

July 10, 1985

Mr. Edward R. Frederick  
2141 Schoolhouse Road  
Middletown, Pennsylvania 17057

Dear Mr. Frederick:

On June 20, 1985, you were sent a letter from Harold R. Denton resolving the "Change in Operator Testimony" issue discussed in NUREG-0680, Supplement 5. Enclosures 2 and 3 to the letter (transcripts of interviews with you and Mr. Faust) were inadvertently omitted from the letter. Copies of these transcripts are enclosed.

Sincerely,

*15/*  
William T. Russell, Acting Director  
Division of Human Factors Safety  
Office of Nuclear Reactor Regulation

Enclosures:  
As stated

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Three Mile Island Nuclear Station,  
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-1-

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ORIGINAL

UNITED STATES  
NUCLEAR REGULATORY COMMISSION

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IN THE MATTER OF:  
INVESTIGATIVE INTERVIEW

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1 UNITED STATES OF AMERICA  
2 NUCLEAR REGULATORY COMMISSION

3  
4 INVESTIGATIVE INTERVIEW

5 OF

6 CRAIG C. FAUST  
7

8 Killian & Gephart  
9 216-218 Pine Street  
Harrisburg, Pennsylvania

10 Wednesday, January 30, 1985  
11

12 The Investigative Interview of CRAIG C. FAUST  
13 commenced, pursuant to notice, at 12:18 p.m.

14 BEFORE:

15 William T. Russell, Deputy Director  
16 Division of Human Factors Safety  
Office of Nuclear Reactor Regulation  
17 U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

18 Robert A. Capra, Senior Program Manager  
19 Staff of Executive Director for Operations  
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P R O C E E D I N G S

(12:18 p.m.)

MR. RUSSELL: I have asked that a second transcript be started. The date is January 30th. The time is 12:18.

By way of opening this, I would like to read a statement from NUREG 680, Supplement 5, concerning the change in operator testimony during the GPU versus B&W law suit trial.

This statement is on page 11-8. The Office of Investigations -- Investigation, identified conflicting testimony and statements by Frederick concerning his involvement in the inclusion of HPI actuation at 0541 in the Licensees sequence of events.

Whether Frederick was silent and never challenged the inclusion of HPI actuation at 0541, as he testified during the OI investigation and trial, or whether he insisted on including HPI actuation at 0541, as circumstantial evidence and testimony of others indicates, cannot be resolved on the basis of evidence developed by OI to date.

You were on Mr. Frederick's shift on the day of the accident, when the concerns with respect to an 0541 HPI actuation would have occurred, if it did.

We have reason to believe that that is an extremely unlikely event, based upon a very detailed

1 reconstruction after the fact, which we also documented in  
2 this report.

3 There were studies by GPU, studies by B&W,  
4 for GPU. There were independent studies done by NRC  
5 consultants, and by the NRC. Our conclusion was that if it  
6 did occur, it only occurred for an extremely short period  
7 of time, and based upon everything we have seen, we even think  
8 a short full manual high pressure injection actuation was  
9 extremely unlikely.

10 What I would like to do now is to walk through  
11 the exhibits, and some of the statements which resulted in that  
12 particular event being included to get your comment to attempt  
13 to resolve the apparent conflict in testimony concerning Mr.  
14 Frederick.

15 MR. CAPRA: Do understand that we are not trying  
16 to go back and revisit the issue of whether, in fact, there  
17 was or was not HPI actuation at 0541. What we are trying to  
18 clear up is the role that Mr. Frederick played in the initial  
19 inclusion of that in the sequence of events. When you thought  
20 that that occurred. Do you understand?

21 WITNESS: Yes.

22 MR. CAPRA: Let me give you something first that  
23 might help as we follow along. Everything I am going to show  
24 you has come out of the OI investigation of operator change  
25 in testimony.

1           There are many exhibits in here. So, to help  
2 us walk through some of these -- I don't intend to go through  
3 all of them, and give you essentially a chronological listing  
4 of exhibits that appear in this particular report. Chronological  
5 meaning chronological on the date that they happened, or the  
6 date of the exhibit itself.

7           You start at the very top. This happens to show  
8 the exhibit number also. With some of the original documents  
9 that caused the inclusion of the 0541 HPI actuation into the  
10 sequence of events. And then later on, beginning I believe  
11 with Exhibit 44, the rest of those exhibits are all statements  
12 of people taken during the investigation itself, about what they  
13 knew about the sequence of things that had happened to try to  
14 resolve the issue of whether or not there was any undue  
15 influence on you gentlemen, either the B&W litigation, to try  
16 to get -- to induce you to change your mind about the HPI  
17 actuation after it became an issue.

18           The thing that I have not included in here, which  
19 is on a separate sheet, is -- this is a chronological listing  
20 of the exhibits that involved Mr. Zewe, yourself, and Mr.  
21 Frederick as far as statements and when they were made.

22           For example, in the OI Report, there are exhibits  
23 which -- beginning on April 21st 1979, where you made statements  
24 to Mr. Marsh, Mr. Hunter, and Mr. Jackson, who were members of  
25 the I&E TMI investigation team, and there were some statements

1 that you made on September 19, 1979, in a taped interview  
2 before Mr. Keaton.

3 Then there are some excerpts from your deposition  
4 associated with the GPU versus B&W law suit, and then finally,  
5 there is your OI interview on May 9th, 1984, regarding this  
6 particular investigation report.

7 MR. RUSSELL: I would like to include into the  
8 record at this point that the Staff did conclude in NUREG 0680,  
9 Supplement 5, that there was not improper influence on the  
10 part of the Company to influence operators to change their  
11 testimony.

12 MR. CAPRA: The first exhibit I want to show  
13 you happens to be from the B&W litigation that was marked  
14 B&W Exhibit 283, which is an excerpt from the annotated  
15 sequence of events dated May 10th, 1979, Revision 0.

16 And I think you testified that the handwriting  
17 up there fully initiated HPI was, in fact, your handwriting.

18 WITNESS: Right. It looks like my printing.

19 MR. CAPRA: Let me go through some of these  
20 first. The next exhibit is B&W Exhibit 666, which is a  
21 memorandum from Gary Miller to the data reduction group,  
22 care of Tom Van Witbeck, dated May 21st 1979, in which he  
23 said that the comments contained in this particular document  
24 were comments that were generated as a result of PORC meeting,  
25 that is P-O-R-C -- PORC meetings that were held on May 14th,

1 16th and 17th, 1979, in which the document showed that PORC  
2 attendees, among others, were yourself, Mr. Frederick, and Mr.  
3 Zewe.

4 And this particular document shows that as a  
5 result of the PORC meeting, there was an event that was added  
6 to the sequence of events. It is written in here. I am not  
7 sure how you pronounce his name, 'Bezilla?'

8 By Mr. Bezilla, the PORC secretary. Operators  
9 manually initiated full HPI.

10 WITNESS: These are just his notes.

11 MR. CAPRA: They are his notes, but as PORC  
12 secretary. That is just an excerpt of what was submitted under  
13 a cover memo from Mr. Miller.

14 If you recall, these PORC meetings -- the purpose  
15 of the meeting was to go over with individuals, including the  
16 operating staff, the sequence of events that had been generated  
17 by Mr. Van Witbeck's team, is that correct?

18 WITNESS: Yes.

19 MR. CAPRA: The next exhibit is B&W 689, which  
20 again is an extract of the sequence of events. This one  
21 happens to be Revision 1, dated -- I believe it is July 16,  
22 1979. July 14, 1979. It was determined during the investigation  
23 that the particular comments that were made on this annotated  
24 sequence of events were the comments of Bob Long, and beside  
25 the entry where it says, 'operators manually initiated high



1 pressure injection,' again we are talking about the same time  
2 period. In Mr. Long's handwriting there is: 'Zewe, Faust and  
3 Frederick insists this is the case.'

4 WITNESS: All right.

5 MR. CAPRA: Again, Mr. Long has testified those  
6 comments -- the handwriting is his.

7 WITNESS: Sounds like the flow going up hill right  
8 now .

9 MR. CAPRA: Pardon?

10 WITNESS: I shouldn't have said that. I just  
11 said it sounds like the flow is going up hill right now.

12 MR. CAPRA: Okay. Again, this is another memo  
13 from Gary Miller, which is dated July 13, 1979. It is  
14 identified as B&W Exhibit 754 or 759, I am not positive.

15 Again, it is a copy of the annotated sequence of  
16 events, Revision 1, the same copy that we just looked at that  
17 belonged to Mr. Long, only Mr. Zewe has testified that the  
18 comments made on this particular document are his. And his  
19 comments show he has written in here, because it was not  
20 included: '1:40 - 45,' -- which is the time after the  
21 accident occurred, not clock time -- 'operators manually  
22 initiated full HPI prior to tripping pumps.' W. Zewe. And  
23 then in parenthesis, it says: Previously comment.

24 Implied that he had made that comment before.

25 WITNESS: All right.

1 MR. CAPRA: And it was not included.

2 WITNESS: Okay.

3 MR. CAPRA: Now, this is a copy of the final  
4 technical data report that was submitted to the NRC, which  
5 forwarded the final version of the annotated sequence of  
6 events, the release date of this particular document was  
7 February 6, 1981.

8 On page 41 of this document, it shows that  
9 at 0141, or 0541 clock time, operators manually initiated  
10 the safety injection portion of engineered safety feature  
11 trains A and B, to supply additional cooling water to the  
12 reactor core.

13 It goes on after that. But that is the portion  
14 I wanted for you to look at. Now, in the right hand column  
15 it indicates the source by which all this material was  
16 included in the sequence of events. It lists as reference  
17 why this particular item was entered into the sequence.

18 It lists reference 7, 8-D, and 9-D. You can  
19 go back and look at the list of references that have been  
20 included here.

21 Reference 7 is a memo from Mr. Van Witbeck  
22 regarding TMI-2 operating staff, PORC comments -- there is  
23 a whole punched right through the word I am trying to read, so  
24 I am not sure exactly what it says, but essentially Mr. Van  
25 Whitbeck has testified that he wrote a memo after the PORC

1 minutes himself, in which comments were included.

2 That memo itself has never been retrieved, to  
3 the best of my knowledge. At least it wasn't during this  
4 investigation. We were never able to come up with a copy  
5 of that memo. So one of the references is not available.

6 The other references that were used are  
7 reference 8.D and 9.D. 8.D is an interview of Ed Frederick,  
8 dated March 30, 1979, and April 6, 1979. They are two  
9 separate interviews.

10 And reference 9.D is an interview with Ed  
11 Frederick dated April 23rd, 1979.

12 WITNESS: Okay.

13 MR. CAPRA: Are any of these documents that  
14 I have just shown you that you haven't seen before?

15 WITNESS: I don't remember. He didn't list it --

16 MR. CAPRA: You mean the references?

17 WITNESS: Yeah.

18 MR. CAPRA: Do you agree that is what it says?

19 WITNESS: All it is doing is doing what I  
20 initially started. I thought HPI injection occurred at that  
21 point, and I wanted it in there -- not only I -- but I feel  
22 like I am the guy that initiated it, wanted it in there.  
23 And Bill was following it up.

24 MR. CAPRA: Okay. What we have just gone over  
25 is, to the best of our knowledge, the only written record

1 associated with how this particular item was incorporated  
2 into the sequence of events. Notes from people who participated  
3 in meetings.

4 There is subsequently a voluminous amount of  
5 testimony about those same few exhibits. And the purpose of  
6 going through the exhibits was to get that on the record  
7 so that we can now discuss some of the background on them.

8 WITNESS: Okay. Do you want me to go through  
9 any of Bill Zewe's testimony?

10 MR. CAPRA: No. This is a -- I gave you a  
11 copy of various -- chronological listing of your testimony.  
12 What this is is a summary of -- that I prepared of your  
13 testimony associated with all of these particular documents.

14 If we start at the very beginning with the first  
15 interview that covered this subject matter, it was on  
16 April 21st 1979, with the I&E investigation team; Mr. Marsh,  
17 Hunter, and Jackson.

18 If we look at page 48 and 49, which I will show  
19 you in just a minute, okay, you make a statement -- this is  
20 from: 'Something else I would like to emphasize is that  
21 just prior to stopping those pumps, we did reinitiate -- we  
22 hit high pressure injection just prior to stopping the pumps.

23 I don't know if that was brought up before. It  
24 should be, though.'

25 Do you recall that particular statement?

1 WITNESS: I have seen it before. I mean, it is  
2 familiar to me, yes.

3 MR. CAPRA: Then again, on pages 50 and 51, you  
4 say -- again indicated that -- again you indicated that they  
5 manually initiated ESS safety injection at a thousand gallons  
6 per minute; 250 gallons per loop. I think you have there  
7 page 50.

8 I think you make the statement here the reason  
9 for the initiation was that you had voids in the loops, and  
10 you were trying to establish natural circulation.

11 WITNESS: This is a later one, right?

12 MR. CAPRA: Pardon me? No, this is the same  
13 interview.

14 MR. RUSSELL: This is the April 21, '79 interview.

15 WITNESS: This is where I am saying I was using --  
16 when I say, 'voids,' I don't think I was actually using that  
17 term back before the accident.

18 MR. CAPRA: I understand that. You have testified  
19 to that, and I think we will cover it later that that was not  
20 a term that was in your vocabulary at the time of the accident.  
21 That it was a term that was picked up and utilized by yourself,  
22 the NRC, and everybody else after the accident.

23 MR. RUSSELL: It is, however, prior to the PORC  
24 meeting.

25 WITNESS: Right. This one is.

1 MR. RUSSELL: That is correct.

2 WITNESS: I need to be --

3 MR. RUSSELL: We are going over in great detail  
4 the chronological development of this. It is important to get  
5 them in the right time frame, at least as I have read the  
6 various investigations and other information. We are somewhat  
7 setting the stage right now, so if it takes us a while to get  
8 through it, bear with us. We will shortly be to the new  
9 questions.

10 WITNESS: Okay.

11 MR. CAPRA: Also on this particular interview, you  
12 state that Mr. Frederick initiated HPI, while Faust tripped  
13 the pumps.

14 WITNESS: Okay. You want me to expound on that,  
15 do you? You have to watch what I am saying here. When I  
16 say I 'tripped the pumps,' I took two of the pumps off, the  
17 first two.

18 MR. RUSSELL: Understand that.

19 MR. CAPRA: I think that will come out later. If  
20 you want to clarify that --

21 WITNESS: I was just wondering if you were going  
22 to ask or not. It might be something to get on more what I  
23 actually did, because I was talking rather as a group at times  
24 -- for a group, instead of myself.

25 MR. CAPRA: Much of these interviews are also

1 confusing because there was no sequence of events that I am  
2 aware of that you had in front of you, and you will find that  
3 not just yourself, but Mr. Zewe and Mr. Frederick, in going  
4 through this, periods of time are jumped, things are out of  
5 sequence.

6 You may be talking about turning off the last  
7 two set of pumps, yet in the previous paragraph you may have  
8 been talking about closing the block valve.

9 It doesn't necessarily follow that the questions  
10 are in chronological order. Do you want to give me that back?

11 (Witness hands document to Mr. Capra.)

12 The next place where you made a statement  
13 associated with this topic is in your interview with Mr.  
14 Keaten, and others. It is part of his investigation of the  
15 accident.

16 On page 51 and 52. The gist of your statement  
17 there is that you could not recall for sure whether there was  
18 a countdown. However, you remembered some sort of sequence  
19 to turning off the last two pumps after high pressure injection  
20 was initiated.

21 WITNESS: Right.

22 MR. CAPRA: And the next thing is your deposition  
23 for the GPU-B&W law suit which took place -- parts that we  
24 are going to talk about in August -- August 19, 21st, and 24th,  
25 1982.



1 Pages 525 through 527. As a matter of fact, I  
2 will just give you this whole thing.

3 (Mr. Capra passes document to witness)

4 If you look at pages 525 through 527 --

5 WITNESS: 525?

6 MR. CAPRA: Yes. Keep going.

7 MR. RUSSELL: They are generally highlighted  
8 in yellow. Let me read to you first what I got out of reading  
9 that particular portion of the deposition, and you can say  
10 whether that is correct or not.

11 Basically in those pages, you recall that HPI  
12 was actuated before the pumps were taken off, and we are talking  
13 about a short period of time. Essentially at the same time,  
14 but that HPI was actuated and then the pumps were tripped.

15 That you didn't physically do it. That it was  
16 something that you remembered hearing as being done, or going  
17 to be done. That you didn't really know whether it was actually  
18 done or was not done.

19 You just remembered before the pumps were turned  
20 off something about HPI being initiated.

21 I believe you say later in here that you were not  
22 at the portion of the control room panels where you initiate  
23 HPI, and you are not the individual that tripped the pumps. That  
24 you were on the feed station at the time, or feeding up the  
25 steam generators.

1                    WITNESS: Right.

2                    MR. CAPRA: Now, on page 529, you do state that  
3 you do recall HPI being initiated prior to the pumps being  
4 shut off.

5                    Again, they are asking for your recall.

6                    WITNESS: I have been saying -- that is what  
7 I was saying all along. I felt -- I was telling from my  
8 point of view the whole picture, if you want. What I thought  
9 took place.

10                   MR. CAPRA: Then, on page 536, and I think this  
11 is where you were questioned about were you influenced at all  
12 in your thinking, or your recollection, by things that you  
13 learned after the accident.

14                   I believe you say there that it is quite possible.  
15 Mr. Zewe was asked a very similar question, and gave a very  
16 similar response.

17                   On page 549 through 550, you talk about the fact  
18 that you didn't agree with the reactor coolant pumps being  
19 shut off at the time, but Mr. Zewe did give the order.

20                   And that is essentially the gist of your  
21 testimony up through the GPU-B&W law suit with respect to this  
22 particular issue.

23                   WITNESS: That is right.

24                   MR. CAPRA: And then you were interviewed the  
25 next set of testimony -- your OI interview with Mr. Norton and

1 Mr. Letts.

2 Again, more words about the same documents that  
3 we have just reviewed. I will read you my summary of what  
4 you said in this particular interview. You can follow along  
5 either in the document, or again, the summary put together  
6 there.

7 On page 6, you said that you felt HPI was  
8 initiated at 0541. However, he doesn't know if it was  
9 initiated either by actually manually pushing the button to  
10 reinstate it, or whether the operators just physically opened  
11 back up on the 16 valves. In other words, unthrottled the  
12 flow. When I say, 'he' here, I mean you.

13 WITNESS: Right.

14 MR. CAPRA: On page 7, you stated that you  
15 believe you were the first individual to bring it up. You  
16 brought it up at the PORC meeting.

17 I have a question mark here because when I was  
18 preparing this I was going through it chronologically; later  
19 on in the interview you do state that is where you believe  
20 that you first brought it up.

21 WITNESS: I don't know for a fact that that is the  
22 first time it was ever brought up.

23 MR. CAPRA: You were questioned about that later  
24 also, okay? You brought it up at least to yourself in  
25 preparation for the PORC meeting, because you had made comments

1 that manually initiated HPI, on one of the exhibits we showed  
2 you earlier -- unless you wrote it at the PORC meeting. You  
3 could have done that also.

4 WITNESS: What I was getting at on that, it is  
5 possible -- I get the feeling I was the first guy to bring it  
6 up. I think I might have put it in everybody's mind. It  
7 could have been in like an interview -- three or four of  
8 us were together with the NRC, I mean right after the  
9 accident, in a room like. I don't know who the guys were,  
10 NRC representatives, but it might even have been in that  
11 time frame.

12 MR. RUSSELL: Was that the April 21st interview  
13 with Mr. Marsh, Hunter and Jackson that you are talking about  
14 now?

15 WITNESS: It might have been, yes.

16 MR. CAPRA: You just said right after the  
17 accident. Maybe within a few days -- this is three weeks or  
18 so after the accident. Does that sound familiar?

19 WITNESS: Well, after three weeks. That is  
20 what I meant. Close.

21 MR. CAPRA: Later in the interview, this is  
22 where you identify one of the exhibits I showed you earlier,  
23 B&W 283, as containing your comments, where it says: Fully  
24 initiated HPI, and that it was your printing or your hand-  
25 writing on that particular document.

1 And you make a statement that when you wrote  
2 that in you weren't really referencing any particular time.  
3 You recall HPI being initiated -- being associated with  
4 turning off the reactor coolant pumps.

5 WITNESS: Right.

6 MR. CAPRA: You go on to state on page 13 and  
7 14 that you believe that Mr. Frederick would have been the  
8 one that initiated HPI, if it was initiated. It was your  
9 function at the time of heating up the steam generators.  
10 There was some discussion about who tripped the pumps, and  
11 you said that you shut off two of the pumps, but you didn't  
12 shut off the last two. And that is where you believe that  
13 Mr. Scheimann was the individual that turned off the pumps.  
14 You turned off the first two, he turned off the second two.

15 WITNESS: Right.

16 MR. CAPRA: On page 14, you say Faust, and  
17 Frederick and Zewe were present at the time he brought it up,  
18 meaning the HPI actuation. That you could not recall the  
19 reaction. You believe that they agreed at the time. Okay?

20 The time period you are talking about here is  
21 when you brought it up at the PORC meeting.

22 WITNESS: Did I bring it up, or did Bill bring  
23 it up? I made it known to Bill, and Bill sort of emphasized  
24 it at the PORC meeting, just to get it into the sequence.

25 MR. CAPRA: Why don't you turn to page 14 and



1 you can take a look at it in context.

2 MR. VOIGT: I think the problem here is this  
3 particular portion doesn't reference the PORC meeting.

4 WITNESS: It sounds like they were just asking  
5 -- he was trying to determine whether we all agreed really  
6 strongly or not. I just remember bringing it up. And that  
7 nobody disagreed necessarily with me, but Bill had made it  
8 sort of like a point that if one of us thought of something,  
9 we get it into the sequence of events and worry about it  
10 later on.

11 MR. RUSSELL: This time frame now is actually  
12 at the PORC meeting, or is this a discussion you had prior  
13 to the PORC meeting?

14 WITNESS: Well, this would have been like prior  
15 to the PORC meeting, because when we were trying to get  
16 everything down that we could think of -- the PORC meeting  
17 was like the first sequence of events that came up.

18 So, the idea was to get whatever we thought  
19 might fit in there, should fit in there at different points,  
20 when any of us thought something occurred, to get it in there.

21 That is why I am saying Ed didn't necessarily --  
22 I don't remember him coming out and saying yes, I definitely  
23 agree with you on that , that it happened like that. He  
24 just didn't disagree.

25 MR. RUSSELL: Could you give me a feel for the

1 context at the time of your rationale for when you would  
2 include something, or when you would exclude something  
3 from the sequence of events.

4 WITNESS: Could be any time.

5 MR. RUSSELL: Let me clarify the question.

6 If an individual thought something occurred, would the tendency  
7 be for the three of you to incorporate it into the sequence  
8 of events, or was this something that you discussed, unanimously  
9 agreed on before you would insist upon it being incorporated,  
10 or what was the -- the approach at the time. Were you  
11 conservative, for example? If one of you thought something  
12 happened, you put it in, and let somebody else worry about  
13 taking it out later if it was needed? What was happening at  
14 the time?

15 WITNESS: That was the idea. To get it on  
16 paper, if you want, and then worry about taking it off later  
17 on if it wasn't right. Something proved or disproved it to  
18 be otherwise.

19 MR. VOIGT: So you are saying if any one person  
20 recalled something, then that would be included?

21 WITNESS: Right. I can't give examples. This  
22 is the main example. This is the first one I really got  
23 heavily criticized on, whether it actually happened or  
24 didn't.

25 MR. RUSSELL: Do you recall any discussion between



1   Zewe, yourself, and Frederick, and possibly Scheimann, with  
2   respect to this HPI actuation at the time you turned off the  
3   last two pumps? Was this an issue that you discussed for  
4   any period of time?

5                   WITNESS: Well, it wasn't a big issue. It  
6   wasn't something that we -- I can't say we discussed in that  
7   sense. It was just something, all right, if you think it  
8   happened and you feel strongly that it happened, we will get  
9   it into the sequence of events, and then worry about it.  
10   That was like the attitude that we felt. Not just you --  
11   I am just saying between us. The way I remember it is that  
12   I brought it up in one of the earlier depositions -- not  
13   depositions, excuse me, in one of the earlier interviews.  
14   I said didn't this happen at this time? I feel strongly that  
15   we initiated high pressure injection at this time, right  
16   around when we took the pumps off.

17                   I can only remember Bill and Fred -- or Ed being  
18   there. I can't remember Fred. And it was just, Bill said  
19   basically, maybe we did do that, and he picked up with me on  
20   it, and Ed didn't disagree necessarily. I don't remember him  
21   saying anything really, to tell you the truth.

22                   MR. CAPRA: Do you recall this conversation  
23   taking place before the PORC meeting, or during --

24                   WITNESS: For some reason, I think it happened  
25   on one of the interviews. I feel like -- it seems like we were

1 in a room on one of the interviews that we had, when -- made  
2 some sort of an emphasis, didn't this happen then? We were  
3 in it together, the three of us, -- or four of us. I thought  
4 it was one of the earlier interviews where we were actually in  
5 a motel room with one of the NRC investigator's, or two of  
6 them. Where he was taping it, right?

7 I raised the issue at that point, that we  
8 just injected high pressure injection at this time, and then  
9 later on -- later on when we went over the sequence of events,  
10 I wrote on the comment, because I was going down through it,  
11 I said Bill, didn't we initiate high pressure injection, and  
12 he just emphasized to get it in there. He insisted that it  
13 be put in at that point. So it was resolved later on. It  
14 built from there.

15 It sort of -- like it went away then, if you  
16 want. It wasn't an issue. It was just something -- I said  
17 I think we did this at this time. It became an issue up at  
18 B&W, and started focusing on it, well, --

19 MR. RUSSELL: Was there any discussion amongst  
20 the three of you to include this HPI actuation based upon an  
21 after-the-fact knowledge that you should have been putting  
22 water into the core? That you had voiding, and that would have  
23 been the right thing technically to do? Could that have  
24 influenced you?

25 WITNESS: I don't think there was a discussion like

1 that.

2 MR. RUSSELL: To the best of your knowledge,  
3 your recollection, there was no collusion amongst the three  
4 operators to add something to the sequence of events which  
5 would make it look like you did something that was right?

6 WITNESS: No. Not in that sense. The only  
7 point of view that that came up was when I -- it was fairly  
8 early in the initial interviews when I said didn't we do  
9 this? I feel pretty strongly that we initiated high pressure  
10 injection. They might have agreed at that point that it  
11 seems like something we would have done. That might have been  
12 a statement made by one of the others, right? We will include  
13 it in until otherwise we -- we find out otherwise it is not.

14 The idea is that we would back it up -- they  
15 could back it up on strip chart recorder or the computer print  
16 out or something at the time.

17 I don't think we ourselves had access to computer  
18 prints and printouts, especially not the reactimeter, whatever  
19 came out on that.

20 When I brought it up at the time, it was just  
21 recollection of what I thought happened during the accident  
22 at that point, and I made an emphasis on it. Bill picked up  
23 from that. In the rest of our conversations -- the rest of  
24 our interviews it started showing up then, right, until it  
25 came up to the B&W litigation where it was really pushed.

1 MR. RUSSELL: Other than Bill Zewe becoming the  
2 spokesman for your group in carrying this issue, do you recall  
3 any discussion that Mr. Frederick had with respect to HPI  
4 actuation at 0541?

5 WITNESS: No.

6 MR. RUSSELL: Other than he was present at the  
7 time these issues were discussed, you don't recall him  
8 participating?

9 WITNESS: No.

10 MR. RUSSELL: Okay.

11 MR. CAPRA: You were --

12 WITNESS: If you think about it, there really  
13 wasn't any reason for any of us to object. It was something  
14 that one of us was trying to put in. The idea wasn't to throw  
15 it out unless you had real hard fact to believe it wasn't  
16 there, right? The idea was to get it in on the sequence of  
17 events, and worry about it later on, whether it was right or  
18 wrong that it happened that way.

19 MR. CAPRA: Later in the OI interview, you were  
20 questioned about a meeting that you had at Bill Zewe's house  
21 some time after the accident. You thought perhaps it was a  
22 month after the accident, and Mr. Frederick was questioned  
23 about the same meeting, and he thought it may have been a week  
24 or so after the accident. But it was some time after the  
25 accident where you did have some data at that particular point.

1 Mr. Frederick said it was reactimeter data  
2 that you had, and you got together to take a look at the data,  
3 I believe, to see what happened.

4 Do you recall the HPI issue was brought up  
5 during that meeting at all?

6 WITNESS: No. I don't think it was. The biggest  
7 thing I remember from that was seeing what pressure did during  
8 the transient. I just didn't believe pressure got down that  
9 low. That is about as far as I remember. To me it just sort  
10 of trails off, and we didn't really say much of anything else.

11 MR. RUSSELL: What was the purpose of getting  
12 together and meeting to discuss it?

13 WITNESS: To try to get the thing together in  
14 the sequence that it happened, because there is -- it seemed  
15 like we were starting to talk -- we just wanted to try to get  
16 the story straight, if you want, as to how it occurred between  
17 us, because Ed was over in one side of the room -- in fact,  
18 I didn't know exactly where Ed was through the whole accident  
19 scenario, the accident itself.

20 At times he was behind me. At times I remember  
21 seeing him over on high pressure injection panel. A lot of  
22 times I don't even remember seeing him, so I can't say where  
23 he was at. When I was being talked to, I was talking as  
24 we did stuff. The only thing I did was try to say what each  
25 individual guy did, to see where it fell in.

1 I didn't get very far, though.

2 MR. CAPRA: Again, later on in the OI interview,  
3 around pages 29 and 30, this is the point you tried to bring  
4 up earlier. You were questioned about were you influenced at  
5 all by things you may have learned after the accident, and  
6 you say it is possible -- I paraphrased here and said that --  
7 it is possible, but your statements regarding initiation of  
8 HPI could have been prompted by what you were told after the  
9 accident.

10 That is where you bring up that you started  
11 using terms like voiding in the core, but you know you didn't  
12 talk in those terms prior to the accident.

13 Later in the interview, starting around page 39,  
14 it was pointed out to you that in a couple of interviews Bill  
15 Zewe had prior to the PORC meeting, recall that the PORC  
16 meeting -- first PORC meeting to review the sequence of events  
17 was around the May time frame, middle of May, May 14th.

18 Yet, in some of Mr. Zewe's statements prior to  
19 the PORC meeting -- for example on 3/30/79, in an interview  
20 with Bob Long and Mr. Ruppert, he testified to the fact that:  
21 So when I went and secured all the coolant pumps, we keep on  
22 feeding HPI at this time.

23 So, it was Mr. Zewe's recall during this interview,  
24 just a day and a half after the accident, that he had HPI  
25 going at the time he secured reactor coolant pumps.



1 WITNESS: Is this a day and a half after the  
2 accident?

3 MR. RUSSELL: Yes.

4 WITNESS: Say this again.

5 MR. CAPRA: That was his statement on March 30,  
6 1979.

7 MR. RUSSELL: This is the earliest statement we  
8 could find by Mr. Zewe concerning HPI actuation. It predated  
9 your statements concerning HPI actions.

10 WITNESS: In other words he did originate it  
11 then.

12 MR. CAPRA: Would you like to see that particular  
13 statement?

14 WITNESS: Not necessarily.

15 MR. RUSSELL: I think we are getting close to  
16 getting -- one of the things that concerns me, it would appear  
17 that there were statements made by yourself, statements made  
18 by Mr. Zewe, -- we can't find any statements made by Mr.  
19 Frederick that directly relate to this. In fact, the references  
20 that are cited for the inclusion of this, which are identifying  
21 Mr. Frederick, go to his testimony.

22 You find out that it is not clear at all that  
23 is in fact what he was saying. One of the interviews doesn't  
24 discuss it at all. It is just completely an error that that  
25 particular interview was included.



1 Do you have any understanding today as to how  
2 that came to pass, either from discussions subsequently. It  
3 does appear that you and Mr. Zewe were the ones that wanted  
4 to have this included.

5 If there were a spokesman for the issue, it  
6 would have to be the two of you.

7 WITNESS: You know what might have happened?  
8 If I could remember properly, during the accident, I was over  
9 on the feed station, secondary side of the panel. Ed was  
10 on the opposite side, over on ES injection panel. High  
11 pressure injection ES panel, automatic actuation.

12 Bill was in between us, with Kunder. Fred was  
13 in the corner by the pressurizer. Now, when we talk about  
14 conversations going on that day, if you picture the alarm  
15 systems going off on top of it all, they weren't conversations  
16 where you took your undivided attention and listened to what  
17 the person was saying, okay?

18 A lot of times my back was to Bill when things  
19 were being said. I would assume the same kind of situation  
20 was with Ed on the other side of the panel. I could picture  
21 turning around and maybe agreeing with something that I didn't  
22 necessarily fully hear, okay? And I got the impression that  
23 one of the things we discussed that I remember -- that I  
24 feel like I remember anyway -- was that we were talking where  
25 we take the pumps off, we will reinitiate the high pressure

1 injection.

2 I can't even say what the condition of the pumps  
3 were during that time at all, really. I don't know if they  
4 were really throttled back or not.

5 But I came out with the impression that when we  
6 took those pumps off, we initiated --

7 MR. RUSSELL: I understand that. Your testimony  
8 has been fairly -- it has been consistent with what your  
9 recollection was. At this point in time I am interested in  
10 information you may have that might throw some light on the  
11 subject as to how GPU came to use Mr. Frederick as the source  
12 for incorporation of those particular statements. The  
13 footnotes in the sequence of events that was filed with the  
14 NRC.

15 The references for incorporation of that  
16 particular statement are identified as being Mr. Frederick,  
17 yet in review of the record, we find that you and Mr. Zewe  
18 are the only spokesmen for which we have a written record  
19 that says yes, that is what we thought, that is what we  
20 recall.

21 I am curious if you have any insight as to how  
22 Mr. Frederick was identified as the author of that particular  
23 issue.

24 WITNESS: Don't think I can help you with that.

25 MR. CAPRA: If you recall, when I showed you the

1 final version of the annotated sequence of events, it showed  
2 three references. One reference was a reference of the memo  
3 that Mr. VanWitbeck wrote, which we have no copy of.

4 The other two references actually included  
5 three interviews of Mr. Frederick, that Bill was just talking  
6 about. When we go back and look at those three interviews,  
7 one of the interviews doesn't mention HPI actuation at all.  
8 I am not sure why that was included. The other two, there  
9 are references to manually actuating high pressure injection.

10 Again, because of the confusion of these  
11 interviews not being discussed -- in discussing events necessaril  
12 in chronological order, there is some question when you go  
13 back and look at it what time frame he was referring to.

14 So again, as Bill said, we don't understand why  
15 Mr. Frederick was used as the source of- including that, when  
16 both yourself and Mr. Zewe state it. There are clear  
17 statements --

18 MR. RUSSELL: There are statements which are  
19 much earlier, including a few days after the accident.

20 WITNESS: I don't know how I would have either.  
21 The earliest interview that I can think of that I went to  
22 was with Bubba Marshall, and that was just where he was  
23 writing down a couple of things Ed and I were going over  
24 in the observation center. After a shift.

25 MR. RUSSELL: But you don't recall any discussion

1 between yourself and Ed Frederick that would indicate that  
2 he was either in agreement -- affirmative agreement with the  
3 position that you and Bill had apparently formulated, or was  
4 in disagreement with that?

5 There was no confrontation or argument amongst  
6 the three of you as to whether that did or didn't occur?

7 WITNESS: No. When I think about it, during  
8 the accident, maybe Ed didn't even know that we were discussing  
9 it, if you want. It was on my side of the room, at that  
10 point, it might have been. I don't know what he might have  
11 been doing. He might not even had heard it, a discussion on  
12 high pressure injection when we take the pumps off.

13 MR. CAPRA: Let me read you an exchange that  
14 took place at a meeting on May 25th 1979, again this is  
15 roughly a week or so after the PORC meeting.

16 I am sure you have seen this before. It was  
17 a Med Ed group interview with Mr. Zewe, Mr. Miller, Mr.  
18 Seelinger, Mr. Porter and Mr. Ross. It starts out with  
19 Mr. Zewe saying: I think right here is where we went back to  
20 full HPI. Mr Miller: Right. At the point where you turned  
21 off the last pump?

22 Mr. Zewe: Just before or just after we did that  
23 -- we did that because they took a countdown, and Craig Faust  
24 hit HPI just as Ed, Mr. Frederick, secured the last two pumps.

25 Zewe again: I don't know if that was the case or

1 not. It was just before we tripped the last pumps that we  
2 put on HPI.

3 Mr. Miller: Bill, are you pretty sure we had  
4 full HPI around that time?

5 Zewe: I cannot be as sure as the operator who  
6 actuated it was. He sure is. Craig Faust.

7 MR. Zewe, later: We talked about that yesterday  
8 after we reviewed the tape, and I went over the complete  
9 scenario for training and everybody as an aid for future  
10 training classes, and Craig and Ed thought again it was either  
11 just before the last two pumps, or just after the last two  
12 pumps.

13 I am sure you have seen that exchange before,  
14 too.

15 Again, there is apparently some confusion in  
16 Mr. Zewe's mind at least where he says that you were the  
17 individual that actuated the HPI, and Mr. Frederick was the  
18 individual that tripped the pumps.

19 WITNESS: That is believable.

20 MR. CAPRA: But in here, he references again that  
21 this scenario was reviewed after listening to a tape -- and  
22 I am not sure what tape he is referring to -- but this is  
23 May 25th, and he said yesterday, so it is May 24th.

24 WITNESS: You have to watch the term, 'reviewed'  
25 though. What he might mean by review. What does review mean

1 to you? It almost gives the impression we really took some  
2 time aside and sat down and thought about it as a group.

3 MR. RUSSELL: Do you have anything else that  
4 you would like to add on this subject, or anything that may  
5 throw some light on an otherwise confusing scenario?

6 WITNESS: No. I don't believe there is much  
7 more to say, really.

8 MR. RUSSELL: Have you seen or reviewed the  
9 -- I am not sure it is the right word -- I will call it a  
10 filing, and I am not sure it is a filing, but a statement  
11 that was developed by the GPU attorneys concerning HPI  
12 actuation that was submitted that described confusion with  
13 respect to recollection of events?

14 An understanding of how an operator could have  
15 made an error? This is a document entitled, Memorandum on  
16 the 541 HPI Actuation "Mystery Man" Issue, dated August 16,  
17 1983, that was offered by Mr. Klingsburg? Have you seen or  
18 reviewed that document?

19 WITNESS: I don't remember seeing it.

20 MR. RUSSELL: I don't have any other questions.

21 MR. CAPRA: I don't either. Thanks very much,  
22 Mr. Faust. We appreciate it.

23 MR. RUSSELL: It is 1:17 that we terminate  
24 the interview.

25 (Whereupon, at 1:17 p.m., the interview is  
concluded.)

\* \* \* \* \*



CERTIFICATE OF REPORTER: 25

This is to certify that the attached proceedings before the  
NRC COMMISSION

In the matter of: Investigative Interview of Craig C. Faust

Date of Proceeding: Wednesday, January 30, 1985

Place of Proceeding: Harrisburg, Pennsylvania

were held as herein appears, and that this is the original  
transcript for the file of the Commission.

Garrett J. Walsh, Jr.  
Official Reporter - Typed

*Garrett J. Walsh, Jr.*  
Official Reporter - Signature

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION

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IN THE MATTER OF:  
INVESTIGATIVE INTERVIEW

DOCKET NO:

LOCATION: HARRISBURG, PENNSYLVANIA

PAGES: 1 - 72

DATE: WEDNESDAY, JANUARY 30, 1985

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

INVESTIGATIVE INTERVIEW

OF

EDWARD RUSSELL FREDERICK

Killian & Gephart  
216-218 Pine Street  
Harrisburg, Pennsylvania

Wednesday, January 30, 1985

The Investigative Interview of EDWARD RUSSELL

FREDERICK commenced, pursuant to notice, at 5:28 p.m.

BEFORE:

William T. Russell, Deputy Director  
Division of Human Factors Safety  
Office of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Robert A. Capra, Senior Program Manager  
Staff of Executive Director for Operations  
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P R O C E E D I N G S

MR. RUSSELL: The date is January 30th. The time is 5:28. We are reconvening the interview of Mr. Frederick to cover a new subject.

By way of background, I would like to read into the record the information contained in NUREG 0680, Supplement 5, Chapter 11, entitled "Change of Operator Testimony" at Page 11.8: The OI investigation identified conflicting testimony and statements by Frederick concerning his involvement in the inclusion of HPI actuation at 0541 in the licensee's sequence of events. Whether Frederick was silent and never challenged the inclusion of HPI actuation at 0541, as he testified during the OI investigation and trial, or whether he insisted on including HPI actuation at 0541 as circumstantial evidence and testimony of others indicates cannot be resolved on the basis of evidence developed by OI to date.

The purpose of this portion of the interview will be to discuss that circumstantial evidence, some of the statements by others to give you an opportunity to provide your views as to how HPI actuation came to be included and what your individual involvement was.

We have a series of exhibits and then testimony of others. By way of background, we will be establishing on the record what those exhibits are and give you an

1 opportunity to review them. If you have any questions on  
2 them, we will take time to discuss those. Then, we will  
3 go into some of the testimony.

4 If at any time, however, you feel you want to add  
5 information that is not covered in either the OI investiga-  
6 tion or in any of the earlier testimony, please feel free  
7 to do so.

8 Bob, do you want to go ahead?

9 MR. CAPRA: I am sure that you have seen before  
10 all of the documents that we are going to talk about today,  
11 but I would like to go through and refresh your memory on  
12 some of them. All of the documents, by the way, are contain-  
13 ed in a two-volume report. This is one here, and this is  
14 the other volume which is the OI Report on Operator Change  
15 in Testimony.

16 I'm not sure if you have seen the entire report  
17 itself or just certain exhibits. But this was put together  
18 here -- and I will let you take a look at this. This is  
19 a chronological listing of exhibits that are in the report.  
20 By chronological, I mean the actual dates of the documents  
21 themselves, including statements by other individuals who  
22 were interviewed on this particular subject.

23 There is another sheet here. These are also  
24 exhibits in the report itself which is a chronological list-  
25 ing of statements made by either yourself or Mr. Faust or

1 Mr. Zewe on the subject. They range from early interviews  
2 right after the accident up through the depositions and the  
3 trial testimony for the GPU versus B&W lawsuit.

4 And I will give you three other documents here  
5 which we may go through today or else you can include them  
6 in the file. Basically, it's a capsulized synopsis of what  
7 I believe the statements made by yourself, Mr. Zewe and Mr.  
8 Faust contain in these various exhibits on this particular  
9 issue. All three of them are here, but this is yours.

10 MR. GEPHART: Just a question. Is that this  
11 one, 59?

12 MR. CAPRA: What exhibit number is it?

13 MR. GEPHART: Number 21.

14 MR. CAPRA: On the front, does it say --

15 MR. GEPHART: It doesn't say anything.

16 MR. CAPRA: That's Exhibit 20. Whose is that?

17 MR. GEPHART: That is --

18 MR. CAPRA: That's this one. See, this is  
19 Frederick's right here; this is Faust's here.

20 MR. RUSSELL: And we will be going through the  
21 documents you have in your hand to show you the actual state-  
22 ments. They have been highlighted in the report. We have  
23 summarized them. Mr. Capra and I have been through all of  
24 the documents. We feel comfortable that those summaries  
25 represent the chronology of the exhibits and an accurate



1 summary of the testimony.

2 That summary raises some questions that we would  
3 like to discuss with you. So there will be a period of time  
4 now that we will be developing background before we go into  
5 that. We will start now with the earliest exhibit which I  
6 believe, Bob, was Exhibit 13.

7 Whereupon,

8 EDWARD RUSSELL FREDERICK

9 was called as a witness, examined and testified as follows:

10 EXAMINATION

11 BY MR. CAPRA:

12 Q Okay. Exhibit 13 -- and most of these exhibits  
13 are extracts of documents. They are not the entire document.  
14 This is an extract from the annotated sequence of events,  
15 Revision 0; in other words, the first sequence of events  
16 that was put together by Mr. VanWitbeck and his team back  
17 on May 10th, 1979.

18 This particular copy has some handwritten notes  
19 on it. It was determined during the OI investigation that  
20 these handwritten notes are, in fact, Mr. Faust's notes.  
21 Okay.

22 If you take a look at it, you will see that at  
23 approximately 0554 they are giving a plant status at the  
24 time and there are some handwritten notes up at the top  
25 that says: Fully initiated HPI. And that was inserted in

1 by Mr. Faust when he was reviewing this particular document.  
2 Again, this is in the May time frame.

3 A Okay.

4 (The witness is looking at the documents.)

5 Q There are five of these that I want to show you.  
6 It takes a minute or two to go through them.

7 The second document is a -- it's OI Exhibit 17,  
8 which is a memorandum from Gary Miller, the Station Manager  
9 at the time, to Data Reduction, care of Mr. Tom VanWitbeck,  
10 dated May 21st, 1979. The memo says: The attached marked up  
11 copy of the annotated sequence of events is a result of the  
12 TMI-2 PORC meetings held on May 14th, 16th and 17th, 1979.  
13 This memo is to formally transmit these comments to the  
14 Data Reduction Group.

15 Again, this is an extract from the entire docu-  
16 ment. But on the back in handwriting is our -- are notations  
17 which indicate who were the attendees at the PORC meeting.  
18 Included among the attendees were yourself, Mr. Faust and  
19 Mr. Zewe.

20 The handwritten notes which are from Mr. Bezilla  
21 indicate that these notes are also based on operator inter-  
22 views. The PORC secretary indicated that this is his hand-  
23 writing here; however, the handwriting was a consolidation  
24 of comments that were received on the whole annotated  
25 sequence of events as a result of these three days of going

1 through the sequence.

2 You will see an entry at 0541. It says: Manually  
3 initiated full HPI. There is also a handwritten notation  
4 out to the side that says: What does this mean, with a  
5 question mark. I'm not sure whose handwriting that was.  
6 I don't think throughout the OI investigation they deter-  
7 mined exactly who wrote that.

8 A All right.

9 (The witness is also looking at these documents.)

10 Q The next document is also a copy of a one-page  
11 extract from the sequence of events. This one happens to  
12 be Revision 1 which is dated July 14th, 1979.

13 At this particular time, the revision to the  
14 sequence of events did show a typewritten entry now at  
15 0541 that said: The operator manually initiated high  
16 pressure injection to supply additional cooling water to  
17 the reactor core. Out to the side are some handwritten  
18 remarks which says: Zewe, Faust and Frederick insist this  
19 is the case.

20 This particular handwriting is that of Dr. Long,  
21 Robert Long.

22 The next document is again a memorandum from  
23 Gary Miller to Tom VanWitbeck of the Data Reduction Group,  
24 dated July 13th, 1979. And it provides additional comments  
25 on the annotated sequence of events.

1           This particular document, the manual operation  
2           of HPI at that particular time was not typewritten in, and  
3           someone has inserted in here: Operator manually initiated  
4           full HPI prior to tripping pumps. Previous comment per  
5           W. Zewe.

6           MR. RUSSELL: That was subsequently confirmed to  
7           be Mr. Zewe's handwritting.

8           THE WITNESS: So this would have been the copy  
9           that he was reviewing?

10          MR. RUSSELL: That's correct.

11          BY MR. CAPRA:

12          Q       Again, this is a copy of Revision 1, dated  
13       July 1979. The PORC meeting that they are referring to  
14       where this was initially discussed -- we will get into a  
15       little more detail -- was in the May time frame. So this  
16       is subsequent to the PORC meeting.

17          A       Okay.

18               (The witness is looking at the document.)

19          Q       The last one of these exhibits is an extract  
20       from a Technical Data Report prepared by GPU Nuclear, and  
21       the date this TDR was released was February 6th, 1981.

22               And it provides the final version of the annotated  
23       sequence of events. It was provided to the NRC.

24               The first few pages of this on -- the first few  
25       pages of this document include references. The references

1 are all numbered. The references are also inserted by each  
2 of the entries, so that when you go through you can see what  
3 the source of the data was, or the input that was used, to  
4 provide that particular sequence.

5 If you notice, on Page 41 it is an entry for 0541  
6 which states: The operator manually initiated safety injec-  
7 tion portion of the engineer safety features trains A and B  
8 to supply additional cooling water to the reactor core. And  
9 it goes on to describe the operation of the makeup system and  
10 plant status at that time.

11 The references that are utilized for that particu-  
12 lar entry are Reference 7, 8.D and 9.D. Reference 7 -- I've  
13 got the reference sheet itself. Reference 7 is a memorandum  
14 written by Mr. VanWitbeck as a result of the PORC Committee  
15 meeting. Unfortunately, we have not been able to find a  
16 copy of that particular document. Mr. VanWitbeck doesn't  
17 have it. It's not included in the OI report.

18 The only other references I believe are Reference  
19 8.D. 8.D is a reference which indicates it was an interview,  
20 two interviews, of you dated March 30th, 1979 and April 6th,  
21 1979.

22 The other reference that is utilized there is  
23 Reference 9.D. Is that correct?

24 A Yes.

25 Q Which is an interview of Mr. Frederick, dated

1 April 23rd, 1979.

2 A Okay.

3 (The witness is looking at the document.)

4 BY MR. RUSSELL:

5 Q That constitutes what we believe is the existing  
6 written record concerning the inclusion of HPI actuation at  
7 that time. There are a number of statements that are tape  
8 recordings. There are interviews conducted by NRC. There  
9 are depositions. They all focus around that small amount of  
10 written record.

11 We will be going into some of those now. And it  
12 was significant from the standpoint of the chronology of  
13 both those documents and the chronology of how discussions  
14 occurred which led to the situation where GPU identified  
15 you as the principle source for inclusion of HPI actuation  
16 at 0541.

17 They did not identify Mr. Zewe, did not identify  
18 Mr. Faust, rather cited you as the particular individual as  
19 the source of information for that particular actuation.

20 What we will do is go through those now so that  
21 you are able -- so that you can understand what that trend,  
22 what that sequence of events, was.

23 A We are going to go to those reference documents?

24 Q Yes. We will be doing that.

25 A That will be interesting.



1 BY MR. CAPRA:

2 Q We will take a look at that first. The first  
3 reference document which is the memo from Mr. VanWitbeck  
4 that I said we don't have -- it certainly would be very  
5 helpful if we had that particular document.

6 Were you ever shown a copy of that document?

7 A This interview?

8 Q No, not that interview. That's the second re-  
9 ference. Reference Number 7, the memo that Mr. VanWitbeck  
10 wrote regarding the PORC Committee meeting, the minutes.

11 A I don't recall it. And I didn't keep any of  
12 those interviews. I have a few copies of these, but I don't  
13 have any of that correspondence.

14 Q When you were going through this, either maybe for  
15 the deposition or in the trial preparation, whatever, there  
16 is nothing that would indicate in your trial testimony it-  
17 self or in your written deposition -- I'm sorry, in the  
18 transcript of the deposition for the lawsuit, that anyone  
19 ever showed you that document on the record. Okay.

20 So I'm wondering if somewhere along the line in  
21 the trial preparation or in preparation for the deposition  
22 if you had ever seen that?

23 A No, I don't recall seeing this.

24 Q You don't recall that?

25 A No.

1 Q Okay. The second reference that was used as a  
2 source for including this particular item in the sequence of  
3 events is your interview with Mr. Long and Mr. Ruppert on  
4 March 30th, 1979, very shortly after the accident, at  
5 approximately one or 1:30 in the morning.

6 I've gone through this particular transcript. I  
7 do not see any mention in here about actuation of HPI at any  
8 particular time. There is a discussion about tripping the  
9 last two pumps, but I don't recall seeing anything in there  
10 which discusses HPI actuation.

11 So I'm not sure if that was included as a reference  
12 by mistake. It was lumped together. That reference had two  
13 interviews as one source of reference. But reading through  
14 there myself, I couldn't find where that could be used as a  
15 basis for including that in the sequence of events.

16 That is the whole interview. It's not --

17 A That was going to be my next question. Are you  
18 sure you have it all. I guess you do.

19 MR. RUSSELL: We have it from Page 1 to the last  
20 page, with your signature on the last page.

21 THE WITNESS: So the question is, why was this  
22 cited as a reference?

23 MR. RUSSELL: No. We are just identifying, as  
24 part of the background, that in this particular instance this  
25 document cited as a basis for including it, in our review of

1 it it does not show that that would provide a basis for  
2 concluding that you were the individual that stated HPI was  
3 actuated shortly after the pumps were tripped. It discusses  
4 tripping two pumps, but it does not discuss actuation of  
5 HPI.

6 THE WITNESS: So this reference could have been  
7 lost just in a numbering error or something like that.

8 BY MR. CAPRA:

9 Q Like I said, it was lumped together with the next  
10 interview, okay, as a one-line entry. Okay. If you go back  
11 through the entire sequence of events, they may have lumped  
12 those together because somewhere else there is a -- this may  
13 have served as a basis for -- you know, those two interviews  
14 may have served as a basis for some other entries in the  
15 sequence of events.

16 A Probably so.

17 Q Okay. If you go to the next exhibit there which  
18 was the other interview which was used as a reference in the  
19 sequence of events, it is an interview conducted by Mr.  
20 VanWitbeck, et al as part of the GPU Service Corporation  
21 investigation that was conducted on April 6th, 1979.

22 And if you look at Page 2, there is a discussion  
23 between yourself and it says the "team." I'm not sure who  
24 the individual or individuals at the time were who were  
25 asking the questions. Do you want to take a look through that?

1 MR. RUSSELL: It's the section which is highlighted  
2 in yellow.

3 (The witness is looking at the document.)

4 BY MR. CAPRA:

5 Q For the record -- I'm not going to do this in all  
6 cases but it might be worth it to go through, for the record,  
7 and indicate what was said here between yourself and the  
8 team. The part I'm talking about is where it starts -- this  
9 is Mr. Frederick speaking now: Later on, it may have been  
10 when the pumps were off, we did a manual high pressure in-  
11 jection. This was after the other guys arrived so it was  
12 pretty far into it.

13 Team: When do you think that was with relation  
14 to when reactor coolant pumps were taken off?

15 Frederick: We didn't have a good indication on  
16 the pumps. We didn't have any Delta-T indication. It was  
17 about that time we talked ourselves into going into high  
18 pressure injection. We felt that we were generating steam  
19 in the loops. I believe it was right in there that we did  
20 manually initiate high pressure injection. I believe  
21 throughout the entire evolution we were injecting water,  
22 even though it may have only been five or six hundred gallons  
23 per minute.

24 Team: Was that before the attempt to restart the  
25 reactor coolant pump?

1 Frederick: Yes. I think it was in between there.  
2 We sat for a long time with no flow indication.

3 Frederick, a little bit later on --

4 MR. RUSSELL: That's Page 4.

5 BY MR. CAPRA:

6 Q I'm sorry. Page 4 of the interview goes on to  
7 state: And I don't think it was until the pumps were off  
8 that we considered going solid. That's when we talked our-  
9 selves into manually initiating high pressure injection.

10 A little bit later on, also on Page 4, you are  
11 saying -- this is the point where you were not quite sure,  
12 you are talking about a leakage from the PORV or the code  
13 safety valves. It's not particularly relevant, I'm sorry,  
14 to this portion. Okay.

15 But you can see there that at least this does  
16 provide some statements that tend to support there was a  
17 manual actuation of HPI some time after the last set of  
18 reactor coolant pumps was tripped and before the restart of  
19 reactor coolant pump 2B, which took place I believe around  
20 0654 and ran for approximately nineteen minutes.

21 About at that point in time you believed. Okay.

22 A It seems to me I had two times confused. But  
23 some time between when the pumps went off, and we are saying  
24 6:50. That would be a pretty good span. And probably it  
25 was 4:20 when the pumps went off, 4:19.

1 Q Yeah. 0541 is when the second set of reactor  
2 coolant pumps was tripped.

3 A So what we are saying is a two and a half hour  
4 time period when we might have had high pressure injection?

5 Q Right. And again I'm not sure if we mentioned  
6 this at the beginning of your interview, we are not trying  
7 to revisit whether there was or was not high pressure in-  
8 jection at 0541. I think we have concluded, the NRC, that  
9 there was a very small probability, if at all, that there  
10 was a manual actuation at that time. And if there was, it  
11 did not run for very long. We are not revisiting that issue.

12 We are setting some groundwork for statements  
13 that you made and other operators made that later were  
14 changed.

15 A Okay.

16 Q If you will turn to the next exhibit, that was the  
17 third reference that was used for including manual HPI in  
18 the annotated sequence of events. It was an interview that  
19 was conducted a short time after that, a couple of weeks,  
20 on April 23rd, 1979.

21 It was an interview with Mr. Hunter, Mr. Yuhas,  
22 and Mr. Marsh of the NRC. And if you will turn to Pages 48  
23 through 50, I believe that is the excerpt that I have here,  
24 you were asked if you made any changes to HPI when the  
25 reactor coolant pumps were secured. And you said that:



1       Somewhere along that line we actually initiated high pres-  
2       sure injection manually.

3               You made a statement to the effect that that  
4       may have been at the time that you secured decay heat pumps.  
5       And I'm not sure exactly in that statement what you are  
6       referring to by decay heat pumps.

7               Do you mean the reactor coolant pumps, removing  
8       decay heat? I don't think at this point in time you are  
9       talking about RHR pumps.

10              (The witness is looking at the document.)

11             A       I don't know what I'm talking about there. That  
12       is talking about an initiation of ES and securing decay heat  
13       pumps, when actually when you initiate ES you get the decay  
14       heat pumps. I don't understand why I would be turning them  
15       off at the same time I'm turning them on.

16             Q       Okay. I'm not sure what you mean. What pumps  
17       are you talking about when you say decay heat pumps?

18             A       The RHR pumps are the decay heat pumps. In our  
19       plant, you call them decay heat removal pumps. Do you  
20       call them residual heat removal pumps?

21             Q       RHR and decay heat removal are --

22             A       The same thing.

23             Q       -- the same. But I didn't think you were at a  
24       point in time when you had the RHR pumps operating. You  
25       never did go on RHR.

1 A We had injection at the time of the pressure  
2 spike started. I mean, it didn't actually flow in but the  
3 pumps were running.

4 BY MR. RUSSELL:

5 Q Which pressure spike are you talking about?

6 A The pressure spike in the building in the after-  
7 noon. We had to go in isolation.

8 Q I understand. That would have been an automatic  
9 initiation due to the pressure spike in the building which  
10 would have started these pumps.

11 A Right. Then --

12 Q But we are now talking about the time frame in the  
13 morning --

14 A Well, see the automatic ES had gone off right at  
15 the time of the accident at 4:03 or whatever it was.

16 Q Yes.

17 A There was one there. But this is not either one of  
18 those, because this is --

19 Q A different time in the morning.

20 A This --

21 Q This would be a manual which would not result in  
22 those pumps operating.

23 A Yeah, it would.

24 Q Manual -- full manual actuation?

25 A Yeah. Yeah, it would. What I'm talking about here --

1 I'm not remembering this, I'm telling you what it says here.  
2 If you go to the high pressure injection panel and push the  
3 four red buttons, you get high pressure injection, low  
4 pressure injection, building isolation, everything except  
5 building spray.

6 Q I understand that.

7 A Okay.

8 Q The earlier testimony indicated that this could  
9 have been done by simply opening up the high pressure in-  
10 jection valves to each of the loops to provide the flow,  
11 that that may have been interpreted as being the manual  
12 initiation of high pressure injection.

13 A Right. That's --

14 Q Right. There was testimony to that effect.  
15 There was also testimony that this could have been done by  
16 starting an additional makeup pump and opening those valves,  
17 which would have been different than going over to the panel  
18 and manually initiating the equivalent of an automatic  
19 actuation.

20 A Right. I would interpret all those as a manual  
21 initiation of high pressure injection, in different forms  
22 but the same effect.

23 Q Do you recall any time during the event that  
24 there was one manual initiation that you would have used  
25 the buttons on the panel which would have also resulted in

1 decay heat pumps starting?

2 A That's the way I did it around the time of the  
3 site emergency; when we decided to initiate high pressure  
4 injection, that's how I did it. I pushed the buttons.

5 Q And then you subsequently secured the decay heat  
6 pumps, the low pressure injection portion?

7 A I don't know. I don't recall doing that.

8 Q Do you recall --

9 A It would be the prudent thing to do. By pro-  
10 cedure that would be the thing to do. But I don't recall  
11 doing that.

12 Q So you feel that this particular time frame may  
13 be associated with the time of the site emergency?

14 A (No reply.)

15 BY MR. CAPRA:

16 Q The data from the alarm printer was regained at  
17 0648 that morning. It was lost for a period of time, the  
18 data was lost for a period of time. But it was initialized.  
19 It was a manual actuation at 0720 that morning, and that  
20 was consistent, or in the time frame of the general emergency  
21 that was declared at 7:24.

22 A You are talking about that actuation?

23 BY MR. RUSSELL:

24 Q Yes. We are now talking about one earlier between  
25 the time the four pumps were turned off and you attempted to

\*\*\*\*6 P.M.\*\*\* 1 restart the 2B pump.

2 A I did not do it in that manner. I only did that  
3 once in my life, and that was at the time of the site emergency.  
4 It's something that I remember doing.

5 This seems kind of sketchy. But if I'm talking  
6 about initiating with those red buttons, I'm talking about  
7 the time of the site general emergency.

8 MR. GEPHART: That would be at 1:50?

9 MR. CAPRA: No, that's 0720.

10 THE WITNESS: Between 7:10.

11 MR. RUSSELL: Not the 0541.

12 BY MR. CAPRA:

13 Q I think the actuation that occurred in the after-  
14 noon at 1:50 or 1350 in the afternoon was the automatic --

15 A The automatic.

16 Q -- actuation.

17 A Initiated by the --

18 Q Building pressure. Okay. The next exhibit is an  
19 exhibit where you were interviewed by Mr. Keaten, part of  
20 the Keaten Task Force, on September 19th, 1979.

21 In there, on Page 60, you were asked if you took  
22 any action with respect to high pressure injection flow at  
23 about the time the last reactor coolant pumps were taken off,  
24 and your answer to that was, no, that you did not recall that.

25 It's on Page 60.

1 A 60?

2 Q Six zero. Do you have the right exhibit number?  
3 It was a taped interview.

4 A Yes.

5 (The witness is looking at the document.)

6 I guess I forgot the question.

7 Q Okay. The question was, in this particular inter-  
8 view, which is now the September 1979 time frame, you were  
9 asked by Mr. Keaten -- is he the one that was doing the  
10 questioning there?

11 A Yes.

12 Q If you remembered actuating high pressure injection  
13 at the time the last set of reactor coolant pumps was taken  
14 off, and I believe your answer was, no, you did not recall  
15 that, that you took no action like that.

16 Is that correct?

17 A That's correct.

18 Q Okay. Now, that's essentially all of your state-  
19 ments on this particular issue up until you get to the B&W/  
20 GPU lawsuit and begin your deposition.

21 We can leave that for now and go to some other  
22 statements. These exhibits also are in here. But I just  
23 wanted to summarize for you -- as a matter of fact, if you  
24 have the summary I gave you of Mr. Zewe's testimony on this  
25 particular issue, he was also interviewed March 30th, 1979 by



1 Mr. Long and Ruppert of GPU Service Corporation. On Pages  
2 19 and 20 of that particular transcript, he says: So, I  
3 went and secured all coolant pumps and then we kept on feeding  
4 HPI at this point.

5 So the earliest interview we have of Mr. Zewe is  
6 his recollection at the time of this interview, and is that at  
7 the time reactor coolant pumps were secured you at least had  
8 HPI on at that particular time.

9 The next interview that Mr. Zewe had on this subject  
10 was on 4/6/79. It's at this point he was interviewed by GPU  
11 Service Corporation investigation team, and there is no  
12 distinct statements in there regarding the actual actuation of  
13 HPI, whether it was or it was not initiated at this particular  
14 time. I think one of the clear things that you realize by  
15 this time was he was very unsure of times that certain events  
16 took place.

17 As he began to look at data -- I think he testified  
18 later to that effect -- times became very fuzzy, things that  
19 he thought took a very long time to happen actually happened  
20 in a very short period of time and vice-versa.

21 Again, this is before the PORC meetings in May.  
22 I think Mr. Zewe's next interview with I&E, Mr. Marsh, Hunter,  
23 Kirkpatrick and Criswell was on April 23rd, 1979.

24 On Page 56 he said that both you and Mr. Scheimann  
25 were on the makeup system most of the time the morning of the



1 morning of the accident. And then he continues on on Page 56  
2 and 57 and says basically that HPI was discussed before  
3 securing the reactor coolant pumps, and that HPI was increased  
4 about this time.

5 Now, it's not clear to me from reading that parti-  
6 cular transcript if he's referring to the time that you had  
7 two reactor coolant pumps still running or not. So, again  
8 there is no clear-cut distinction, nothing to help us sort  
9 this particular issue out.

10 One of the exhibits that you looked at earlier  
11 when we first started in going through the background was the  
12 PORC Committee Minutes, May 14th through 17 of 1979, where  
13 yourself, Mr. Faust and Mr. Zewe were in attendance. And  
14 inserted the words, "Operator manually initiated full high  
15 pressure injection."

16 So it was after the PORC meeting by approximately  
17 a week or ten days that there was a group interview conducted  
18 by Met Ed, May 25th, 1979, in which Mr. Zewe, Mr. Miller,  
19 Mr. Seelinger, Mr. Porter and Mr. Ross were there. And this  
20 following excerpt on Pages 5 and 6 took place:

21 Zewe: I think right here is where we went back to  
22 full HPI.

23 Mr. Miller: Right, at the point where you turned  
24 off the last pump?

25 Zewe: Just before or just after we did that,

1 because they took a countdown and Craig hit HPI just as Ed  
2 secured the last two pumps.

3 I think he was referring to you as Ed and Craig  
4 as Craig Faust.

5 Zewe: I don't know if that was the case or not,  
6 but it was just before we tripped the last pumps that we put  
7 on HPI.

8 Mr. Miller: Bill, are you pretty sure we had full  
9 HPI around that time?

10 Zewe: I was not as sure as the operator who  
11 actuated it was. He is sure, Craig Faust.

12 Mr. Zewe: We talked about that yesterday after  
13 we reviewed the tape. And I went over the complete scenario  
14 for training and everybody as an aid for future training  
15 classes, and Craig and Ed thought it began -- that's a  
16 typographical error. Thought again it was either just before  
17 or -- just before the last two pumps or just after the last  
18 two pumps.

19 Okay. So the gist of his interview at this parti-  
20 cular time is that this is the first time that he brings up  
21 the fact that it was some type of countdown and Mr. Faust  
22 initiated HPI and you tripped the last two reactor coolant  
23 pumps, and that you had discussed the scenario the day before  
24 and provided some additional details at that particular time.

25 The point of this being, at least at this point in

1 time, one would be led to believe from reading this that Mr.  
2 Zewe had an understanding that all three of you thought that  
3 this occurred, that he had your support, or you had discussed  
4 it with him as well as Mr. Faust and himself.

5 Now, Mr. Zewe went on in June of 1979 and discussed  
6 the fact that he thought there was a manual actuation at that  
7 time before the ACRS. And that's basically his testimony on  
8 the subject, again up to the point of the GPU/B&W lawsuit  
9 review.

10 And in that particular -- in his deposition on  
11 May 28th, 1982 around Pages 815 to 120, again he recalls that  
12 both Frederick and Faust told him that it was their recollection  
13 that HPI was actuated full when the second set of pumps were  
14 turned off.

15 On Page 824, he says that he learned details from  
16 both Faust and Frederick that made him remember it happening.

17 On 826, in discussing the countdown which was that  
18 exhibit we looked at earlier, B&W 761, he said he recalled  
19 that after discussion with both yourself and Mr. Faust some  
20 time later.

21 At the trial under cross-examination by Mr. Fisk,  
22 Zewe said that he recalled all three agreed at the PORC meeting;  
23 however, Mr. Faust was the one that was very sure at the time  
24 that it happened. And Zewe recalled that Faust remembered  
25 more details than Frederick, but they both relayed information

1 concerning the event.

2 And the last document where this was discussed with  
3 Mr. Zewe, where essentially all of this stuff was gone over  
4 again, was the OI interview the day after you were interviewed  
5 by OI on this subject. And on Pages 14-18 of the transcript,  
6 he said that Faust advised him at the PORC meeting that he  
7 had actuated HPI at the time the last two reactor coolant  
8 pumps were shut down.

9 He said there were charts at the meeting that  
10 showed that it could not have been left on at that particular  
11 time. He believed there was some controversy at the PORC  
12 meeting when it was brought up whether or not HPI did actuate  
13 at that particular time.

14 And I think Mr. VanWitbeck was the individual who  
15 showed some data at that meeting that would lead one to  
16 believe that there was no technical support for that argument  
17 at that time. But at this time, Mr. Zewe said that he had  
18 insisted upon it being included in the sequence of events be-  
19 cause the sequence of events should also reflect what operators  
20 remembered.

21 On Page 24, Mr. Zewe did not recall if all three  
22 operators insisted the events were true. But he did not re-  
23 call anyone disagreeing.

24 On Page 43, he discussed the fact that he had talked  
25 to you subsequent and that you informed him that you did not

1 agree at the time that HPI had taken place at 0541.

2 Now this -- the time frame we are talking about  
3 when he said he had those discussions was after the litigation,  
4 after the trial was over.

5 And, again in closing his interview, on Pages 64  
6 and 65, he describes a conversation that he had spoken with  
7 both Mr. Faust and yourself since the trial and discussed the  
8 fact that you both thought that Faust was wrong.

9 That's a bird's-eye view of Mr. Zewe's testimony  
10 on this particular issue.

11 MR. RUSSELL: I think it would be useful to similarly  
12 go through Mr. Faust's.

13 MR. CAPRA: Okay.

14 BY MR. CAPRA:

15 Q Mr. Faust's first interview that covered this  
16 particular item was -- again we are back at the beginning  
17 again on 4/21/79. It was an I&E interview conducted with Mr.  
18 Marsh, Hunter and Jackson.

19 And on Pages 48 through 49 of that transcript,  
20 Faust says: Something else that I would like to emphasize  
21 is that just prior to stopping those pumps we did reinitiate,  
22 we hit high pressure injection just prior to stopping the  
23 pumps. I don't know if that was brought up before. It  
24 should be, though.

25 Mr. Faust went on to say during this interview that

1 the reason for initiating high pressure injection at that  
2 time was that they had voids in the loop and you were trying  
3 to establish natural circulation.

4 And he said that you initiated high pressure in-  
5 jection while he tripped the pumps.

6 BY MR. RUSSELL:

7 Q Would you like to see that interview?

8 A No, no. I'm just -- I thought it came out back-  
9 wards.

10 BY MR. CAPRA:

11 Q That's backwards from what Mr. Zewe said.

12 A Okay.

13 BY MR. RUSSELL:

14 Q It is. There is a conflict between Mr. Faust's  
15 statement and Mr. Zewe's statement.

16 A Okay.

17 BY MR. CAPRA:

18 Q You are going to find there is also a conflict  
19 later in what Mr. Faust said his role in this was. You are  
20 going to find Mr. Faust said that he tripped two sets of  
21 reactor coolant pumps and he believes you tripped the other  
22 two. And he believes he tripped the first two sets, and at  
23 the time of the tripping of the second two reactor coolant  
24 pumps and initiation of HPI, which was alleged to have  
25 occurred at that particular time, he was feeding the steam



1 generators. He was on the feed station. And he thinks Mr.  
2 Scheimann was the individual that tripped the pumps.

3 A Okay.

4 Q In the next interview of Mr. Faust, which was the  
5 Keaten Task Force interview, 9/19/79, Faust was describing  
6 whether or not there was this countdown that was alluded to  
7 earlier. And he said that he wasn't sure whether it was a  
8 countdown, all he remembered was some sort of sequence was  
9 discussed so that all the operators were coordinated to turn  
10 off the last two pumps after HPI was initiated.

11 And Mr. Faust was not questioned again on this  
12 particular point until his deposition for the GPU versus B&W  
13 lawsuit. And at that particular time, he recalled HPI was  
14 actuated before the pumps were taken off. He said he didn't  
15 do it physically. It's something that he remembers hearing  
16 as being done or going to be done. He doesn't know if it was  
17 or wasn't actually done. He just remembers that before the  
18 pumps were turned off, something about HPI being initiated.

19 Later on he was question about, but was it his  
20 recall that HPI was initiated and he said that was his recall,  
21 that HPI was initiated at that particular time.

22 And he was questioned then about whether he believes  
23 that his earlier statements on this particular subject could  
24 possibly have been influenced by things he was hearing after  
25 the accident, and he at that point said it was quite possible.

1           He said that he knew there were terms that he used  
2 such as voiding in the core that were not terms that were part  
3 of his routine everyday operating vocabulary until after the  
4 accident.

5           Now, he was not called as a witness during the  
6 trial, at least to the point where the trial was settled. And  
7 the next discussion with him was on May 9th, 1984, the same day  
8 that you were interviewed by OI.

9           During this particular interview, on Pages 13 and  
10 14, he thinks that you would have been the one to initiate  
11 HPI, because that's where you were during that particular  
12 time. And his function at the time was on the feed station,  
13 feeding up the once through steam generators. He stated that  
14 he did not physically shut off the last two reactor coolant  
15 pumps, he believes it was Mr. Scheimann.

16           He goes on to state that both you and Mr. Zewe were  
17 present at the time that he had brought it up, meaning the  
18 initiation of the HPI, and he is now referring to the PORC  
19 Committee meeting. He said at this particular point in time,  
20 May 1984, he could not recall your reaction, or their reaction,  
21 at the meeting. Again, it was his recollection that he thought  
22 everyone agreed.

23           He was questioned on Pages 21 through 23 of the  
24 transcript about the meeting where yourself and Mr. Scheimann  
25 and Mr. Faust all got together at Bill Zewe's house shortly

1 after the accident. I believe you testified that it was after  
2 you had -- it would have been about a week or so after the  
3 accident, a week and a half, after you had received some data,  
4 reactimeter data, when you got together. The meeting didn't  
5 actually last that long. It was the first time you had  
6 actually seen some of the data put together.

7 He was asked if it was at this point in time that  
8 you realized that it may have been the prudent thing to do,  
9 to initiate HPI and whether that was discussed amongst your-  
10 selves, and he said that was not discussed.

11 BY MR. RUSSELL:

12 Q Do you recall that meeting?

13 A Uh-huh.

14 Q Was it your recollection that HPI actuation was  
15 or was not discussed at that meeting?

16 A I don't think it was. We got to the eight minute  
17 point where feedwater came back and most of us, I think all  
18 of us, felt it was a much shorter time than eight minutes,  
19 that it was only a few seconds. And we attributed much of  
20 the problems we had to that eight minute time frame. We  
21 didn't go much beyond that.

22 And we thought we had solved the whole puzzle  
23 by then. I guess we didn't.

24 BY MR. CAPRA:

25 Q And the last two things, if you turn the page, there

1 is a discussion on Page 43 through 47 essentially where again  
2 he is going by recall where he says that he believes there  
3 were three actions going on at once, and that's why he  
4 remembered some type of countdown, or are we all ready now.  
5 Something to that effect. And the actions that he recalled  
6 were himself feeding up the steam generators, you initiating  
7 HPI and Mr. Scheimann tripping the pumps and Mr. Zewe giving  
8 the direction.

9 Again, that was his recall. And then he was  
10 questioned on Pages 46 and 47 again about whether he ever  
11 thought there was any dissension on the part of any of the  
12 operators with regard to the manual actuation being inserted  
13 in the sequence of events. And he said he didn't remember  
14 any dissension but nobody ever focused on it really until the  
15 trial, it was never a particular issue.

16 BY MR. RUSSELL:

17 Q Let me highlight some of the things we have just  
18 gone through. First, Mr. Zewe appears to be the first one,  
19 in an interview that was recorded, to discuss HPI actuation  
20 at the time of securing the reactor coolant pumps. This is  
21 on his April 30th interview with Long and Ruppert, Pages 19  
22 and 20.

23 That was also affirmed by him then a few days  
24 later, April 6th, with the GPU investigation team. These  
25 were all well before the PORC meeting and may have been before

1 the meeting at Mr. Zewe's house.

2 Mr. Faust first discusses the HPI actuation on  
3 April 21st, 1979 in an NRC interview, where he interjects  
4 that discussion essentially in the middle of the discussion  
5 on another subject, he brings it up and adds it in at that  
6 point.

7 Other than the testimony that you had --

8 BY MR. CAPRA:

9 Q If you recall, we left off with your statements  
10 before the B&W/GPU litigation. We went through all the rest  
11 of the information.

12 A Yes.

13 BY MR. RUSSELL:

14 Q The only testimony or discussion happened to have  
15 been with the April 6th, '79 investigation team, it was  
16 talking about starting high pressure injection some time  
17 between the pumps were secured and your attempting to restart  
18 the 2B pump.

19 That would be between 5:41 in the morning and  
20 approximately 6:54?

21 MR. CAPRA: I believe that's the ball park.

22 BY MR. RUSSELL:

23 Q Okay. Approximately a one hour time frame. It  
24 would appear from those very early statements that all three  
25 operators were of the opinion that high pressure injection

1 actuation did occur and that some of the other statements that  
2 were written into records, recollections from PORC meetings,  
3 would indicate there is a basis for a conclusion that all  
4 three operators insisted this was the case, which was Mr.  
5 Long's notation.

6 Yet later when we get to the deposition and the  
7 trial, your testimony is substantially different from that.

8 At this point, I would like Bob to go through a  
9 summary of what your testimony was and then we will cover  
10 some questions on it.

11 A Okay.

12 BY MR. CAPRA:

13 Q Now, on Page 2 of this summary of your testimony  
14 this is during the deposition which in attendance were Mr.  
15 Fisk, who was deposing you, and Mr. Seltzer, your attorney  
16 at the time.

17 And the date was May 4th and May 17th, 1982. These  
18 are extracts from those two days. Okay.

19 On Page 18 and Page 20 of the deposition, you make  
20 some statements to the effect that, one, you did not see  
21 any drafts of the LER before it was filed. The LER that we  
22 are talking about is the sequence of events. That you did  
23 not recall having seen any of the drafts of the sequence of  
24 events of the accident, which you understood were being pre-  
25 pared by GPU for the purpose of filing with the NRC. And the



1 only discussion that you had of the sequence of events was  
2 with an I&E interview at the Skyway Motel in Harrisburg.

3 By the way, when we walked through the testimony  
4 earlier, the I&E interview where you discuss this with Mr.  
5 Hunter, Mr. Yuhas and Mr. Marsh -- Mr. Marsh was not conducted  
6 at the Skyway Motel. It was conducted at one of the trailers  
7 at the site. Okay. So, you may have been referring here to  
8 another interview, which I'm not familiar with. Okay. But  
9 it was not included in this package.

10 And you did not recall attending any PORC meetings  
11 to discuss draft sequence of events.

12 On Page 955, you said that Frederick and Faust  
13 both -- you said that both yourself and Mr. Faust turned off  
14 one set of pumps each, but you didn't remember which set was  
15 turned off by whom.

16 On Page 962, you state that you recall some HPI  
17 manipulations during the day but you didn't know what times  
18 they were, and you did not associate HPI with the 0541 time  
19 frame.

20 On Page 967, you said that you do not recall any  
21 meetings that you participated in where this subject of  
22 actuating HPI at the time reactor coolant pumps were turned  
23 off.

24 Those statements, or some of these statements seem  
25 to be in conflict with events that occurred. Okay. The fact

1 that you did attend PORC meetings, that you had discussed the  
2 sequence of events at the time.

3 BY MR. RUSSELL:

4 Q Can you give us any information that would help  
5 us with this particular deposition?

6 It would certainly appear that when you were being  
7 deposed that the statements you were making were not consistent  
8 with other documents and other statements and some of the  
9 things we just walked through in the last hour.

10 A There is a -- the only thing --

11 Q What happened during that period of time?

12 A I don't know what question I was asked when I  
13 answered this, did not see any drafts of the LER before it  
14 was filed. I know that I was working with VanWitbeck on a  
15 couple of times a week basis answering questions about the  
16 sequence of events.

17 There were times he would call me into his office,  
18 they had -- it was not the sequence of events that you have  
19 there. It was their worksheets. They were trying to piece  
20 together when things happened. And I would look at those  
21 and give my comments and then I would leave.

22 And occasionally he would send me a few pages in  
23 the mail to read and I made comments pretty much like those  
24 documents we saw Bill and Craig had initialed. If I had  
25 anything substantial I was supposed to call him or send him

1 back some comments.

2 I think what this statement means is that I  
3 didn't see the LER before it went to the NRC the way we  
4 were sending it to the NRC.

5 Q You mean the final document that had the references  
6 to your particular testimony --

7 A Right.

8 Q -- supporting that inclusion?

9 A Right. Yes, the sequence of events or if I refer  
10 to it as the LER, what I'm talking about is when VanWickbeck  
11 got started wrapping it all up and started putting it all  
12 together, he didn't talk to me much anymore. And I didn't  
13 review the thing before it left.

14 I don't believe -- and I don't remember seeing it.  
15 I don't believe that I saw it before -- after it was wrapped  
16 up and ready to go. I saw bits and pieces of it, but that's  
17 about it.

18 Q Do you know what caused the long delay with respect  
19 to that particular document being completed?

20 For example, the PORC meetings, the comments, the  
21 other documents that we see were in the July 1979 time frame.

22 A Right. I remember --

23 Q The final document was not transmitted to the NRC  
24 until February 6th, 1981. That's twenty months after the  
25 last revision and discussions for which we have the annotated

1 records, Mr. Zewe's handwriting, Mr. Long's, the PORC Committee  
2 meeting.

3 What was going on in that year and a half?

4 A I don't know. I remember quite a bit of activity,  
5 like you say, in March, April, May and June. That's the time  
6 when I'm talking about that VanWitbeck typically would be  
7 calling me and asking me questions and things like that,  
8 July, maybe in the Summer.

9 But after that, I don't remember -- I mean, it  
10 tailed off. It kind of slowed down and I wasn't involved  
11 in that anymore, although I was involved in a lot of other  
12 meetings and testimony and stuff. But that seemed to stop.

13 So I don't know why the sequence of events wasn't  
14 submitted. I think that -- I don't know when the EPRI  
15 sequence of events came out. I believe that was in 1980.

16 When I saw that, I thought that was a pretty neat  
17 document because it layed everything out chronologically. I  
18 remember thinking as I read through it that it was an interest-  
19 ing way to lay things out. It's pretty similar to the way  
20 GPU did it, but I hadn't seen a complete sequence like that  
21 before the EPRI document came out.

22 That's why I remember, and I've got a feel to  
23 myself, that I didn't see that LER document before it went  
24 out. That's the way I remember it.

25 Number two, it says: Do not recall having seen any

1 drafts of the SOE being prepared by GPU. What I mean there  
2 again is the full document. I wasn't one of the reviewers,  
3 or didn't read the whole thing before it went out. But I  
4 did see bits and pieces of it as VanWitbect would ask  
5 questions about it.

6           So if that was interpreted in the testimony as  
7 never saw any of this information before, that's not really  
8 right. Whenever they asked me a question about it, I saw the  
9 page that they were talking about, or the three or four  
10 events that they were trying to piece together.

11           This Number 3 confuses me a little bit. Here we  
12 are talking about sequence of events. If I remember the  
13 testimony correctly, this was in reply to a question, you  
14 know, did you ever discuss the SOE with anybody, sequence of  
15 events with anybody.

16           Q     If you like, we can actually go to this particular  
17 exhibit and read it in context.

18           A     We could but what I'm saying here is the sequence  
19 of events, meaning the sequence of events document. Here  
20 I'm just talking about the sequence of events, not actually  
21 any document.

22                     But, when did you discuss the sequence of events.  
23 Well, one of the times I discussed it was in this first I&E  
24 interview which was a taped interview at this motel.

25                     And I guess we should look at it, because I don't



1 really think that I said that that's the only time I ever  
2 discussed what happened during the accident.

3 Q Page 18 through 20-A.

4 MR. GEPHART: Of what exhibit?

5 BY MR. CAPRA:

6 Q Before we go to that, this is where I'm talking  
7 about your interview on April 23rd, 1979 with I&E before Mr.  
8 Hunter, Mr. Yuhas and Mr. Marsh, took place in Trailer 203  
9 at the site.

10 I don't think you were referring to this particular  
11 interview.

12 A No.

13 Q On Page 19 --

14 MR. RUSSELL: Why don't you just let him read it  
15 so he can read in context the pages around that and then when  
16 you get to the section --

17 THE WITNESS: Okay.

18 (The witness is looking at a document.)

19 Okay. Again, I think the distinction is that these  
20 questions are asking whether we had meetings where we dis-  
21 cussed the sequence of events document. Okay. Not the  
22 trend of events that occurred. We discussed that many times.

23 And I answered these questions. The question is  
24 quite specific: Did you ever discuss any written draft of  
25 the sequence of events of the accident in a group which



1 contained, in addition to yourself, other control room  
2 operators who had been on duty?

3 Yes, the answer.

4 Was there more than one such discussion? I said  
5 I only remember one at this time. That was a session led  
6 by the NRC I&E group at the Skyway Motel in Harrisburg.

7 Putting that aside -- this is the question -- I'm  
8 asking you now whether you had a discussion about a written --  
9 I'm asking you whether you had a discussion concerning a  
10 written sequence of events in draft form which discussion was  
11 participated in by not only yourself but other operators that  
12 were on duty the day of the accident?

13 And I say: No, I don't recall any specific times  
14 where a review of that nature took place. Meaning here is  
15 the sequence of events, three or four of us are around it  
16 and we are discussing it.

17 But I think this statement here where it says the  
18 only discussion of the sequence of events was with the I&E  
19 interview at the Skyway Motel in Harrisburg, I don't think  
20 that's an accurate summary of this testimony.

21 BY MR. CAPRA:

22 Q Was that the only time you could remember --

23 A Discussing --

24 Q -- discussing --

25 A -- the document.

1 Q Isn't the question a written sequence of events?

2 A Yes, that would be the written sequence of events  
3 document, right.

4 Obviously we discussed the sequence of events five  
5 or -- on five or six other occasions but sometimes I was alone,  
6 in the Dr. Long interview, or with the NRC I&E interviews down  
7 at the trailer where they were all taped. Those are all  
8 sequence of events discussions but we didn't have the sequence  
9 of events document.

10 We weren't trying to improve upon or add informa-  
11 tion to the sequence of events. They were just asking me  
12 questions about the sequence of events.

13 Q The PORC Committee meeting in May of 1979, you  
14 did sit down with a draft sequence of events with the other  
15 individuals and discuss it and make comments on it with the  
16 other control room operators.

17 A Well, at that time and now I don't recall attending  
18 that meeting and having the documents around and discussing  
19 it.

20 Q You did not recall it during the deposition; is  
21 that what you are saying?

22 A No.

23 MR. GEPHART: He said he doesn't recall it now  
24 either.

25 BY MR. CAPRA:

1 Q You don't recall it now?

2 A The only meeting of this nature that I recall  
3 was in the auditorium, it was on TMI. There were very few  
4 people there. I don't remember it being identified as a  
5 PORC meeting or like there were minutes being taken or any-  
6 thing like that. It may very well have been with some PORC  
7 members but as far as I knew, it was a, just come on in here  
8 and talk with these guys type meeting.

9 That may be the meeting that everybody is talking  
10 about. But again that -- I don't recall that as being a  
11 notch-by-notch description of the SOE.

12 I've been to other PORC meetings. I've been to  
13 PORC meetings where you review procedures and discuss their  
14 safety and all that sort of thing. And I have not been to  
15 any meetings like that to discuss the actions. I mean,  
16 people that you recognize are sitting around the table,  
17 someone is taking minutes, and we are dissecting the procedure.  
18 That's what I call a PORC meeting, okay.

19 Now, all I'm saying is the possibility is that  
20 some of these PORC members had a meeting, okay, which I  
21 attended and the SOE was one of the topics of discussion,  
22 and I just wasn't aware that that was an official PORC  
23 meeting. That may be the case.

24 Q That was the principle purpose of that PORC  
25 meeting May 14th and May 17th, was to discuss the draft

1 sequence of events, go through it with Mr. VanWitbeck and  
2 other members of the PORC Committee and yourself.

3 BY MR. RUSSELL:

4 Q But you are saying based upon the way the meeting  
5 was conducted, wherever it was conducted, that you did not  
6 understand that this was a formal PORC meeting, that it was  
7 different from other meetings that you had observed where  
8 procedures or other documents were reviewed?

9 A Right. So when people asked me, have you been to  
10 a PORC meeting about this, I said I don't remember being at  
11 a PORC meeting about that simply because I didn't think they  
12 were the same thing.

13 BY MR. CAPRA:

14 Q These excerpts were taken from your trial testi-  
15 mony, December 6th and December 7th, 1982. This was part of  
16 your direct testimony where you were being questioned by Mr.  
17 Seltzer.

18 On Page 3493, you did state that you manually  
19 initiated HPI only once.

20 However, back in your 9/19/79 interview with Mr.  
21 Keaten you said that you did remember initiating HPI at  
22 least twice. You said: One time we did it and we were told  
23 to stop. Another time an order came down to do it.

24 Now, when you were asked about this in your OI  
25 interview later, you said that when you went back and looked

1 at this you were confused because it appeared that the second  
2 statement, an order came down to do it, you weren't sure  
3 whether the "do it" referred to securing or starting or  
4 initiating HPI.

5 Does that ring a bell?

6 A No, it doesn't.

7 BY MR. RUSSELL:

8 Q Would you like to look at Page 60 of your inter-  
9 view and see the context to see if you recall that discussion?

10 A Is that in here?

11 BY MR. CAPRA:

12 Q Yeah, they are all in chronological order, okay,  
13 so if you look at -- there is a tab there that shows where  
14 your testimony begins in your notebook there.

15 A Which page?

16 Q Let me show you.

17 A Right. I've got it.

18 MR. GEPHART: That's the wrong page.

19 MR. CAPRA: Okay. Let me show you how this is  
20 organized. There is a tab here for each of you. All the  
21 documents we are talking about are laid out chronologically.

22 I show the September interview right here,  
23 September 19th, 1979. Page 60.

24 (The witness is looking at the document.)

25 THE WITNESS: There is another one on 3493 where I

1 said I did it once, right?

2 BY MR. CAPRA:

3 Q Right.

4 A That's in here?

5 Q Yes. Again, chronologically. We are now into  
6 the trial testimony. Okay, 3493.

7 A Okay.

8 (The witness is looking at the document.)

9 BY MR. RUSSELL:

10 Q You have seen the two statements. The two  
11 statements are apparently in conflict with each other.

12 What I would like you to do is to try to attempt  
13 to explain what caused the conflict, or if in your mind  
14 there was something that occurred in between which would  
15 cause you to change your testimony?

16 A This question is different from this question.

17 Q Would you like to expand upon -- you are looking  
18 at Page 60 of the --

19 A Page 60 here. It says I -- well, it's an answer.  
20 Mr. Keaten says: You don't specifically remember hearing an  
21 instruction that, all right, we are just going to leave two  
22 of the pumps running full blast until further notice?

23 Now, I can remember trying to initiate high pres-  
24 sure injection manually at least twice. Okay.

25 Now, this other question is a little bit different,



1 because it says: Was there any point during the time that  
2 you were still on duty -- that's between eleven o'clock at  
3 night and four o'clock the next day, right. But it says:  
4 While you were still on duty the morning of the accident  
5 where you manually initiated full high pressure injection?

6 I said: Yes.

7 How many times did you initiate a full manual  
8 actuation of the high pressure injection?

9 To me, that means how many times did you push the  
10 red button. Once. Okay.

11 Now, back here where we are talking about initiating  
12 high pressure injection, he wasn't that specific. And  
13 I'm talking about times after the initial accident where I  
14 manually started high pressure injection without pushing  
15 the red buttons. That was right about ten seconds into the  
16 accident. Right.

17 Disregarding that one, there were at least two  
18 more. One where I pushed the red buttons and one later on  
19 in the afternoon after the -- we were like one or two o'clock  
20 in the afternoon I guess, there was another one in there.  
21 Right.

22 Q So you weren't differentiating between starting  
23 the makeup pumps and opening the 16 valves from hitting the  
24 red buttons to start high pressure injection?

25 A In these two questions, I am, yeah, because when

1 he says a full manual actuation of high pressure injection  
2 that, to me, means pushing the manual buttons for the entire  
3 system and --

4 Q Full, to you, means then in addition to high  
5 pressure injection, also low pressure injection, the manual  
6 initiation of safety injection?

7 A That's right.

8 Q As compared to full high pressure injection which  
9 could be a thousand gallons per minute from the two makeup  
10 pumps going into the four -- through the four sixteen valves  
11 into the four cold legs?

12 A Right. I'm pretty clear on this, one time manual  
13 actuation, full manual actuation, because as far as I know  
14 I'm the only operator that ever did that at TMI. I remember  
15 doing that once. Okay.

16 Q You are now referring to your testimony at the  
17 trial?

18 A On Page 3493, yeah. The other manipulations where  
19 I say at least twice, I'm trying to differentiate there be-  
20 cause there was -- right near the accident there was one,  
21 that was high pressure injection even though the system was,  
22 you know, I did it by opening the valves and turning on the  
23 pumps. It's the same thing.

24 And later on at the time of the site emergency was  
25 another high pressure injection, and that's the one where I

1 pushed the red buttons. And later on there was an automatic  
2 initiation and another manual actuation where we increased  
3 flow, either just before or just after that pressure spike.

4 And I think that was in with the depressurization  
5 that we were trying to go through to try and get core flood,  
6 on. We were doing all kinds of manipulations with high  
7 pressure injection.

8 Those -- that at least twice terminology can be  
9 differentiated I think from this one full manual actuation  
10 by my interpretation of what full manual means.

11 MR. RUSSELL: All right. The next section in the  
12 trial testimony, Bob.

13 BY MR. CAPRA:

14 Q I think you have cleared up the next couple of  
15 points here with your explanation of that one.

16 Let's go to Page 3513 and 3514 of your direct  
17 trial testimony. It appears that you now recall attending  
18 PORC meetings with Mr. Zewe and Mr. Faust and that at that  
19 particular point Faust stated that HPI was initiated at 0541  
20 when the pumps were tripped.

21 And you stated that you did not agree or disagree  
22 with Mr. Faust at the time because you could not recall. Also  
23 no data was available at the meeting in which to confirm or  
24 refute what Mr. Faust said at the meeting.

25 Is that a correct recollection of your testimony?

1 It's right here if you want to look at it.

2 A Again, the meeting I am referring to as a PORC  
3 meeting is the one --

4 BY MR. RUSSELL:

5 Q You mean in the auditorium?

6 A I began to label it as a PORC meeting because that's  
7 the one I thought everyone was talking about.

8 Q You are now talking about the meeting in the  
9 auditorium on the site?

10 A Yeah, this was in the auditorium.

11 BY MR. CAPRA:

12 Q At the time of your deposition you weren't calling  
13 it a PORC meeting, but at the time of your trial testimony  
14 you are now calling it a PORC meeting; is that correct?

15 A I think so.

16 Q Okay.

17 A Somewhere along the line I began labeling that as  
18 the PORC meeting, and I remembered those discussions where  
19 Zewe and Faust were insisting on this and they kept asking  
20 me if I agreed or disagreed. And I said I don't think I did  
21 either one.

22 And that's what this says.

23 BY MR. RUSSELL:

24 Q Now, before that meeting your testimony back in  
25 April of 1979 on the 6th of April with VanWitbeck where you

1 discussed a manual initiation of high pressure injection,  
2 some time between securing the pumps and attempting to start  
3 the 2B pump, that would indicate that you believed that that  
4 event had occurred.

5 That does not appear to be consistent with the  
6 statement in the trial that you neither agreed nor disagreed,  
7 unless the trial is specifically only referring to that PORC  
8 meeting.

9 A Well, again in this statement where I'm talking  
10 about, it may have been when the pumps were off we did a  
11 manual high pressure injection. That's where it seems that  
12 I believe we did a high pressure injection.

13 And since there was so much confusion on it back  
14 in the May thing I kept reading it over and all I can see  
15 is that I had compressed the time between when we turned the  
16 pumps off and when we did the site emergency. Because it was  
17 only a few minutes after the other guys -- you know, this was  
18 after the other guys arrived. The other guys I'm talking  
19 about are the Gary Millers and the engineers and people  
20 that were making a decision about the site emergency.

21 Now I say that's when we did -- later on, it may  
22 have been when the pumps were off we did a manual high  
23 pressure injection. This was after the other guys arrived.

24 We didn't turn the pumps off and do a high pres-  
25 sure injection. In my mind, I guess we did. But those two

1 events were very close together. But actually there is  
2 quite a bit of time between them.

3 BY MR. CAPRA:

4 Q Okay. But --

5 A See what I'm trying to say?

6 Q Yes.

7 A I have labeled the high pressure injection, it's  
8 true. In this sentence I say the high pressure injection,  
9 the pumps going off, it happened pretty close together.

10 But I throw in a third thing that says this was  
11 after the other guys arrived. And now I'm talking about the  
12 honchos arriving just before the site emergency was declared.  
13 And those --

14 Q Do you know now that that is what you were talking  
15 about? I mean, people began to arrive quite early in the  
16 event.

17 A That's right. That's true.

18 Q For example, Ken Brian was there very early because  
19 he was over in Unit 1. Brian Mehler arrived quite early  
20 I believe. George Kunder was called at home; he arrived  
21 quite early.

22 A Right.

23 Q The other thing, back in this previous testimony  
24 you were specifically narrowing it down to a period before  
25 you started the second reactor coolant pump. Okay. The 2B



1 pump.

2 A Before we started?

3 Q Right.

4 A Yes.

5 BY MR. RUSSELL:

6 Q Which was prior to 6:54 in the morning and would  
7 have been some time prior to getting the data recorder back,  
8 approximately that time frame, one hour. Approximately a  
9 one hour time frame between 5:41 and 6:54.

10 BY MR. CAPRA:

11 Q Again, don't lose sight of what we are trying to  
12 do here, okay. We are not trying to get you now to agree  
13 that there was or was not an HPI actuation at that --

14 A Right. I understand.

15 Q -- particular time. Okay. We are trying to  
16 determine whether at that time you really did believe that  
17 there was an actuation based on the statements of yourself,  
18 other individuals, the fact that you did not disagree with it,  
19 yet you took exactly the opposite stand at the trial and during  
20 your deposition, but particularly at the trial that it did  
21 not occur, not only didn't it occur but that you never said  
22 it did occur.

23 A I know why I took such a firm stand in the trial,  
24 because it's the first time I ever examined the data. Prior  
25 to that this confusion I think is, either I had heard Bill and

1 Craig talking about the initiation and assumed that it was  
2 in there. I don't know. I don't know why there is so much  
3 confusion about the time in that particular testimony, be-  
4 cause as far as I know, while I haven't reviewed my other  
5 discussions about the sequence of events, I don't think I  
6 mentioned it any other time.

7 I don't know why --

8 BY MR. RUSSELL:

9 Q That is the only time that we have been able to  
10 find in looking through this record where you mentioned a  
11 high pressure injection actuation.

12 A I may have talked to Bill or Craig about it and  
13 just stuck it in there. I don't know.

14 BY MR. CAPRA:

15 Q The other thing, Page 3513 and 3514, where you  
16 now recall attending the PORC meeting because you now  
17 label it a PORC meeting, where you said you did not agree or  
18 disagree with Mr. Faust at the time because there was -- one  
19 of the things was, you did not recall HPI being actuated at  
20 that time so it was better to remain silent than challenge  
21 something when you had no recollection of whether it did or  
22 did not occur, but you also said there was no data available  
23 at the meeting to confirm or refute it. Okay.

24 Whereas, Mr. Zewe in his OI interview, when he  
25 recalled the PORC meeting, the OI interview now and I'm talking

1 about May of '84, when he was questioned about why he had  
2 insisted that it be put in the sequence of events he said  
3 that Faust had advised him at the PORC meeting that he had  
4 actuated HPI at the time when those last two reactor coolant  
5 pumps were shut down.

6 And then he, being Mr. Zewe, said that they had  
7 charts at the meeting which indicated that it couldn't have  
8 been left on, couldn't have happened. But Zewe insisted that  
9 it be put in the sequence of events because he wanted that  
10 to reflect what operators recalled or remembered. Okay.

11 So, apparently at the meeting it was somewhat of  
12 an issue, granted not as much of an issue as it has become  
13 since. But there was some data apparently, according to  
14 Mr. Zewe's recollection, that led -- at least, Mr. VanWitbeck  
15 and whoever else was there, to at least discuss the fact  
16 that it did not appear from the data available at the meeting  
17 that that was the case.

18 Mr. Zewe remembered charts, he said. Okay. As  
19 you said, one of the reasons you did not agree or disagree  
20 at the meeting was that there was no such data there. Okay.

21 Let's go on to your cross-examination during the  
22 trial.

23 MR. GEPHART: Getting tired?

24 THE WITNESS: No more tired than I usually am.

25 MR. GEPHART: Can we take a break?

1 MR. CAPRA: Sure.

2 MR. GEPHART: How much longer are you going to  
3 go?

4 MR. RUSSELL: We've only got a couple of other  
5 areas left. But I think it's important to get on the record  
6 his statements concerning what appear to be conflicts in  
7 testimony. And I will need to review all of this and make  
8 a recommendation.

9 MR. GEPHART: What do you think?

10 MR. CAPRA: We don't want to have to do it  
11 again.

12 MR. GEPHART: Well, it's getting on 7 o'clock.

13 MR. RUSSELL: I would think we should be able to  
14 finish in another fifteen minutes to a half an hour.

15 MR. GEPHART: Let's not take a break. Let's  
16 go. Go ahead.

17 BY MR. CAPRA:

18 Q I want to go through your cross-examination. This  
19 cross-examination at the trial took place on December 9th,  
20 1982. At Page 3879 of the transcript, they showed you -- you  
21 will see as we go through here, they show you many of the  
22 documents that we have already discussed this morning.

23 They discuss with you Mr. Zewe's deposition at  
24 Page 820 where Mr. Zewe said that all three operators agreed.  
25 At your trial testimony, you stated that you did not agree or

1 disagree and that they probably construed your silence as  
2 agreement.

3 Later on, at Page 3881 through Page 3885 they asked  
4 you to respond to Mr. Zewe's testimony regarding the count-  
5 down. You recall that we looked at an exhibit where Mr.  
6 Zewe presented some testimony during his interview on May 25th,  
7 1979 where he described the countdown sequence.

8 You stated that you did not recall any such discus-  
9 sion. You did remember manual actuation but you did not  
10 recall the time frame.

11 Again they brought out Mr. Zewe's testimony regard-  
12 ing the PORC Committee meeting. Now this is his testimony at  
13 the trial we are referring to. 'It becomes difficult when you  
14 look at some of these documents because you have got quotes  
15 within quotes within quotes.

16 But at the trial they showed you his testimony  
17 where again it was his position that all three of the indivi-  
18 duals agreed and again you stated that the agreement must  
19 have been assumed on Mr. Zewe's part because you didn't  
20 disagree. And you said that -- and at that point you said  
21 that you never made an affirmative statement that it did in  
22 fact happen.

23 Later on in the trial at Pages 3338 through 3390,  
24 you were shown a copy of Mr. Long's comments on the sequence  
25 of events where it states that Zewe, Faust, Frederick insist

1 this is the case. Again, you reiterate that you had never  
2 insisted on this. This is the same document we showed you  
3 earlier today.

4 This is another quote within quotes here, but on  
5 Pages 3890 and 3891 of the transcript you were shown Mr.  
6 Zewe's testimony. Mr. Zewe was shown Mr. Long's comments,  
7 and Mr. Zewe's response to Mr. Long's comments were, yes,  
8 that all three had insisted that HPI had been put on at 5:40  
9 when the reactor coolant pumps were secured.

10 Your response again to that was that you denied  
11 that you ever said that.

12 Then, you were questioned by Mr. Fisk I believe  
13 on Page 3893 and Page 3894 that even though you recalled only  
14 one manual actuation of HPI, the sequence of events filed  
15 with the NRC showed two, the 0541 and the 0720.

16 And again you stated that even though you knew  
17 these two existed and your testimony at the trial was that  
18 only one actuation occurred, the sequence of events went  
19 forward showing two.

20 I believe you may have cleared that up from our  
21 discussions that we had earlier now, that you were referring  
22 to as one manual actuation was hitting the red buttons.

23 A And so that point here where it says the SOE  
24 filed with the NRC showed two, I never told anyone that should  
25 be taken out. I don't recall seeing the entire document where



1 I could have seen that they were still included in that,  
2 if I had any strong feeling about it I was given the opportunity  
3 to take it out. Because I draw the -- this seems to imply  
4 that even though I had strong feelings about it, I didn't do  
5 anything about it. I don't think that was the case.

6 Q And your reason for that is, one, you didn't see  
7 the entire document put together and even had you seen the  
8 document you didn't have strong feelings about it one way or  
9 the other at that time; is that what you are saying?

10 A Right. So the question says: Didn't you ever  
11 tell anyone to take that out?

12 And it seems rather irresponsible that I didn't  
13 do that. But I --

14 Q That's the way -- that was the way the question  
15 was phrased.

16 A Okay. I don't agree with that interpretation of  
17 it but I suppose it's there.

18 MR. RUSSELL: I think we have covered most of the  
19 information in that.

20 MR. CAPRA: I would like to cover this.

21 MR. RUSSELL: Okay. Go ahead.

22 BY MR. CAPRA:

23 Q Almost everything we have talked about today is  
24 covered in your OI interview with Mr. Letts and Mr. Norton  
25 on May 9th, 1984. So I don't think we need to go through

1 that. The only thing I would like to ask you about is if  
2 you look at the discussion beginning on Page 10 where we  
3 were referring back to your interview with Mr. VanWitbeck,  
4 4/6/79, you are questioned about the meaning of the statement  
5 there that said: It was about that time we talked ourselves  
6 into going into high pressure injection. We felt that we  
7 were generating steam in the loops. I believe it was right  
8 in there that we did manually initiate high pressure injection.

9 In discussing what that statement meant, on Page 15  
10 you said that you were trying to establish natural circulation.  
11 You said that natural circulation -- you are trying to explain  
12 a time frame that you are talking about. There was an extended  
13 period of time between the time you tripped the pumps and  
14 you actually initiated high pressure injection.

15 You are saying now it was around -- you are talking  
16 about the 7:20 actuation, and one of the things you say, I  
17 must have been referring to a time when that was more than two  
18 hours into the accident, because it says in there that other  
19 people had arrived and it was later in the event.

20 The other thing you say there that seemed peculiar  
21 to me, you said that natural circulation takes twenty to  
22 forty minutes to an hour to establish.

23 Is that your understanding today?

24 A Twenty to forty minutes, yeah. Not an hour I  
25 don't think. That's too long. The guideline I think is

1 twenty minutes. It wasn't then. It is now.

2 BY MR. RUSSELL:

3 Q Let me understand the difference between time to  
4 establish natural circulation and when one would expect  
5 natural circulation to be in effect following the tripped  
6 pumps.

7 Once pumps are tripped, the pumps coast down. If  
8 you have thermal differences you will get natural circula-  
9 tion and it almost coincides with tripping the pumps.

10 It may take time to verify that, and there is a  
11 difference between the time it takes to establish natural  
12 circulation, how much time is assumed in a safety analysis  
13 or for other reasons, where you have until you need to have  
14 natural circulation in effect.

15 A How long it takes to verify that, and not coast  
16 down or some other transient?

17 Q How long --

18 A That's twenty to forty minutes. Now, what you  
19 said about natural circulation being available immediately  
20 after the pump trip is probably true but not verifiable, not  
21 being able to establish the three or four criteria that we  
22 have for natural circulation.

23 And this is all post-accident.

24 Q This is your understanding now, in the situation  
25 where you have sub-cooling where you are attempting to establish

1 of the operators, they participate in the meetings, and they  
2 write down their recollections of those events as they occur.  
3 Bill Long writes down, Faust, Frederick, Zewe insist this is  
4 the case. Others have similar perceptions at the time, that  
5 the operators felt high pressure injection actuation occurred.

6 This is what we are referring to when we say there  
7 is circumstantial evidence in testimony of others which would  
8 appear to support a conclusion that in the days shortly after  
9 the accident and during the development of the sequence of  
10 events you were in agreement with incorporation of HPI actua-  
11 tion. Some time later, in preparation for the trial or during  
12 the -- actually after the start of the trial and the prepara-  
13 tion of witnesses, the issue of the mystery man becomes a  
14 significant issue. And your testimony changes to one of,  
15 I was silent on that issue. I didn't argue for it one way  
16 or the other.

17 And now you appear as an expert witness supporting  
18 a conclusion that the HPI actuation did not occur.

19 A Uh-huh.

20 Q That appears to not only be a stark difference  
21 from what your testimony was but appears to be motivated by  
22 a desire to refute the arguments of counsel for B&W during  
23 the trial.

24 Is there anything that you have to add at this  
25 point in time based upon what we have gone through today that

1 natural circulation?

2 A Right. And you have to verify it, the steam  
3 generator, Delta-T and all that kind of stuff.

4 Q It's really an apple and orange type argument,  
5 because in the circumstances you had at the time you were  
6 concerned about voiding, you did not have a situation where  
7 you had normal flow with your pumps, you were having pump  
8 vibration, lower amperage on the pumps.

9 A Yes.

10 Q Other problems. And really the situation does not  
11 appear to me to be relevant to the circumstances we are talk-  
12 ing about in the time frame.

13 So it appeared to be a fact that you had learned  
14 after the event that you were superimposing back on the  
15 event.

16 A I think so.

17 Q Is that the case?

18 A Yes. These numbers and these concepts about  
19 natural circulation are all things that we learned after the  
20 accident.

21 Q Let me go back to the difficulty, we have a  
22 situation where we have meetings that involve three operators,  
23 two of those operators argue for inclusion of HPI actuation  
24 in the sequence of events, Bill Zewe and Craig Faust. Other  
25 people are there that are present. They observe the interaction



1 would help to rationalize or resolve that conflict?

2 A I think the two situations that you have developed,  
3 that you have drawn from the record, are -- there is a little  
4 bit of an element missing.

5 When Bill and Craig insist that the mention of  
6 the HPI be inserted in the record, the SOE, it was my  
7 interpretation -- and I think Bill stated outright -- that  
8 we've got to put this down in the record or else it will be  
9 forgotten, it won't show up anywhere. Here is a valid operator  
10 memory of something, even if it's misplaced, it's not at 0541,  
11 maybe it's at 0620 or something, it ought to be put in and  
12 discussed and thought about and checked out rather than just  
13 say, well, we will discard it and not count.

14 His insistence, I felt and I feel today, was based  
15 on making the record complete and then checking the data later  
16 and we will resolve this conflict later. But don't just dis-  
17 regard this Craig-Faust insistence and his insistence that  
18 this HPI did occur.

19 I remained silent thinking that -- not that I  
20 agreed with the HPI or disagreed with the HPI initiation,  
21 but I agreed that it should be written down somewhere and  
22 analyzed and figured out in the weeks and months to come.  
23 So I think we can draw the conclusion that I agreed that it  
24 should be inserted in the SOE for that purpose, so that it  
25 would be preserved and analyzed, just to figure out if it



1 actually did happen.

2 I mean, I felt there was nothing to be lost by  
3 looking at it closer. So I didn't disagree that it should  
4 be put in the record. That's how I think that came down.

5 During the trial everyone started hearing about  
6 the mystery man, and it became a rather large point of  
7 contention that if this HPI actuation actually did occur then  
8 this pyramided into some kind of big event and changed the  
9 whole outlook on the accident and makes it look intentional  
10 and all that sort of thing. And I was asked by the counsel  
11 whether or not I thought HPI occurred at that time, and I  
12 said, no, I don't think it did. I don't remember it happen-  
13 ing.

14 And he asked me if I would examine the data, or  
15 if I had ever examined the data I was having to support my  
16 memory from, and I said, no, I never looked at it. So they  
17 gave me the stuff to look at and I came to the conclusion  
18 that HPI didn't occur.

19 And they thought it was significant that I now  
20 was pretty firm on the fact that I didn't believe it occurred,  
21 I not only didn't remember it but here I could look at the  
22 data and prove to myself that it didn't happen.

23 They said they would request the Judge that I be  
24 allowed to say that at the trial, and asked -- he asked me  
25 if I would say that at the trial, and I said sure.

1           So then they laid this stuff out at the trial and  
2 asked me all the same questions again, and the final question  
3 I think was, did it occur, and I said no. And that was the  
4 conclusion based on, one, I didn't remember it occurring;  
5 and, two, I have looked at all these pieces of paper and it  
6 proves to me that it didn't happen.

7           And that, of course, is regarded as expert testimony  
8 because it was -- I don't know, some kind of rule they made  
9 up.

10           Then, I didn't know this was going to happen. Fisk  
11 gets up and starts cross-examining me on it, or maybe it was  
12 the other order. And as a matter of fact, I think he did go  
13 first. He showed me some data and said, this is where HPI  
14 occurred, and I said, no, it couldn't happen there because  
15 the level should not decrease when you have HPI going on.

16           And so he kept showing me the same curves saying  
17 this is where it happened, and I said I can't agree with that.  
18 And he pushed me and pushed me to say either change my mind  
19 or prove it further. And I tried to explain it to him, and  
20 I went through a lengthy explanation to the Judge and how  
21 this diagram shows if the pump is moving water it can't be  
22 changing makeup tank level.

23           The only thing I had -- that was what I based my  
24 conclusion on, whether it was right or wrong. I guess three  
25 or four other Committees decided whether that was right or

1 wrong. But at the time, with the data I had, I firmly believe  
2 that there could not have been an HPI at that -- within that  
3 five or ten minute frame.

4 And so I think I came across rather hard line, one,  
5 because I was getting rather badgered by Mr. Fisk and I just  
6 felt that I had to, you know, insist that I change any of  
7 the answer that I just made. In fact, I really did believe  
8 that there wasn't any HPI based on that one set of data and  
9 charts that they showed me.

10 So, although it appears that I firmly believed at  
11 one point in time that there is no reason to speak up and  
12 no disagreement that there was an HPI and then later on saying  
13 that there was not an HPI, I don't think they are linked  
14 because they are two different circumstances. One, where I  
15 was specifically asked to analyze it and in the other case I  
16 was just listening to a conversation and saw no reason to  
17 disagree with it and destroy the record as Zewe wanted to  
18 construct it.

19 I think that's a complete picture.

20 Q Was there ever an occasion where you got together  
21 with Mr. Zewe and Mr. Faust after the accident, a few days  
22 to weeks after the accident, recognizing what had been  
23 reconstructed from the standpoint of voiding in the core and  
24 core damage, recognizing that you were losing inventory and  
25 should have been initiating high pressure injection actuation

1 in order to prevent core damage and didn't?

2 As a result of feeling some responsibility for  
3 the event developed amongst the three of you a scenario that  
4 HPI was actuated at the time core cooling was stopped, when  
5 the reactor coolant pumps were turned off?

6 A No. We never met with that intent. What you  
7 are saying is that we analyzed the data and found out we  
8 made a mistake and then get together and make a story and  
9 say we really did make a mistake?

10 No, no. We never did that.

11 Q There was no collusion amongst the operators then  
12 to fabricate a story which would make it look as if they  
13 understood more about what was happening?

14 A No. In fact, one of the things that Mr. Zewe was,  
15 at that time building some resentment and kind of anger about,  
16 that we were not allowed to very often be interviewed as a  
17 group or be questioned as a group. This PORC meeting was an  
18 exception.

19 Usually we were -- especially when it was an NRC  
20 interview, they were running almost daily down there in the  
21 trailers on the south end of the Island. We had to go  
22 individually. And after about a month of that, Zewe began  
23 to feel that, you know, they had the information they needed  
24 and our memories were starting to fail and we were probably  
25 starting to contradict each other. And there was no way to

1 take advantage of supporting each other in a group panel like  
2 the PORC did. We never were able to discuss our testimony  
3 or how the sequence of events was appearing to people who  
4 were putting the big picture together.

5 And that caused him some great amount of concern.  
6 And he voiced that several times, that at some point in time  
7 after we have gotten our initial impressions of the accident  
8 down as individuals we ought to be put together as the  
9 operating group as we were, as a crew, and try to piece to-  
10 gether how this thing came down.

11 The first time we actually did that I think with  
12 any success was at the Essex Corporation mockup. I don't  
13 know if you know about that. Where we tried to construct  
14 the sequence of events using a model of the control room.  
15 And I think some new information came out of that that went  
16 into the EPRI document. That was a good exercise.

17 But that's the kind of thing that Bill wanted us  
18 to do, get together as a group and do that. I think that is  
19 in contradiction to the assumption that we got together and  
20 planned this testimony, because we didn't have that opportunity.  
21 We didn't do it.

22 BY MR. CAPRA:

23 Q You testified to I believe it was OI when you  
24 were initially interviewed on this subject back in May of  
25 last year that the only time you really did recall ever getting

1 together outside without anybody else around, other than the  
2 four operators, including Mr. Scheimann, without other people  
3 around interviewing you, whatever, was when you got together  
4 at Mr. Zewe's house.

5 And other than that, if you were interviewed as  
6 a group such as the Keaten interview or whatever, there was  
7 always somebody else there. And by that time you had been  
8 interviewed enough on the accident, that if you ever did get  
9 together it wasn't to discuss the accident.

10 A We didn't get together, socially or anything like  
11 that.

12 Q I think you also brought out that at this period  
13 of time everybody started switching jobs and there wasn't  
14 the occasion. You didn't operate as a shift together anymore.

15 A Yes. Fairly quickly after the accident. I was  
16 scheduled to be transferred to training on April 1st after  
17 my selection as an instructor in December. That was post-  
18 poned because of the accident, but some time in April I did  
19 go to training.

20 Soon after that, Fred Scheimann went to being one  
21 of the senior people. They selected him for rad waste.

22 Bill stayed on the shift for awhile, so did Craig.  
23 But I think Bill soon shifted to Unit 1 almost full time.  
24 They broke us up within a month or two.

25 BY MR. RUSSELL:



Q Do you have anything else you would like to add  
concerning the HPI actuation scenario?

A No.

MR. RUSSELL: Bob, is there anything you would like  
to add?

MR. CAPRA: No.

MR. RUSSELL: The time is 7:29 and we will complete  
the interview.

Thank you.

(Whereupon, the interview is concluded at 7:29 p.m.,  
Wednesday, January 30, 1985.)

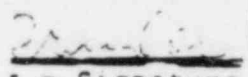
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RD R. FREDERICK

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