  
10 or working directly with NRR people. But we also  
11 independently had the inspectors in the control room in the  
12 plant health physics area maintaining surveillance over what  
13 the licensee was doing.

14 At some point -- and I don't remember, but after a day or  
15 so, there, I set up clearly with my people that they were  
16 under NRR control. There should be a memorandum to that  
17 effect, to get the documentation that set up the watch,  
18 watch bill. They were to take their instructions from the  
19 senior NRR person on site.

20 But I don't -- I recognize, I think it is true that there  
21 was not ever a very clear definition of the -- I would say,  
22 first, the NRC role, and then the individual roles of NRR  
23 and IE.

24 Q Well, is this something that Mr. Denton set out to  
25 do at all in his first meeting on Friday or thereafter? I

pv BWH 1 guess my question is did he ever get the NRC supervisory  
2 people on site together and try to set up an organization  
3 saying you will do this, you will do that, and so forth?

4 A At the first meeting, there was instruction to  
5 Stello and Vollmer, as I recall, to set up the organization,  
6 and I worked with Vollmer initially in terms of supplying  
7 people and how things were to be set up.

8 Q Do you think a coherent organization ever got set  
9 up?

10 A I don't think so, strictly speaking.

11 Q Why do you think that didn't happen?

12 A I think there is difficulty in putting such an  
13 organization together on short notice. There are a lot of  
14 factors. The people didn't know each other very well. IE  
15 people, largely from regions, NRR people from headquarters.  
16 They, I think -- what you need under these circumstances is  
17 to have people in responsible positions that you have  
18 confidence in which you have built up over a period of time  
19 of dealing with them.

20 And because of our geographical separation -- and perhaps  
21 conflicts on particular problems that occurred during the  
22 routine events -- when you bring them together, it is  
23 difficult to get a coherent organization, in my view.

24 I think, to do something about it, we need to get more  
25 into a situation where it is day-to-day. For instance, what

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1 I mean is if the division of operating reactors, as it did  
2 exist, is to provide this licensing function in this sort of  
3 a situation, that maybe that ought to be the decentralized  
4 operation. They were in the regional office with the IE  
5 people, and if they worked together day to day, if the  
6 problems identified by IE were brought back to the regional  
7 office to an evaluation group that is right there, then,  
8 when you had an incident and they went out together to  
9 respond, I think it would be a coherent organization.

10 But as long as we are geographically separated and as long  
11 as we have channels to the commission that are separated, I  
12 question whether it is ever going to be a very effective  
13 organization.

14 MR. FRAMPTON: This is a good time to take a  
15 break.

16 (Brief recess.)

17 MR. FRAMPTON: Back on the record.

18 BY MR. FRAMPTON:

19 Q Mr. Grier, before we took a short recess, you were  
20 talking about the relationship between IE and NRR and the  
21 way those two offices looked into issues relating to  
22 operating reactors. How much telephone or face-to-face  
23 contact does an inspector or his supervisors, his branch  
24 chiefs, have with respect to a given plant with the person  
25 or people in the division of operating reactors of NRR which

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1 also has jurisdiction over that plant? Is there a lot of  
2 actual direct contact, or is there little or no such  
3 contact?

4 A I think it varies from facility to facility. But  
5 generally there is communication between the principal  
6 inspector or project inspector, as call them, with the  
7 licensing project manager in the division of operating  
8 reactors. The instructions that we have are that there  
9 should be communications for purposes of exchange of  
10 information.

11 But it involves a matter of establishing policy or  
12 decision that the communications then should be through  
13 channels. And our channels from the region are to IE  
14 headquarters. So, if there are problems identified, we  
15 forward them to IE headquarters for resolution and get  
16 through NR through that way.

17 But I think, between inspectors and licensing project  
18 managers, there is considerable communication. I have the  
19 impression that with the resident -- at the resident sites,  
20 there is more communication than there perhaps has been with  
21 the region-based program.

22 Q Do you think that the division of responsibility  
23 between the licensing side of it and the IE inspection side  
24 of it is clearly defined?

25 A In my mind, it is clearly defined. It is not

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1 always clear that the individuals who are carrying out the  
2 two functions always understand the division between  
3 responsibilities.

4 We have situations which concern IE of NRR people going  
5 to the site and, in effect, performing inspections which we,  
6 of course, object to, and, in fact, writing reports that you  
7 would find the author will say that he went on an inspection  
8 at this particular site, but those are not too common.

9 We have established procedures for inspectors in terms of  
10 inspections that they do and procedues to follow and  
11 enforcement action and corrective action. And I think we  
12 generally discipline our people to follow those procedures,  
13 and when representatives from other offices, in effect,  
14 seemed to be encroaching on the inspection and enforcement  
15 area, why, it causes us some concern.

16 Q What happens when an inspector identifies a  
17 potential design problem or a potential defect in a  
18 procedure at a particular plant? How does that get handled  
19 through I&E, and how does it get communicated, if at all, to  
20 the licensing project manager and DOR, and who is supposed  
21 to deal with that?

22 A Well, if it is a design problem identified by an  
23 inspector, it would be brought to the attention of the  
24 supervisor and the regional office section chief and then  
25 branch chief. And if it is of significance and needs prompt

pv BWH 1 resolution, the matter would be forwarded from the branch  
2 chief to the responsible headquarters IE office for  
3 resolution. For operating reactors, the division of reactor  
4 operations inspection. The resolution may come as a result  
5 of IE headquarters action response in a memorandum, or it  
6 may be forwarded to NRR for resolution, what we call a  
7 procedure for transfer of lead responsibility, and generally  
8 with design problems there would be transfer of lead  
9 responsibility.

10 That is a procedure that has been worked out between the  
11 two offices, which involves formal documentation of the  
12 problem and agreement to take the lead responsibility for  
13 transferring it from IE to NRR.

14 Now, you also asked about procedural problems. I think  
15 it depends on the level of the procedural problem. If an  
16 inspector identifies some deficiency with a procedure, you  
17 would call it to the attention of the licensee. If there is  
18 agreement to change the procedure, why that probably would  
19 not require further NRC action.

20 Now, all of the -- both in the case of the design problem  
21 or the procedural problem, the information is documented in  
22 the inspection report. Inspection reports are distributed,  
23 not only within NRC, meaning IE and NRR, but go to the  
24 public document room.

25 Again, if the procedural problem were of a significance

pv BWH 1 that could not be resolved with the licensee, it would  
2 follow essentially the same channel of coming back to IE  
3 headquarters and being transferred to NRR for resolution.

4 Q In your view, what would the advantages and  
5 disadvantages be to taking DOR and IE and combining them  
6 into one office that would be, in large part, decentralized?

7 A Well, I think --

8 Q Whether you called that a new office or called it  
9 putting DOR under I&E?

10 A I think there are advantages. One I mentioned, I  
11 would expect it to improve communications if the people  
12 worked closer together, and should improve resolution of  
13 problems, I think, on a more timely basis.

14 Let me say, first, I think you need a separation of the  
15 functions of licensing the design review, approval, and the  
16 inspection function of verifying that the licensee is  
17 meeting the requirements of the license. I believe you need  
18 the check and the balance.

19 But the way we are, with these functions going all the  
20 way to the commission before they really come together,  
21 there may be some problems. If you brought them together  
22 somewhere at a lower level, you might, I believe, improve.

23 For instance, we have the principal functions of  
24 standard-setting, licensing issuance and inspection. And  
25 those are separated all the way up. Now, you might put



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pv BWH 1 operating reactors together and have at least three  
2 functions in the division of whatever you call it, office of  
3 operating reactors. And then have the responsibility for  
4 operating reactors at a lower level, I would guess you would  
5 say. But whether you need the check and balance, the total  
6 function in NRC or whether you need -- whether it could not  
7 be done at a lower level, just operating reactors, is what I  
8 am trying to say, or reactors under construction or fuels  
9 and materials.

10 You could put all these functions, three functions, into  
11 a project organization, I guess, for the different types of  
12 licensees and still get your check and balance.

13 Q Do you think putting these functions, whether  
14 distinct or not, in one office for operating reactors would  
15 give you better oversight over operating reactors in total  
16 than the NRC provides now? On balance, would that be a good  
17 change?

18 A I think it probably would, yes.

19 Q Let me ask you some questions about whether there  
20 is any organized or regularized procedure for applying  
21 lessons learned in a particular incident in one plant to  
22 other plants of the same design.

23 What is the procedure, if there is any, or what is the  
24 customary practice when a project inspector identifies a  
25 change that has been made, let's say, at TMI-1, that he

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pv BWH 1 realizes has some implications for other Babcock & Wilcox  
2 plants of the same design? Whose responsibility is to see  
3 that that gets communicated to somebody, and how does that  
4 work in your understanding?

5 A Well, initially, you talked about response to an  
6 event, I guess. I think that is the best way to talk about  
7 it.

8 Q Perhaps we can take an example. The example of  
9 the March 29, 1978, event with the PORV at TMI-2 that caused  
10 them to change the circuitry so that it would fail shut.  
11 Now, insofar as that is a problem identified in that plant  
12 that perhaps ought to be communicated to other plants --  
13 namely, look at how your valve fails on loss of power -- how  
14 does that problem get flagged and communicated? Whose  
15 responsibility is it to see that somebody at another B&W  
16 plant, another utility and so forth, gets some information  
17 about that?

18 A Let me say, first, I think the principal response  
19 from the inspector is to the event at his facility. Now,  
20 within the region, to the extent that we are aware of a  
21 problem that has generic applications, then we are obligated  
22 to call that to the attention of headquarters and perhaps  
23 recommend some action. Now, we have the responsibility to  
24 look at other plants that we are aware of and see whether it  
25 has generic application and then call that to the attention

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pv BWH 1 of headquarters, recommend a bulletin or -- which is  
2 generally, I guess, our response to a generic problem on the  
3 short term. We may not always be able to make a  
4 determination in the region of generic applicability.

5 For instance, with respect to B&W specifically, Three  
6 Mile Island is the only B&W site we have in Region I. So,  
7 other than the problems as they applied to both Unit 1 and  
8 Unit 2 of Three Mile Island, we don't have any other  
9 facility to draw on.

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1 But the information is documented in PNs, if it reaches  
2 that level of significance, which go to all regional offices.  
3 It is documented in our daily reports, all matters that are  
4 subject to PNs, plus matters which don't reach the threshold  
5 of PNs, so that other regions are aware of what has happened.

6 Q I am thinking more of the kind of event that  
7 causes the licensee to do an analysis and to say, hey, we  
8 have to make a change some time afterwards, whether that is  
9 an event that caused an LER to be filed or not, but presumably  
10 an event at least of which the inspector becomes aware and  
11 hopefully becomes aware of what the licensee decided to do  
12 about it.

13 It is his responsibility then to communicate with his  
14 section chief and his branch chief on whether he views that  
15 as a generic problem that ought to get somebody's attention;  
16 is that fair to say?

17 A I think that's right. There has to be recognition  
18 on the part of the inspector or his section chief or someone  
19 in the office that this is a problem that needs to be consi-  
20 dered with respect to other plants. If there is not that  
21 recognition and if there is no basis for reporting it in the  
22 event report which receives distribution, it may not get  
23 distributed. It would be documented in an inspection report.

24 So that is the mechanism that the information would be  
25 available for anyone else. But I think, if you are talking

1 about some change that is not reportable as an event, then the  
2 only way that information is distributed is by the inspector  
3 in the inspection report.

4 Now, the other reporting mechanism that brings it to the  
5 attention of other organizations is 50.59 report. If a change  
6 is made under the part of the regulations, 10 CFR 50.59, which  
7 requires an annual report of changes that the licensee has  
8 made, then that brings the information to the attention of  
9 others. But if it is not the subject of a 50.59 report, then  
10 you have to depend on the inspector to recognize that it is  
11 a problem that needs attention.

12 BY MR. RIVENBARK:

13 Q But the 50.59 report isn't necessarily one that  
14 comes back to the headquarters, is it? Isn't the licensee  
15 under 50.59 allowed to make changes as long as he determines  
16 himself that it doesn't have a substantive bearing on safety?

17 A Doesn't represent a change in technical specifica-  
18 tions or unreviewed safety questions.

19 Q And under those conditions he doesn't have to submit  
20 a report, and the way that the -- that is, to the NRC -- that  
21 the inspector -- isn't it true that the inspector then looks  
22 over his books at the plant and then becomes aware of that,  
23 and if the inspector would agree that, yes, that is exempt  
24 under 50.59, that change, then the report would never come in?  
25 Is that a fair appraisal?

1           A           I would have to look at 50.59, George. But it is  
2 my impression right now that they still have to report the  
3 changes that they made under 50.59 in a report to NRC, but  
4 they don't justify it. It is the inspector that has to look  
5 at their evaluation of a particular change and the basis for  
6 their finding that they can make it. And if he does that and  
7 he doesn't identify any problem, then the only thing NRC  
8 would know from that report is that they have made the change.

9           Q           Do you know if that report he has to make is simply  
10 updating the FSAR at some interval?

11          A           I don't believe that is presently required. I think  
12 that was a proposal, that he be required periodically to  
13 update his FSAR by actually providing changes -- modified  
14 sheets, so that you have a current FSAR. But my impression is  
15 that that proposal never was approved.

16          Q           Whatever it is, it is something that we could check  
17 by simply reading the regulation.

18          A           Yes, right. And a proposed change in regulation as  
19 far as reporting details of the change, updating an FSAR, yes.

20          Q           Thank you.

21                      BY MR. FRAMPTON:

22          Q           I think what you said -- and correct me if I am  
23 wrong -- if the event is reportable, so that an LER gets sent  
24 in, or if the change appears in a log or the annual report  
25 under Section 50.59, then that is the kind of thing that would

1 get circulation within the NRC automatically. Other than  
2 those two types of things, if it is something that is not  
3 reportable, then you have to rely on the inspector picking it  
4 up on his inspection report and flagging it to the attention  
5 of his supervisors.

6 A That's correct.

7 Q What kinds of things is the inspector required,  
8 mandated to pick up on his inspection reports? For example,  
9 would any reactor trip, unplanned reactor trip, be something  
10 that the inspector would find an account of in a log and make  
11 a note of in his inspection report, even if the unit then came  
12 back on line in 30 minutes and it was an instrument electrical  
13 spike or an instrument failure of some minor kind?

14 A I don't believe there is any requirement that he  
15 put in his inspection report all reactor trips. If there were  
16 no problems, if everything worked according to design and  
17 procedure and the plant tripped and it returned to operation,  
18 that might not be recorded.

19 Q Is there a fairly --

20 A He is required to look at operating logs during  
21 the course of his inspection to see if there are any things  
22 like this. There may be problems that we are not aware of.  
23 But if there is no problem, it might not be recorded, no.

24 Q Does the IE manual or other documents define pretty  
25 closely what kinds of things the inspector is supposed to

1 make a note of, or is there a large amount of discretion there  
2 as a practical matter?

3 A There is considerable discretion. The IE manual  
4 and the inspection program gives guidance as to what he should  
5 look at. But as far as requirements for what he documents in  
6 his inspection report, I don't think it is that specific.

7 Q Do you think that this system is adequate to rely  
8 on either an LER or an inspector not only picking up something  
9 that happened, but the utility's response to it to flag  
10 potential generic problems up the line? I realize that the  
11 LER system is supposed to do this and is certainly very  
12 useful. But should there be some additional way of either  
13 requiring licensees or routinizing something within the NRC  
14 so that a change or a recognition of a problem that has  
15 implications for other plants gets sent to somebody who has  
16 the responsibility, primary responsibility for looking at  
17 that?

18 A It seems to me that you are asking whether or not  
19 the threshold for reporting is low enough, or is it too high?  
20 I think there are some problems with our having resources to  
21 deal with everything we get now.

22 Q I take it the present threshold for reporting of --  
23 for reportable events is pretty low, and part of the problem  
24 may be sorting the wheat from the chaff on even the LERs that  
25 you do receive?



1           A.       I think that's true. I guess I think we have to  
2 rely on licensees to -- we have to expect them to be responsi-  
3 ble in their reporting. I don't know how we can take on the  
4 full responsibility for assuring the NRC is informed. I  
5 think that our inspecting on a sampling basis to see if  
6 particular things are reported is really the way we should go.  
7 The only other alternative is to put inspectors on site around  
8 the clock, I suppose. I don't think that is called for,  
9 frankly.

10          Q        It is my understanding that after the transient at  
11 Davis-Besse in September of 1977, which was a reportable  
12 event, and the various follow-up efforts, that Toledo Edison  
13 actually instituted a new operator procedure there which  
14 flagged the problems that they had had, warned the operator  
15 about misleading pressurizer level, and cautioned him to be  
16 aware of the possibility of a stuck open valve. That is the  
17 kind of procedure, obviously, that might have had some impact  
18 on the course of the accident at TMI.

19                But that procedure, the desirability of that procedure,  
20 never got communicated, as far as we know, to anybody who  
21 would have said, we should let everybody else who has a B&W  
22 primary system in on this.

23                Now, why didn't that happen? Is there a way that -- is  
24 there some kind of administrative structure or requirement  
25 on the utility within the NRC that could make it more likely

1 that that sort of remedy adopted one place would be communi-  
2 cated to other people who could have the same kind of problem?  
3 Do you have any suggestions about that or thoughts about that?

4 A I think we do need, I guess, an organizational  
5 entity with specific responsibility for looking at operating  
6 information. I agree with that. I think it has not been  
7 clear who has had the responsibility for identifying generic  
8 problems.

9 I just don't know, with the particular problem you  
10 referred to at Davis-Besse, what attention that got within IE  
11 at the time. It seems to me now, in hindsight, it is the  
12 sort of thing that should have been the subject of a bulletin  
13 to all B&W licensees. Why it was not, I don't know.

14 Q Who makes the decision to send out a bulletin?

15 A Headquarters has that responsibility. We in the  
16 regions are charged with proposing -- charged with the  
17 responsibility for proposing bulletins whenever we identify  
18 an item that we think has generic implications.

19 Q Do you actually draft up --

20 A We draft a bulletin and forward it to headquarters.

21 On the other hand, headquarters also has that responsibility,  
22 with their broader view of a problem that comes in from a  
23 region, if they decide that it is of a generic nature, to  
24 initiate the bulletin on their own. Normally, they will draft  
25 a bulletin and circulate it to the regions for comment.

1 Q A bulletin, I take it, requires an affirmative  
2 response from the licensee that it has done something?

3 A That's correct.

4 Q And a notice only requires that they take action  
5 and document it internally?

6 A Yes.

7 Q And inspectors can check whether a notice has been  
8 acknowledged and something done or a decision made not to do  
9 something; is that right?

10 A Yes. We now have three types. There is also an  
11 information notice, which is purely sent for information and  
12 doesn't require any action.

13 Q Is that different from a circular?

14 A Yes. A circular --

15 Q Is just a newsletter?

16 A Yes. The information notice is really a newsletter  
17 or advance information. The intent is to have that as a  
18 mechanism for getting something out promptly but before you  
19 really evaluate it and determine whether or not action is  
20 required. You might expect an information notice to be  
21 followed with a bulletin after you have decided what has to  
22 be done.

23 So a bulletin requires positive response. A circular  
24 requires or recommends action, but doesn't require any  
25 response. And then the information notice is purely for

1 information.

2 Q I would like to ask you a few general questions  
3 about the inspection program overall. You are a person who  
4 has had an enormous amount of experience with supervising that  
5 process.

6 How do you evaluate the major strengths and major weaknesses  
7 of the inspection program? If you could single out one or  
8 two things it does basically well and one or two things it  
9 doesn't do as well as it should, or are problems or weaknesses,  
10 what would those things be?

11 A Well, I think the principal things from the  
12 standpoint of strengths is it gives an independent view of  
13 the licensee's operation, opportunity to go in and independently  
14 look at how things are going, which I think is important to  
15 NRC, and I think also important to the licensee. The licensee  
16 is required to have his quality assurance program, which in  
17 effect requires him to independently look at his own operation.  
18 But to have the NRC overview, I think, is important.

19 I don't know whether all licensees view it that way or not.  
20 But there are those, I think, who do.

21 From the standpoint of weaknesses, I guess I think we are  
22 not as effective as we ought to be in perhaps getting correc-  
23 tive actions on problems. We may not attach sufficient signi-  
24 ficance to a number of things and recognize their implications.  
25 I think we need more discipline in our program in terms of

1 evaluating results.

2 We tend to be too oriented to problems and flaps and  
3 responding to events. Recognizing the importance of resolving  
4 things that happen, but we need to not let that detract from  
5 continuing regular inspections, I think, that try to prevent  
6 problems rather than responding to them.

7 I don't know whether that has answered your question or  
8 not.

9 Q To a fairly substantial extent.

10 Is it fair to say that the inspection program is an audit  
11 program, that a substantial amount of the time is spent  
12 auditing the licensee's own books and records?

13 A Yes.

14 Q Is that a drawback to the inspection process?  
15 Whether or not it is realistic, do you think that you could  
16 have the manpower to do something quite different? How much  
17 do you think this is a drawback to really getting the base  
18 information?

19 A I don't think it is a big drawback if -- the  
20 problem comes in devoting too much time to records, if you  
21 will, I think, on the part of the inspector, rather than  
22 taking these independent -- making his independent observa-  
23 tions of what is going on. A program that is solely one of  
24 record review would not be acceptable, and I think there have  
25 been some difficulties in inspectors wanting to spend full

1 time in record review.

2 The inspector has to independently observe the licensee's  
3 operations and draw his own conclusions as to how things are  
4 going.

5 Q It sounded to me a moment ago as if you were  
6 saying that perhaps I&E ought to be more aggressive in  
7 actually requiring actions or changes to be made when soft  
8 spots are identified. I don't want to put words in your  
9 mouth, but I would like to pursue that with you a little, if  
10 you had specific areas in mind or specific programs or  
11 systems?

12 A No, I don't know that I have specifics. I just  
13 think, as a general matter, we identify problems during an  
14 inspection. We call these to the licensee's attention at  
15 the exit interview at the close of the inspection. The  
16 matters may not be significant enough to take formal enforce-  
17 ment action.

18 We perhaps then do not follow up as we should to ensure  
19 that a licensee's commitment to do something is done promptly  
20 and in a timely manner. I think there may be problems at a  
21 lower threshold that we don't give enough attention to, that  
22 don't warrant going to formal enforcement or civil penalty,  
23 that perhaps we need to give more attention to them, the lesser  
24 items.

25 Q Is there any procedure by which an inspector can

1 write orders for corrective action on the site and give the  
2 licensee a time deadline?

3 A No. The procedure goes like this. At the end of  
4 every inspection, the inspector sits down with the licensee  
5 management and discusses his findings and, where he is able,  
6 will point out items of noncompliance or matters that need  
7 resolution. I say where he is able because sometimes it may  
8 be that he needs to go back to the office or consult with his  
9 supervisor and evaluate the item before making a finding that  
10 it represents an item of noncompliance.

11 Now, during that meeting with the licensee, we expect some  
12 response on the part of management in terms of either the  
13 item will be corrected and a commitment as to when, or that  
14 they will consider it.

15 Now, after the inspector has had an opportunity to evaluate  
16 his inspection, write down his inspection report, and reviewed  
17 it with his supervisor, we then communicate formally with  
18 the licensee, a letter from the region office transmitting  
19 the inspection report and, if appropriate, forwarding the  
20 notice of violation, which will specifically identify items  
21 of noncompliance, and ask the licensee to respond specifically  
22 what he has done to correct it, when it will be corrected,  
23 and what he has done to prevent recurrence. That normally  
24 will be 20-day or 30-day response time from the licensee,  
25 that is, to respond to the notice.

1       So the inspector does not have the authority to issue an  
2 order or to establish a date. He does have responsibility to  
3 bring the item to the licensee's attention and to record any  
4 commitment that the licensee may make. But that is followed up  
5 by requiring the licensee to respond to a letter formally as  
6 to his corrective action and when it will be corrected.

7       Q       Under the Health and Safety Law of 1969, it is my  
8 understanding that an inspector who goes to a mine site  
9 ordinarily, when he sees items that he regards as items of  
10 noncompliance with the regulations, will write out in hand-  
11 writing an order, which is like a probable cause finding,  
12 and says -- describes what he has found and orders the  
13 licensee to fix it within a certain period of time -- two  
14 hours, eight hours, seven days, 30 days, whatever -- and  
15 in effect serves that order on the licensee by handing it to  
16 the fellow he has the exit interview with. And then a copy  
17 is later sent for record purposes to the licensee. And that  
18 is regarded as an order subject to appeal or requests for  
19 delay in time periods, of course, but an effective action,  
20 which requires the licensee to do something.

21       And then inspections are scheduled so that someone comes  
22 back and determines on an eyeball basis whether the deficiency  
23 has been corrected or not. So that the burden -- it is  
24 almost an ex parte proceeding.

25       The burden is then on the licensee to say: Wait a minute.

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1 We don't agree with this finding. We don't want to do any-  
2 thing about this; or to ask for a delay in the time period,  
3 which is very often granted.

4 Do you think that the experience and maturity of the  
5 inspectors involved in your inspection program and the nature  
6 of the kinds of items of noncompliance that are very often  
7 involved would make it possible to have that kind of a system  
8 implemented in inspecting reactors? And if so, would that  
9 be of any help? Would that improve the program?

10 A I think it is possible. We have had under discus-  
11 sion a procedure which would require the inspector to document  
12 his findings and give it to the licensee before he leaves the  
13 site. We call it 594. There is not full support for that  
14 procedure with IE.

15 Q What are thought to be the disadvantages or drawbacks  
16 to such a procedure?

17 A I think the principal objection in my office is  
18 the feeling that there needs to be supervisory review and  
19 that it gives the inspector too much authority on his own,  
20 if you will. Because I think one of the considerations is  
21 the NRC requirements -- I don't know anything about the mine  
22 safety requirements, whether they are very specific. But our  
23 requirements to a great extent require, I think, judgment to  
24 apply them.

25 They are not specific in terms of it either is or it isn't.

1 And to expect an individual on his own to make all of the  
2 judgments with respect to the items may be asking too much.  
3 If we get to the point of identifying essential requirements  
4 and writing them very clearly, so that there is no question  
5 about you are either in compliance or you are not in compli-  
6 ance, then maybe that is the time you can give the inspector  
7 that responsibility.

8 But we have in a number of areas difficulty deciding exactly  
9 what the requirement is. Every time something comes up, I  
10 think -- take requirements that relate to having programs,  
11 for instance, quality assurance programs or radiation protec-  
12 tion or security programs. The specific requirement is simply  
13 that the licensee have a program that meets these criteria and  
14 implement it.

15 Well, then, there has to be judgment made as to whether or  
16 not the program being implemented, I think, meets the  
17 criteria. And it is not -- there are a number of ways you  
18 can meet that criteria. And the inspector may have a prejudice  
19 that this is the only way you can do it. But that is not  
20 necessarily true.

21 So I think that the present state, as far as I am concerned,  
22 of requirements imposed on licensees, that it is difficult to  
23 say that an individual can make these decisions without some  
24 exercise in judgment and evaluation. It may be more than a  
25 single inspector ought to be obligated to do

1 BY MR. RIVENBARK:

2 Q Isn't the single inspector, though, in essence  
3 required to make just that same judgment at the time that he  
4 makes his initial review of their procedures and methods for  
5 implementing that, prior to giving them an operating license?  
6 Doesn't he determine ahead of time, on the basis of sampling  
7 what he has looked at, that the program is satisfactory in  
8 those same three areas?

9 A He does, yes, in terms of the overall program. But  
10 I think that is a little different from encountering a specific  
11 situation later, and then determining whether or not that  
12 really meets the criteria.

13 I don't know whether I can give a specific example of what  
14 I mean. But at the time you make the finding for issuance of  
15 the operating license, you are looking at an overall program  
16 meeting the criteria. But when you are dealing with a  
17 specific situation later, there may be some question of whether  
18 or not that meets the criteria.

19 BY MR. FRAMPTON:

20 Q What percentage of the time do you think inspectors  
21 are actually engaged in record review of one kind or another?

22 A I would guess it is about half the time. It varies  
23 from program to program, I think, because it depends on the  
24 type of activity that you are inspecting. I would guess it  
25 is about half.

1 Q Let me ask you about some specific types of inspec-  
2 tions. How does the -- how do you inspect the quality  
3 assurance program at a plant that is in normal operation? Is  
4 there any kind of a review or check to see that the program  
5 is operating the way it is supposed to be?

6 A In my view, there are two aspects of it: One, there  
7 are in-depth inspections just of the quality assurance program  
8 that are, according to IE manual, I think, an annual require-  
9 ment to look at least at part of it.

10 Q What does that kind of inspection involve? What  
11 does the inspector actually look at there?

12 A Taking a particular area of the quality assurance  
13 program and going in depth in terms of organizational require-  
14 ments of the program, procedural requirements, and see that  
15 they are being implemented.

16 Q Can you say basically what the quality assurance  
17 program is? What is it that the licensee is supposed to be  
18 doing? Is it that the licensee is supposed to be giving any  
19 kind of change or new procedure within a certain specified  
20 group of systems some kind of independent engineering review  
21 that determines whether that raises any safety problems? Is  
22 that basically what it is?

23 A That is a part of the quality assurance program.  
24 I think generally quality assurance -- well, Appendix B to  
25 Part 50 has 18 criteria for quality assurance. Those

1 criteria establish what should be encompassed within the  
2 program: generally, its organizational arrangements, proce-  
3 dures that cover certain things. In my understanding, not only  
4 the act of performing a particular function, but an independent  
5 check to see that that is performed properly. In other words,  
6 if you are going to perform a particular operation, you have  
7 to ensure that the procedure for that operation is proper.  
8 Now, you do that by going through, developing the technical  
9 aspects of it by people familiar with the function to be  
10 performed.

11 You have a quality assurance function that independently  
12 looks to see that that procedure was properly prepared.  
13 Then you follow the procedure to carry out the operation and  
14 you have some quality assurance check to see that it was  
15 carried out in accordance with the procedure. So these are  
16 the things.

17 It is a system of management controls to assure that all  
18 activities are properly carried out. That is what quality  
19 assurance is.

20 Q. How does the inspector inspect the program itself?

21 A. I want to differentiate, now, between the business  
22 of getting a job done and the quality assurance function.  
23 Annually, we look at the quality assurance function. That is,  
24 have they got these controls in place, have they got the  
25 organization, have they got the procedures, and are they

1 actually doing it by sampling it?

2 But the other point I wanted to make in getting back to --  
3 that is the in-depth part that is looked at at least once a  
4 year -- every time we look at an operation, we ought to also  
5 look at the quality assurance aspects of it. If we are looking  
6 at a maintenance activity, we ought to see -- we look at that  
7 particular activity, but we should also see that the quality  
8 assurance aspects of that particular activity have been  
9 fulfilled. So we are looking at a little part of quality  
10 assurance every time we inspect.

11 So there are the two aspects. Now, that is the part that  
12 I don't know has really gotten through to all of our inspectors.  
13 There are still those who view quality assurance as this  
14 separate thing over here that doesn't enter into everything  
15 day to day. That is, I think, where we have our problems.

16 I am not sure that the licensees understand it. They look  
17 to it to some extent, the quality assurance, as being this  
18 function and that function alone. It is a difficult concept  
19 to get through in some respects.

20 I think the problem has come -- quality assurance, the  
21 idea initially was applied largely to construction, where in  
22 building a plant you had the independent quality control  
23 check on what was done. There has been difficulty in apply-  
24 ing that concept to the operating plant when you talk about  
25 operations as opposed to activities like modifications or

1 maintenance, which may relate to a construction activity. It  
2 is easy, perhaps, to look at that sort of a thing under the  
3 quality assurance concept. But when you talk about operating  
4 a plant, the procedures to operate independent review of that  
5 operating activity, it is a difficult concept -- difficult  
6 for some people, I think, to understand.

7 Q When an inspector goes in to look at a piece of the  
8 quality assurance program itself --

9 A Yes.

10 Q -- what does he do? What does he look at?

11 A Let's take a particular part of it. Let's say  
12 design control. He will first look at what the program says  
13 about the licensee's system for design control. Then he will  
14 look at the organization, he will look at the procedures to  
15 carry out that program. And then he will go get some plant  
16 modification where there was a design change, and he will  
17 look at that record and see if all of the requirements of the  
18 program were followed.

19 Q One of the key things in the quality assurance  
20 program, I take it, is the determination that the program  
21 people ultimately make that a particular change or procedure  
22 does not involve any unresolved safety question and does not  
23 need to be reported to NRC.

24 A Yes.

25 Q And should be made, can be made.

1 To what extent do you think inspectors really look at  
2 whether those evaluations are documented substantively as to  
3 whether the licensee is really -- the quality of the decision  
4 or whether the licensee has really done an in-depth review  
5 of that subject, rather than just write down on a piece of  
6 paper, "no unresolved safety question," and put it in the  
7 file?

8 A. This is something we look at. As a matter of fact,  
9 I had a licensee in the office for an enforcement meeting  
10 this week, and that was one of the particular areas that we  
11 have concern about, because he was not justifying or evaluating  
12 his change. The inspectors had looked at it, identified it  
13 as a problem. We haven't gotten resolution. We called the  
14 licensee in and asked him what they are going to do.

15 So, yes, it is an area that we look at, now, not  
16 100 percent, but on a sampling basis to make sure that they  
17 have got the routine established for doing those evaluations.

18 Q. How do you inspect operating procedures and the  
19 actual performance of the operations? Can that be effectively  
20 inspected?

21 A. I think that is principally done during preopera-  
22 tional programs in preparation for operation.

23 Q. When you review all of the procedures that are  
24 being developed for operation?

25 A. Yes. And there we can, during the testing program,



1 observe their actual carrying out of certain of their  
2 procedures. But during routine operations, it is not easy  
3 to inspect their actual performance of procedures if there  
4 is nothing special going on.

5 Q Is there any periodic review by NRC of the validity  
6 of the procedures that are being used, procedures that have  
7 been previously approved?

8 A On a sampling basis, yes.

9 Q How is that done?

10 MR. FRAMPTON: Shall we take a five-minute break?,  
11 It is probably a good time to do it.

12 (Recess.)

13 MR. FRAMPTON: Back on the record.

14 BY MR. FRAMPTON:

15 Q Mr. Grier, there are a number of follow-up things  
16 that we want to ask you about, especially with respect to  
17 the inspection program generally. And I think in light of  
18 everybody's time schedule, that we will try to break in a  
19 minute. And perhaps those are some issues that George can  
20 follow up on with you when he has an opportunity to be up at  
21 Region I.

22 Before we break I would like to ask you a couple of  
23 specific questions with respect to Three Mile Island Unit 2  
24 and your impressions of that operation.

25 Did you have any impressions of the technical qualifications

1 of Metropolitan Edison-GPU relative to the average licensee  
2 over whom you have jurisdiction in Region I?

3 A. I think we considered Metropolitan Edison's Three  
4 Mile Island to be an average licensee. There were no parti-  
5 cular things that I am aware of which indicated they were out  
6 of the norm as far as technical qualifications go. In our  
7 dealings with them, they had been responsive to our concerns  
8 and we had not identified in any way that there were any  
9 problems.

10 Q. How about in terms of the support they were getting  
11 from B&W?

12 A. I had no indication that that was identified as a  
13 problem.

14 Q. And what about the support they were getting from  
15 their architect-engineer, Burns & Rowe? The company people  
16 were aware that they were having a lot of problems with the  
17 secondary side relative to the problems they had with Unit 1,  
18 and I guess that is primarily the design responsibility of  
19 Burns & Rowe. Was that something that was on the horizon at  
20 Region I at all?

21 A. No, not to my knowledge, not particularly.

22 Q. Do you know whether Region I had any knowledge or  
23 information about a notice from B&W to Met Ed that the  
24 pressurizer relief valve should be put on a preemptive  
25 maintenance schedule?

1 A Not that I know of.

2 Q We have received some information, not necessarily  
3 from Region I, that there are some inspectors who perceive  
4 that there really hasn't been an adequate response within IE  
5 to their concerns about a couple of areas that apparently  
6 keep popping up as weak spots. One of these is emergency  
7 planning; a second, the effectiveness of the utilities' QA  
8 programs; and a third is the requalification of operators,  
9 keeping operators up to date, up to speed.

10 Do you have any thoughts about the institutional responsive-  
11 ness of IE to these problems or the concerns that inspectors  
12 raise or have raised about these problems?

13 A In the quality assurance area, I know there have  
14 been continuing concerns, I think particularly in the area  
15 of upgrading programs to meet what is felt to be current  
16 criteria. guides that provide additional information on what  
17 is expected under 10 CFR Part 50, Appendix B. Of course,  
18 there were plants already in operation or in the licensing,  
19 in the process of being licensed for operation, when Appendix B  
20 was issued, and guidance that developed over the years follow-  
21 ing the issuance of Appendix B providing more detail as to  
22 what is expected in a program is continuing to come out. And  
23 concern -- I think the principal concern I am aware of on  
24 the part of inspectors was in getting licensee programs  
25 upgraded to meet current requirements, sort of a backfitting

1 operation.

2 Because some of the initial programs were approved without  
3 having the detailed guidance that now exists, and it was  
4 difficult to get licensees to upgrade their programs if they  
5 weren't required to. So I think that is the area that caused  
6 considerable concern on the part of inspectors.

7 Emergency planning, I guess generally I am not sure that  
8 I am aware of any specific concerns in the emergency planning  
9 area.

10 What was the third area?

11 Q Regualification of operators.

12 A Yes. That, I think, has been an area of concern  
13 for inspectors, because the role of the IE inspector in that  
14 doesn't satisfy a lot of people. We have had, I would say,  
15 some proble with the Operator Licensing Branch in terms of  
16 what is the role of the IE inspector. And it was rather  
17 narrowly then defined in terms of simply verifying that a  
18 licensee was carrying out the training program for requalifi-  
19 cation.

20 We have no function in terms of approving the program or  
21 of examining operators. Maybe this is an opportunity for  
22 me to say that I think that is an area that needs reexamina-  
23 tion in terms of assignment of responsibilities.

24 You do have within a single office the examination of the  
25 requirements, the examination of the single issue, and I

1 question whether you have the check and balance in that par-  
2 ticular area that may be needed.

3 Q One last question: To what extent are non-safety-  
4 related systems inspected as a customary matter? For example,  
5 the condensate polisher system that was the initiating system  
6 in the TMI accident; what kind of inspection, if any, would  
7 that system or maintenance procedures on it or changes in it  
8 get from NRC IE inspectors?

9 A Probably not any, so far as I am aware.

10 MR. FRAMPTON: Off the record.

11 (Discussion off the record.)

12 MR. FRAMPTON: Back on the record.

13 BY MR. FRAMPTON:

14 Q If it is agreeable to you, we will just adjourn  
15 the deposition. And if there are other items that George wants  
16 to cover with you, he could try to do that when he is up at  
17 Region I interviewing the other people from your office that  
18 we want to talk to before the end of our inquiry.

19 Thank you very much for your time and your cooperation.

20 A Yes, sir.

21 (Whereupon, at 12:00 noon, the taking of the  
22 instant deposition was adjourned.)

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