

UNITED STATES DISTRICT COURT  
SOUTHERN DISTRICT OF NEW YORK

- - - - -x

GENERAL PUBLIC UTILITIES CORPORATION, :  
JERSEY CENTRAL POWER & LIGHT COMPANY, :  
METROPOLITAN EDISON COMPANY and :  
PENNSYLVANIA ELECTRIC COMPANY, :

Plaintiffs,

80 CIV. 1683

(R.O.)

-against-

THE BABCOCK & WILCOX COMPANY and :  
J. RAY McDERMOTT & CO., INC., :

Defendants. :

- - - - -x

Deposition of The Babcock & Wilcox Company  
by HENRY BAILEY, taken by Plaintiffs, pursuant  
to notice, at the offices of Kaye, Scholer,  
Fierman, Hays & Handler, Esqs., 425 Park Avenue,  
New York, New York, on Tuesday, February 23, 1982,  
at 9:40 o'clock a.m., before Joseph R. Danyo, a  
Shorthand Reporter and Notary Public within and  
for the State of New York.

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PDR ADDCK 05000289  
T PDR



WALTER SHAPIRO, C.S.R.  
CHARLES SHAPIRO, C.S.R.

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## A p p e a r a n c e s :

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of Counsel

## ALSO PRESENT:

David Taylor

ooo

1  
2 IT IS HEREBY STIPULATED AND AGREED, by  
3 and between the attorneys for the respective  
4 parties hereto, that all rights provided by the  
5 C.P.L.R., including the right to object to any  
6 question except as to the form, or to move to  
7 strike any testimony at this examination, are  
8 reserved; in addition, the failure to object to  
9 any question or to move to strike testimony at  
10 this examination shall not be a bar or waiver  
11 to make such motion at, and is reserved, for the  
12 trial of this action.

13 IT IS FURTHER STIPULATED AND AGREED that  
14 the within examination may be sworn to by the  
15 witness being examined before a Notary Public  
16 other than the Notary Public before whom this  
17 examination was begun, but the failure to do so  
18 or to return the original of this examination to  
19 counsel shall not be deemed a waiver of the rights  
20 provided by Rules 3116 and 3117 of the C.P.L.R.,  
21 and shall be controlled thereby.

22 IT IS FURTHER STIPULATED AND AGREED that  
23 the filing and certification of the original of  
24 this examination are waived.

25 \* \* \*

1  
2 H E N R Y B A I L E Y, having been first duly  
3 sworn by Joseph R. Danyo, a Notary Public within  
4 and for the State of New York, was examined and  
5 testified as follows:

6 EXAMINATION BY

7 MR. SELTZER:

8 Q Please state your name and address for the  
9 record.

10 A Henry Bailey, Route 1, Monroe, Virginia.

11 Q Can you identify GPU Exhibit 466?

12 A Yes.

13 Q What is it?

14 A It is my resume.

15 (Document entitled "Resume of Henry A. Bailey"  
16 was marked GPU Exhibit 466 for identification, as  
17 of this date.)

18 Q Who prepared it?

19 A I did.

20 Q What were you attempting to set out?

21 A Just a description of my previous work  
22 experience and education.

23 Q What led you from Auburn University to the  
24 Navy Nuclear Power School?

25 A I was in the Navy ROTC at Auburn, and as a



1  
2 result of that, I had an obligation to go into the  
3 Navy, and so in the Navy I went to Nuclear Power School.

4 Q Had you had any courses in nuclear engineering  
5 at Auburn?

6 A No.

7 Q What happens at the Navy's Nuclear Power  
8 School?

9 MS. WAGNER: Objection. What do you mean by  
10 what happened?

11 Q What do they do there?

12 A The first six months is theoretical courses  
13 in physics, mathematics, thermohydraulics, and then the  
14 second six months in the school was spent at a  
15 prototype Naval reactor plant.

16 Q Who taught the courses during the first six  
17 months?

18 A I don't recall.

19 Q Were they professional educators?

20 A They were, as I recall, Naval officers. I  
21 never saw their resume. I am not sure what their  
22 qualifications were.

23 Q You don't know whether any of them had  
24 doctorates in nuclear engineering?

25 A No.

1  
2 Q Did you get course credits for the half  
3 year in classroom instruction?

4 A No.

5 Q Do you have any way to quantitize the amount  
6 of study time you spent on thermohydraulics?

7 A No. I don't think so.

8 Q Was it a course that was taught in a class  
9 that met regularly?

10 A As I recall, it was one subject that was  
11 covered under a general engineering course. As I  
12 recall, I think the name of the course was reactor  
13 engineering, or something like that.

14 Q So within a course on reactor engineering,  
15 one of the topics covered was thermohydraulics?

16 A Yes.

17 Q What is thermohydraulics?

18 A I would say thermohydraulics would be the  
19 science of the behavior of fluids under certain  
20 conditions. Of course, our emphasis was on water.

21 Q Was there any lab work associated with the  
22 six-month classroom?

23 A No.

24 Q Was the section on thermohydraulics treated  
25 with specific application to a nuclear reactor?

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A Not really. The courses were pretty theoretical.

Q Was the prototype reactor an operating nuclear-fueled reactor?

A Yes.

Q Was it a prototype of a reactor used for propulsion?

A Yes.

Q In other words, it was not a prototype of a reactor intended principally for generation of electricity?

A That's right.

Q What were your responsibilities at the prototype reactor?

A A student.

Q How was instruction organized when you were learning at the prototype reactor?

MS. WAGNER: What do you mean, how was it organized?

Q Did you have classrooms? Or was it more like on-the-job training?

A There were some classroom sessions in which systems were discussed, but I would say most of the time was spent in the plant on the job experience.

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Q What kinds of training materials did the Navy use, written materials, when you were at the prototype?

A As I recall, most of it was classified, and I don't believe I would be free to discuss it.

Q We are all law-abiding Americans here.

MS. WAGNER: I believe the classification applies even though we are law-abiding.

Q You are saying you believe that the materials you used more than two decades ago is so top secret that you can't describe even the nature of the materials that were used?

A They were classified at that time. I don't have any direct evidence that they have been declassified, so I don't feel free to go into detail.

Q Is just about everything you received in writing classified?

A No, I wouldn't say that. It has been 20 years ago, but I would have trouble distinguishing what was classified and what wasn't at this point.

Q Did you have any simulator training when you were in the Navy?

A No.

Q How did the Navy train operators to respond

1  
2 to loss of coolant accidents?

3 A You studied about the accident. You were  
4 told about the accident and were given a procedure  
5 for the accident, but there certainly wasn't -- it didn't  
6 go beyond that, because we didn't use a simulator.

7 Q Are you familiar with the types of  
8 procedures which B&W was drafting for the operation  
9 of its reactors prior to the Three Mile Island accident?

10 MS. WAGNER: At any time prior?

11 MR. SELTZER: Right.

12 A I was involved in procedures during the  
13 period of '69 through '71, but I hadn't been involved  
14 with procedures since then.

15 Q Since 1971, have you seen any B&W drafted  
16 procedures?

17 A I can't recall seeing them.

18 Q Since 1971, have you had occasion to see any  
19 procedures that were ever used by a B&W customer for  
20 the operation of a B&W reactor?

21 A I can't recall seeing them.

22 Q Was the format of the Navy procedures  
23 significantly different from the format of the B&W  
24 procedures that you worked with between 1969 and 1971?

25 A I can't recall.

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Q In the Navy procedures, did the operator have listed a profile of symptoms for various transients?

A It has been 20 years. I really couldn't say.

Q The Navy prototype reactor was a PWR, right?

A Yes.

Q Part of its emergency core cooling system included a high pressure injection system?

A I believe so.

Q Do you have any recollection what the procedures were for when operators should terminate high pressure injection after it had automatically actuated?

MS. WAGNER: If it automatically actuated on a Navy plant; I don't think it has been established.

A No, I don't recall.

Q Did you retain any notes or materials from your training to operate Naval reactors?

A For a while, I guess I kept some notes from the first six months, since the first six months was not classified. It was all theoretical. Somewhere along one of the moves, I think I dumped those. I don't think I have anything now.

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Q What kind of boat is the U.S.S. Enterprise?

3

A An aircraft carrier.

4

Q Does it have a nuclear reactor?

5

A Yes.

6

Q What back-up sources of power does it have?

7

A Again, you are getting in an area of details of a nuclear plant that I believe to be classified.

10

Q How many reactors does it have?

11

A I think that is classified.

12

Q I am sure Jane's published everything that I have been just asking you about even before the Enterprise was launched.

15

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MS. WAGNER: If Jane's published it, you can find out about it in Jane's. If this witness believes it to be classified, there is no reason why he should testify about it.

19

Q Are you familiar with Jane's?

20

A I have heard the name.

21

22

Q Did you receive any decorations or awards for your Naval service?

23

24

25

A I got a Vietnam service ribbon, which was after I got off the Enterprise, on the second ship I was on. And there was another ribbon also, and I don't



1  
2 recall what that was.

3 Q Does the Vietnam service ribbon signify that  
4 you were on board a ship that was assigned to the  
5 Vietnamese conflict?

6 A Yes.

7 Q Which ship was that?

8 A That was the Reeves.

9 Q What kind of boat was that?

10 A That was a guided missile frigate.

11 Q Did that have any nuclear propulsion?

12 A No.

13 Q What, if any, duties did you have aboard  
14 the Enterprise in connection with its nuclear plant?

15 A I was assigned in the Engineering Department.  
16 The Engineering Department Division I was in was  
17 responsible for the secondary side of the plant, the  
18 main engines, and so forth.

19 Q You were not responsible for the operation of  
20 the nuclear steam supply system?

21 A I stood watches in the operation of the  
22 nuclear supply system.

23 Q In other words, in addition to your  
24 responsibilities for the secondary side of the plant,  
25 you stood watches in the control room and had

responsibility for the primary system also?

A Yes.

Q What were your responsibilities with the operation of the nuclear steam system?

A I was engineering officer of the watch.

Q What is that?

A It involves the supervision and operation of the propulsion plant.

Q What induced you to attend M.I.T.?

A I wanted to get an advanced degree, and M.I.T. accepted me.

Q Did you write a Master's thesis?

A No, I didn't write a thesis. I went to an engineering practice school at Oak Ridge, Oak Ridge National Lab, and stayed one semester there in lieu of writing a thesis.

Q Did you work on any particular project at Oak Ridge?

A I worked on two different projects.

Q What were they?

A One of them concerned the operation of a molten salt reactor, and the other involved the operation of a gas-cooled reactor.

Q Is the molten salt the same as the liquid

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sodium cooled reactor?

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A No.

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Q What is the salt used in the molten salt reactor?

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A I am sure I knew at the time but I have long since forgotten.

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Q Did B&W come up to M.I.T. to recruit engineering graduates?

10

A No, not that I am aware of.

11

12

Q What led you to pick B&W as a prospective employer?

13

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A They made me an offer which was attractive compared to other offers, so I took it.

15

16

Q Did B&W describe to you what you could expect your career would be at B&W?

17

18

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A I don't recall any discussion of career. They discussed what business they were in and what job I would have first.

20

21

Q The job you would have first would be in the Nuclear Service Department?

22

A Yes.

23

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Q Did you go with B&W expecting that you would stay in the Nuclear Service or Customer Service Department?

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A I don't think so.

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Q What was the progression of assignments that you had within the Nuclear Service Department at B&W?

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A I believe it was a senior engineer and was assigned certain procedures, draft procedures, to write, and then after about nine months at B&W, I was assigned to the Oconee site as a site operations manager, and I stayed there until I left the Nuclear Service and came back to Lynchburg in another job.

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12

Q Approximately how long were you down at Oconee?

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A It was, as I recall, less than two years.

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A Yes.

Q You said you worked on that for nine months. Were you the original scrivener, or were you revising what other people had drafted?

A I think it is probably some of both.

Q Did you work on the full range of B&W-drafted procedures for the B&W equipment supplied for Oconee?

MS. WAGNER: Do you mean each procedure or one of each type of procedure? I don't know what

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you mean by "full range."

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MR. SELTZER: Each type.

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MS. WAGNER: You mean emergency and operating?

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MR. SELTZER: Right.

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MS. WAGNER: Do you understand the question?

7

THE WITNESS: Yes, but it has been 13 years,

8

and I don't remember the specific procedures I

9

worked on.

10

Q That is why Karen's modification was helpful.

11

I wasn't asking you to recall specific procedures. I

12

was just asking whether your work on procedures covered

13

the different types of procedures that were being

14

drafted for the Oconee NSS.

15

A I can't recall.

16

Q What did you use as the basis for drafting

17

procedures?

18

A B&W has certain documents that are used

19

as sources of information on the system.

20

Q That is why I was asking you what you used?

21

A I would say one example would be the

22

reactor coolant system functional specification, as I

23

recall, would be one.

24

Q What else?

25

A I can't remember if I specifically used that

1  
2 one. I suspect I did. I don't remember which ones I  
3 used.

4 Q What other things would be consistent with  
5 your recollection that you think you used? I don't  
6 want you to speculate. I want to know what is your  
7 best recollection about what you used.

8 A I don't recall anything I specifically  
9 used. I don't recall what documents I used.

10 Q If one were to retrieve from B&W files  
11 procedures for Oconee, would they have your name or  
12 initials on them?

13 A I don't remember.

14 Q What are reactor coolant system functional  
15 specifications?

16 A It is a specification that specifies certain  
17 things that the reactor coolant system is required to  
18 function within.

19 Q Like what?

20 A One thing would be a 40-year design life,  
21 for instance. I haven't looked at the functional  
22 specification in years. I really couldn't tell you what  
23 else was in them.

24 Q Are functional specifications a document  
25 which B&W releases to customers?

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A I don't know.

3

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Q How did you use functional specifications in drafting procedures?

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A I would be speculating if I told you exactly how I went about drafting procedures.

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Q Did you spend a lot of time talking with design engineers before you drafted procedures or while you were drafting procedures?

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A I think it is fair to say that I talked with design engineers. I don't recall any specific instances or how much time I spent.

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14

Q Do you recall what you talked to them about?

A No.

15

16

Q Did you ask any design engineer to review or approve any of the procedures that you were drafting?

17

A I don't recall.

18

19

Q What did you do with the procedures after you finished drafting them?

20

A Eventually we sent them to the customer.

21

22

Q When you got to Ocone, did you see your draft procedures?

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MS. WAGNER: You mean the ones that Mr.

Bailey wrote or the ones that B&W sent?

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MR. SELTZER: Both.



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A I don't recall any procedures I drafted I actually saw at Oconee.

Q Did you see B&W draft procedures at Oconee?

A Yes.

Q What was Oconee doing with them?

A Oconee would take the draft procedures and integrate them into their plant procedures which was a fairly extensive process, as I recall.

Q Did anybody from Oconee ever consult with you about the process that they were going through in integrating B&W draft procedures?

A I can't recall.

Q What, if any, preparation did you have for being site operations manager at Oconee?

A Just the nine months at B&W prior to going down to the site.

Q Were you the highest level B&W employee continuously assigned to Oconee during the years that you were site operations manager?

A No. At the same time, there was a site construction manager which was the same level that I was.

Q So nobody was higher than you?

A That was initially. As I recall, after

1  
2 about one year, there was a site manager assigned who  
3 was over the two of us, B&W site manager.

4 Q What was the scope of your responsibilities  
5 as site operations manager?

6 A The plant was still under construction at  
7 this time. The fuel had not been loaded. Basically we  
8 were there to provide Oconee with any first-hand  
9 instructions that they might need on placing our  
10 equipment and service. Some of the auxiliary, small  
11 auxiliary pumps were tested at this time. I believe we  
12 got up to hydro in the reactor coolant system, and I  
13 can't recall exactly what step we were in when I left  
14 and came back to Lynchburg, but we had not loaded fuel  
15 yet.

16 Q During the hydro, did you heat up the water  
17 using the primary pumps?

18 A Yes.

19 Q Did you develop any steam bubbles outside  
20 the pressurizer?

21 MS. WAGNER: In the reactor coolant system?

22 A I don't recall developing any.

23 Q Did you discuss with any Oconee personnel  
24 the possibility of developing steam bubbles in the  
25 reactor coolant system outside the pressurizer?

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A Not that I recall.

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Q Did you get into discussions with Ocone personnel about operating procedures? By that, I mean procedures for operating the plant once it was critical.

A I don't recall that we did. Most of our attention was directed at things like flushing out systems, which systems would be completed when, and so forth.

Q When is the first time you heard of saturation occurring in a B&W plant reactor coolant system outside the pressurizer?

MS. WAGNER: Are you asking him now for a specific event rather than a theorized event?

MR. SELTZER: Yes.

A I think it was at some time after the incident at Three Mile Island.

Q You had never heard of saturation occurring outside the pressurizer before?

A No.

Q Had you known before the Three Mile Island accident that saturation occurring in the reactor coolant system outside the pressurizer could force water level to rise in a pressurizer?

A I had known prior to the Three Mile Island

1  
2 accident that the pressurizer level by itself was not  
3 always a reliable indication of inventory in the  
4 reactor.

5 Q Was your recognition of that triggered  
6 by Carlyle Michelson's study?

7 MS. WAGNER: What do you mean by "triggered  
8 by"?

9 Q Did you recognize that fact as a result of  
10 your review of Carlyle Michelson's study?

11 A This recognition was one of the points that  
12 we made in our reply to the TVA, which I believe was in  
13 reply to Mr. Michelson's concern.

14 Q So your recognition that the pressurizer  
15 water level was not an accurate indication of reactor  
16 coolant system inventory came about as a result of  
17 reviewing B&W's reply to Michelson's study; is that  
18 right?

19 MS. WAGNER: Do you understand that he is  
20 asking you whether this is the first time you  
21 knew that?

22 THE WITNESS: Yes.

23 Q The answer to the question is yes?

24 A My review of the B&W response to the  
25 Michelson concern was when I first recognized that for

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the B&W reactor the pressurizer level was not an accurate indication of inventory at all times.

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(Discussion off the record between the witness and his counsel)

5

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Q Had you met Carlyle Michelson before you got a copy of his report in 1978?

7

8

A No.

9

Q Have you ever met Mr. Michelson?

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A I have seen him. I have never been introduced to him.

12

Q Have you ever talked to him?

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A No.

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Q Have you ever talked to him over the telephone?

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A Yes.

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Q Have you talked to him over the telephone about his 1978 study?

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A Let me amend that. I have been -- I was with about three or four people that talked with Mr. Michelson and others at TVA over the phone. I didn't participate in the conversation.

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Q Were those who were talking, talking about his 1978 study on small break loss of coolant accidents?

A I believe so.

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Q Was the telephone conversation that you have just referred to one that took place before the written response to TVA's letter?

A I believe so.

Q When is the first time you learned that there had been saturation in the reactor coolant system outside the pressurizer at the Davis-Besse plant?

MS. WAGNER: If you ever learned that.

A I am not familiar with the Davis-Besse incident.

Q You know that B&W has a raised loop 177 plant called Davis-Besse?

A Yes.

Q When you say you are not familiar with the Davis-Besse incident, what incident are you talking about?

A The incident -- I have heard there was an incident at Davis-Besse, and that is the extent of my knowledge on it.

Q You got Dunn's two memos dated February 9 and February 16, 1978, didn't you?

A I don't remember getting them.

Q Did you see those two memos in the preparation for your deposition?

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A Yes.

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Q Did you see your name on the c.c. list?

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A Yes.

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Q And it is your testimony that you have no recollection whatsoever of ever receiving those memos?

7

A I don't remember getting them.

8

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Q When is the last time prior to your preparation for this deposition that you saw Dunn's memos?

10

11

MS. WAGNER: I think it would be better

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if you would separate the memos from each other in your questions.

13

14

Q Let me show you Dunn's February 9, 1978

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memo which has been marked GPU Exhibit 78. When is the last time prior to your preparation for this deposition that you saw GPU Exhibit 78?

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A At some time after the Three Mile Island

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accident, we were instructed to hand in files relating to the accident. At this time, I had a file about

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that thick that I took out, and I leafed through it.

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At that time I saw the memo in the file.

23

Q This was a file which you indicated was

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approximately an inch or inch and a half thick?

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A Yes, maybe an inch.



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2 Q That was a file that was in your personal  
3 custody?

4 A Yes.

5 Q The fact that the Dunn February 9 memo was  
6 in that file meant that you had received Dunn's memos  
7 sometime prior to the time that you discovered it in  
8 the file, right?

9 MS. WAGNER: Objection. I don't think the  
10 witness knows what it meant.

11 Q You may answer.

12 MS. WAGNER: You may answer the question, if  
13 you know why it is that the memo was there.

14 MR. SELTZER: That wasn't my question.

15 Q My question is the fact that it was in  
16 that file indicated to you, did it not, that you had  
17 received Dunn's February 9 memo at some prior time?

18 MS. WAGNER: If you remember what you thought  
19 when you saw the memo in the file, you can testify  
20 to that.

21 A I guess I didn't think one way or the other.  
22 I noted it was in my file, but I didn't remember getting  
23 it.

24 Q Where had you kept the file?

25 A It was in a drawer in my desk.

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Q What kinds of documents did you put into the file?

A Memos generally that didn't have file numbers on them, and I couldn't figure where else to put them.

Q I take it that -- and I don't mean to be facetious -- you also kept a wastebasket in your office, right?

A Yes.

Q Some documents that you received you threw into the waste basket, didn't you?

A I think it is fair to say that some documents I receive I do throw in the wastebasket. I can't remember any particular one.

Q Were the documents that you put in the inch-thick file documents which you thought had some significance for future action, and therefore should be saved?

A I can't characterize the documents, all the documents like that, no.

Q Why were you putting documents into the inch-thick file instead of throwing them away?

MS. WAGNER: If you can remember, you can answer the question. But don't speculate.

A I have no idea.

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Q Did you from time to time take out the folder that you referred to and review the documents that were in it?

A Not really. In this particular case, I -- if I did, I never had recognized or remembered this memo until they actually asked for the file.

Q Was Dunn's February 16, 1978 memo in the file?

A No, I don't remember seeing it.

Q Was it in any other file of yours?

A No.

Q At the time you reviewed the inch-thick file, did you read Dunn's memo?

A I scanned it at that time. I don't remember how much time I spent on it.

Q Had Dunn's memo already achieved some notoriety before you spotted it in your file?

A I believe it had, yes.

Q So when you saw it in your file, you knew exactly what this was and what significance was being attributed to it in light of the Three Mile Island accident?

MS. WAGNER: Objection. The witness hasn't testified to any significance being

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attributed to it.

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A I don't remember what I thought.

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Q I asked you if Dunn's memo had already achieved notoriety before you discovered it in your file, and you said, "Yes." What was the notoriety which you were aware Dunn's memo had already achieved?

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A I believe I recall reading about it in the paper.

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Q In a publicly-sold newspaper?

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A In a newspaper, I believe.

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Q Prior to your finding it in your file, were you aware that you were indicated for a copy of the February 9 memo?

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A No, I wasn't.

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Q Have you ever looked through your files to see if you could find a copy of the February 16 memo on which you are also marked for a copy?

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A I have never gone through my complete files. I have looked at at least three files that I thought if I had it, it would be in.

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Q Which files were those?

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A One was or had to do with the small break ECCS analysis that we did in '78.

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Q That was the pump discharge line break

1  
2 problem?

3 A Yes. I don't recall what the other two  
4 were at this time.

5 Q At or about the time that Dunn's February 9  
6 memo was written and circulated, what generally was  
7 your practice with regard to how you handled memoranda  
8 that came across your desk?

9 MS. WAGNER: I object on the basis that  
10 this witness doesn't know when this memorandum  
11 was written and circulated. If you are referring  
12 to the time February of 1978, then he can answer  
13 the question.

14 MR. SELTZER: I think that is all I  
15 indicated in my question.

16 A Generally, we had a file within Licensing,  
17 and most memos if I wanted to keep, I handed it in  
18 to a secretary and asked her to file it in the licensing  
19 file if it was something I wanted to be able to retrieve  
20 later.

21 Q You would do that after you had read the  
22 memo; is that right?

23 A Yes, I think I would probably have some  
24 idea of what was in it, otherwise, I wouldn't ask her  
25 to keep it.

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Q Did you generally read the memos that came addressed to you?

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A It depended on what my work load was. If it was directed specifically to me, I think I read all of them. If I was just on a carbon copy, there were lots of memos I didn't read.

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Q You were the cognizant engineer for ECCS within the Licensing Department in 1978, weren't you?

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A I was given ECCS assignments within the Generic Licensing Unit, which was just one unit of Licensing.

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Q Was there anybody else in Licensing in 1978 whom you now believe had greater expertise in ECCS matters than you did?

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MS. WAGNER: Objection. Do you mean handled more of them or had a better education, or what do you mean by "greater expertise"?

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MR. SELTZER: Greater practical expertise in dealing with ECCS problems.

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MS. WAGNER: I still object.

If you understand the question, you can answer.

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A Could I hear it again?

Q I will rephrase it.

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In 1978, was there anybody else in Licensing who had more continuous responsibility for ECCS matters than you did?

A I am not aware of any. That is not to say that other people didn't have ECCS assignments

Q But in terms of continuous responsibility for ECCS-related matters, you are the person whom you believe had greatest continuing responsibility?

A I say I am not aware of anybody else that would have had more.

(Recess taken)

BY MR. SELTZER:

Q Have you ever discussed with Bert Dunn anything about his February 9 or February 16 memos?

A No, I haven't.

Q Is it your understanding that he sent the February 9 memo to you because you were the licensing engineer who had responsibility for ECCS?

A I can only speculate on why he sent it to me.

Q I am asking you whether you ever developed the understanding that he had sent it to you because you were the ECCS cognizant engineer in Licensing.

A No, I didn't understand that.



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Q Didn't you ever feel you had any responsibility to take action in response to GPU Exhibit 78 after you received it?

MS. WAGNER: I object to the question.

A I don't remember receiving it, so I can't say what thoughts I had.

Q Are you suggesting by your testimony that you think somebody may have slipped Dunn's memo into your folder other than your putting it in yourself?

MS. WAGNER: I object to the question and direct the witness not to answer. He testified he doesn't know how or when it got into his files, and he is not going to speculate about who slipped it into his files.

Q I am asking you whether you have any reason to believe that somebody else slipped Dunn's memo into your file without your knowing that they were doing it?

MS. WAGNER: You may answer the question, if you have any reason to believe anyone did such a thing.

A No, I have no reason to believe anyone did that.

Q When you found Dunn's memo in your file, were there any marginal notes on it?

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A As I recall, there wasn't a single mark on it.

Q In preparation for your deposition, did you see the copy of the Dunn memo that had come from your file?

A I don't know.

Q Am I correct that prior to the Three Mile Island accident, you can recall taking no action whatsoever with respect to the Dunn February 9, 1978 memo?

MS. WAGNER: I object to the question on the grounds the witness has testified he did not see the memo before the accident.

You may answer the question.

A Could we have the question again?

(Question read)

A Prior to the Three Mile Island accident, I can't recall seeing the memo. Therefore, I don't believe I could have taken any action.

Q Is it correct that prior to the Three Mile Island accident, you have no recollection of taking any action whatsoever with respect to Dunn's February 16, 1978 memo?

MS. WAGNER: I object to the question on the

grounds the witness has testified that he has never seen the February 16 memo, but the witness can answer.

A What was your question again?

(Question read)

A I don't recall seeing the February 16 memo. Therefore, I don't believe I could have taken any action on it.

Q When is the last time prior to your preparation for this deposition that you saw Dunn's memo, GPU Exhibit 79?

A I don't recall seeing it prior to the preparation for the deposition.

Q If you haven't had a chance to read GPU Exhibit 79 during your preparation, I would like to ask you to take a moment to read it now.

Are you aware that subsequent to the Three Mile Island accident, B&W issued proposed guidelines for the operation of high pressure injection which were substantially identical to the guidelines set forth by Dunn in GPU Exhibit 79?

A Could you repeat that?

(Question read)

MS. WAGNER: I object on the grounds that I

1  
2 don't know if they are substantially similar,  
3 but the witness can answer.

4 MR. SELTZER: That is the question.

5 A I recall that there were some guidelines  
6 issued, but I can't say that they were substantially  
7 the same as in this memo.

8 Q Do you know that the guidelines had a  
9 50 degree subcooling rule?

10 A I remember the guidelines later on had a  
11 50 degree -- at some point there was a 50 degree  
12 subcooling rule put in, as I recall.

13 Q Based just on what you know, do you have  
14 any information that B&W issued procedures for operation  
15 of high pressure injection along the lines contained in  
16 GPU Exhibit 79 prior to the Three Mile Island accident?

17 A I am not familiar with the procedures that  
18 were in effect prior to the accident.

19 Q In other words, you have no information  
20 that B&W issued procedures like those contained in  
21 GPU Exhibit 79 prior to the Three Mile Island accident;  
22 is that right?

23 A I wasn't familiar with what was in their  
24 procedures specifically about the accident.

25 Q Has anybody ever told you that the procedures

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2 contained in Exhibit 79 were communicated to customers  
3 prior to the Three Mile Island accident?

4 A I don't believe so.

5 Q Have you ever seen anything in writing that  
6 indicated that procedures along the lines of those  
7 contained in GPU Exhibit 79 were communicated to  
8 customers before the Three Mile Island accident?

9 A I don't recall seeing anything on this.

10 Q When you read Dunn's memo after finding it  
11 in your files, was there anything in the memo that you  
12 didn't understand?

13 MS. WAGNER: Are you referring to GPU 78  
14 now?

15 MR. SELTZER: Correct.

16 A I don't recall if there were.

17 Q The first sentence of GPU Exhibit 78 says,  
18 "This memo addresses a serious concern within ECCS  
19 analysis about the potential for operator action to  
20 terminate high pressure injection following the initial  
21 stage of a loss of coolant accident."

22 Do you see that sentence?

23 A Yes.

24 Q When you read GPU Exhibit 78, did you  
25 understand what the basis of Bert Dunn's serious concern

1  
2 was?

3 MS. WAGNER: Do you mean did he understand  
4 what Bert Dunn's basis for writing this was?

5 MR. SELTZER: I am not asking for Henry  
6 Bailey to psychoanalyze Bert Dunn. I am just  
7 asking for Mr. Bailey's understanding of the  
8 memo.

9 MS. WAGNER: I don't understand your question  
10 then.

11 MR. SELTZER: I am asking Mr. Bailey  
12 whether he understood, whether he had an  
13 understanding of what the serious concern was.

14 MS. WAGNER: Mr. Bailey, if you know what  
15 the serious concern was in this memorandum  
16 because somebody told you about it, then you  
17 may testify about it. I don't wish you to  
18 speculate.

19 MR. SELTZER: You are misleading the  
20 witness. That is not my question. I am not  
21 asking him what somebody told him. I am asking  
22 Mr. Bailey based on the reading of this memo  
23 which you did after you found it in your files,  
24 did you understand what the serious concern was  
25 that Mr. Dunn has alluded to in the first sentence?



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2 MS. WAGNER: I am objecting to your question  
3 because I don't think he knows what Mr. Dunn's  
4 concerns were. If you want to ask him what the  
5 memo indicated to him was a concern, that is a  
6 different question.

7 MR. SELTZER: It is the same question. You  
8 are being unnecessarily obstructive.

9 MS. WAGNER: You may answer the question.

10 MR. SELTZER: I will state on the record,  
11 I defended Jim Floyd at his deposition, and I  
12 don't think I ever made an objection of the type  
13 that you are interposing now to prevent  
14 examination of a witness on what he understood  
15 a document meant.

16 MS. WAGNER: I don't think I asked him too  
17 much about documents that he testified he never  
18 saw before, but you can answer the question.

19 MR. SELTZER: You are wrong in saying that  
20 the witness never saw it before. Henry Bailey  
21 has given sworn testimony that he saw this  
22 memo, took it out of his file, and at the time  
23 that he took it out, read it.

24 Q When you read GPU 78, what did you understand  
25 was the serious concern that is referred to in the



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opening sentence of the memo?

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A I think I understood that Bert was concerned about a scenario in which the operators might prematurely terminate HPI injection.

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Q Did you understand that Bert was concerned that premature termination of high pressure injection could interfere with effective core cooling?

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A Yes, I think I understood that effective core cooling was under these circumstances part of Bert's concern.

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Q Take a look at the last sentence of the second paragraph. Bert Dunn says there, "Had this event occurred in a reactor at full power with other than insignificant burnup, it is quite possible, perhaps probable, that core uncover and possible fuel damage would have resulted."

18

Do you see that sentence?

19

A Yes.

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Q Did you understand that this memo was predicting the possibility of core uncover and fuel damage if there were premature termination of high pressure injection?

24

MS. WAGNER: I object to the form of the

25

question.

You may answer.

A I understood that Bert believed that core uncovering and possible fuel damage could result if the operators were to prematurely turn off the HPI and were to leave it off for some extended period of time for some unknown reason.

Q Did you understand from Bert's memo that operators at some B&W-supplied nuclear plant had apparently shut off and left off high pressure injection for some period of time?

A No, I didn't really pick up that much about the Toledo incident when I read it, as I recall.

Q Take a look in the middle of the second paragraph, beginning with the word "during," do you see the phrase, "during the 20 to 30 minutes of noninjection flow"?

A Yes.

Q Did you understand that that referred to a 20 to 30 minute period during which there was no flow from the high pressure injection system?

MS. WAGNER: I advise the witness at this point, if you remember, you may testify, but don't speculate based on what you are reading now.

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2 A I don't remember reading the memo in that  
3 detail.

4 Q As you sit here today, do you now understand  
5 that there was a period of time during the Davis-Besse  
6 September 1977 transient during which the operators  
7 had terminated and left off the high pressure injection  
8 system?

9 A I am not familiar with the Davis-Besse  
10 incident.

11 Q You mean right up to today, you are swearing  
12 that you don't know that the operators shut off and  
13 left off HPI during the September 1977 event at  
14 Davis-Besse?

15 MS. WAGNER: I object to your tone. The  
16 witness has answered he does not know much about  
17 the Davis-Besse event.

18 MR. SELTZER: Pardon my incredulity. I  
19 can't believe that someone of Henry Bailey's  
20 educational background and positions at B&W  
21 doesn't know even today that the operators shut  
22 off high pressure injection and left it off at  
23 Davis-Besse.

24 MS. WAGNER: I continue to object to your  
25 tone, despite your incredulity. The witness has

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answered your question.

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Q Is it your sworn testimony that you don't know even today that the Davis-Besse operators shut off and left off high pressure injection for some discrete period of time?

7

A I know what I read here in Exhibit 78.

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Q Yes, what do you read there?

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A It says during the 20 to 30 minutes of noninjection flow, they were continuously losing important fluid inventory even though the pressurizer indicated high level.

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Q What did you mean when you said you know what you read here?

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A When you say if I know about the Davis-Besse incident, I know what I have read here now.

17

Q What does that tell you?

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MS. WAGNER: I object to further questions on this point. I am not going to permit the witness to interpret this document. He indicated he does not recall the Davis-Besse event and I advise you not to interpret this document.

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Q Are you saying that other than reading this document today, and I do want you to put that aside -- I am not looking for your interpretation of

1 this document which you are making today for the first  
2 time. Are you saying that other than reading GPU 78  
3 today, you are not aware of learning that the Davis-Besse  
4 operators shut off and left off high pressure injection  
5 for a discrete period of time?

6 A I am not familiar with the Davis-Besse  
7 incident.

8 Q Answer my question. I am not asking about  
9 the whole incident. I am just asking about the  
10 premature termination of high pressure injection at  
11 Davis-Besse. I am asking you prior to today, did you  
12 know of premature operator termination of high pressure  
13 injection at an event at the Davis-Besse plant that  
14 took place prior to the Three Mile Island accident?

15 A I am not familiar with the Davis-Besse  
16 incident and specifically the extent to which HPI was  
17 left off.

18 Q You say you are not specifically familiar  
19 with the extent to which it was left off. Before today,  
20 were you aware that high pressure injection had been  
21 prematurely terminated during a Davis-Besse transient  
22 before the Three Mile Island accident?

23 A Before today, the only thing I heard was  
24 a Davis-Besse incident. I heard there was a Davis-Besse  
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2 incident. I think I read this in the papers also.

3 Q Let me ask you to respond to my question.

4 MR. SELTZER: Would you read it again?

5 (Question read)

6 MS. WAGNER: I believe he has responded to  
7 your question several times. I will allow you  
8 to ask it one more time and then I will direct  
9 him not to answer. He answered it three times.

10 MR. SELTZER: I think he answered in such  
11 a way that makes it a little bit unclear as to  
12 whether he is responding to my question or not.  
13 Instead of saying yes, he knew, or no, he didn't  
14 know, he responded, "Yes, I knew there was an  
15 incident."

16 Q I want to find out, did you know that the  
17 operators shut off high pressure injection prematurely  
18 during that incident?

19 A No. I don't believe -- I wasn't familiar  
20 enough with the Davis-Besse incident to know what they  
21 did wrong.

22 Q Take a look at the last sentence of  
23 GPU Exhibit 78.

24 Did you understand when you read this memo  
25 after you found it in your files that the author



1  
2 considered the subject of his memo a very serious  
3 matter that deserved B&W's prompt attention and  
4 correction?

5 A I don't recall what my thoughts were when  
6 I read it. I don't recall how much time I spent reading  
7 it.

8 Q Has anyone ever castigated you for failing  
9 to take any action in response to GPU Exhibit 78?

10 A No.

11 Q Other than attorneys, has anybody ever  
12 spoken to you about your response or lack of response  
13 to GPU Exhibit 78?

14 A No.

15 Q Have you ever seen Bert Dunn and talked with  
16 him since the Three Mile Island accident?

17 MS. WAGNER: About anything?

18 A Yes, I have seen Bert and talked with him.

19 Q Did you ever discuss with him GPU Exhibit 78?

20 A No.

21 Q Did you ever ask him why he sent it to you?

22 A No.

23 Q Did he ever ask you anything about GPU  
24 Exhibit 78?

25 A No.



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Q Have you ever talked with anybody else who is listed as getting a copy of GPU Exhibit 78 to determine what, if anything, they did with respect to GPU Exhibit 78?

A No, I have never discussed this Exhibit 78 with anyone.

Q Until 1980 you were in the Licensing Section headed by Jim Taylor, right?

A Yes. I believe it was January 1980.

Q Until January 1980, you were in the Licensing Section?

A Yes.

Q And you never discussed with Tayloe, Kane or Agar anything about what any of them had done or hadn't done after receiving GPU Exhibit 78?

A No, I did not.

Q Did anybody, not a lawyer, tell you that it would be a good idea for you not to talk about Dunn's memo or any related subject with anyone else?

A Not that I recall.

Q Did you just have no curiosity about what anybody else did with respect to Dunn's memo?

A I don't recall if I didn't have enough curiosity to go over and talk with people. We were

1  
2 busy at the time, analyses after Three Mile Island,  
3 and we were really busy.

4 Q After you returned from the Oconee site,  
5 what was your next assignment within B&W?

6 A I went into the Marketing Department.

7 Q Did you spend the entire duration of your  
8 time in the Marketing Department as a proposal manager?

9 A Yes.

10 Q What are the principal responsibilities of  
11 a proposal manager?

12 A We received bid specifications from  
13 utilities for nuclear steam supply systems, and I had  
14 coordinated the response to that bid specification.

15 Q Did you deal just with the hardware  
16 portions of the response?

17 A We made proposals for hardware, and we made  
18 some proposals for training.

19 Q Is what you were getting requests for bids?

20 A Yes.

21 Q And you were preparing B&W's offer in  
22 response to the request for bid?

23 A Yes.

24 Q Were you in charge of putting together  
25 B&W's offer?

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2           A       The offer was put together by people  
3 throughout the B&W organization. I certainly played  
4 a part in coordinating putting the various pieces  
5 together to the extent to see that everything the  
6 customer had asked for we had either addressed it or  
7 if we couldn't supply it, we had said there was no  
8 bid here or this sort of thing, but the actual material  
9 to go into the proposal was prepared by people in the  
10 various departments of B&W.

11           Q       Were you involved in any negotiations with  
12 customers?

13           A       I was involved in meetings with them where  
14 we would give them presentations on what our proposal had  
15 in it.

16           Q       Did you discuss with any customers the terms  
17 and conditions for sale?

18           A       Not to any depth. Generally the terms and  
19 conditions were a matter that was generally discussed  
20 between our lawyers and their lawyers.

21           Q       Were your responsibilities substantially  
22 unchanged during the three years that you were a  
23 proposal manager?

24           A       Yes.

25           Q       By October 1974, did you decide you had about

1  
2 as much as you could take of putting together offers?

3 MS. WAGNER: I object to the form.

4 A In October 1974, I received an offer to go  
5 into the Licensing Section, which I accepted.

6 Q Who made the offer?

7 A I believe it was Jim Millet.

8 Q What was the initial position which you  
9 were offered in Licensing?

10 A Principal engineer, principal licensing  
11 engineer.

12 Q In which unit?

13 A The Generic Unit.

14 Q Who was the head of the Generic Unit when  
15 you first joined?

16 A I can't recall his name.

17 Q Who were the succeeding heads of the Generic  
18 Unit while you were an engineer in it?

19 A There was Bill Rhyne, Frank Levandowski  
20 and George Geissler.

21 Q What was the area of responsibility of  
22 the Generic Unit?

23 A We looked at different licensing issues.  
24 Generally the ones we looked at were the ones that  
25 might affect the operating plants as well as the backlog

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plants.

Q That seems very all encompassing. What did that leave for the rest of the Licensing Department?

A There were many issues that were plant specific.

Q I see. You didn't say that you only handled licensing matters that applied across the board to a group of plants. Is that what you are saying?

A I am saying we handled generic issues, as our name indicated. We didn't generally get involved in plant specific issues.

Q In the early years that you were with the Generic Unit, how did generic issues arise which needed to be handled by Licensing?

A They might arise from an NRC requirement such as a NUREG.

Q How else?

A They might arise as a result of a PSC that had been filed in-house.

Q Anything else?

A I don't remember at this time.

Q What was your understanding as to why a unit in the Licensing Section had to deal with these issues rather than just have the matter be resolved by

1  
2 people in the Engineering Department?

3 A The Licensing Section was not the only  
4 people that worked on the issues. We provided an  
5 interface with the NRC and arranged meetings with the  
6 NRC on issues and discuss them. We were just the  
7 connection between the B&W and the NRC.

8 Q What did your unit do in interfacing between  
9 B&W and the NRC with respect to generic issues?

10 A We would arrange meetings with the NRC to  
11 try to understand what their requirements were, take  
12 our people from engineering along with us, reach an  
13 agreement from the NRC one what they expected and  
14 then follow through when we got back to submit this to  
15 the NRC in the form of a topical report or some other  
16 report.

17 Q Did the functions of the Generic Unit  
18 remain substantially the same from the time you joined  
19 through the time of the Three Mile Island accident?

20 A The issues, as I recall, didn't remain the  
21 same. There were --

22 Q I said "functions."

23 A The basic concept, yes, I think stayed the  
24 same.

25 Q It is a fact, is it not, that you received a

1  
2 copy of Michelson's study on small break loss of coolant  
3 accidents sometime in 1978?

4 A I recall seeing his report, yes, sometime  
5 in '78.

6 Q I would like to show you a copy of what  
7 has previously been marked as GPU Exhibit 110 for  
8 identification.

9 Do you see where someone has placed a rubber  
10 stamp impression on the front that reads "H.A. Bailey,  
11 Licensing"?

12 A Yes.

13 Q What does that signify?

14 A I believe I received this document.

15 Q Did you receive it in or about late April,  
16 early May, 1978?

17 A I don't recall exactly when I received it.

18 Q Did you have a file in Licensing T1.1?

19 A I don't recall. We could have very well.  
20 I don't recall what specific file numbers were.

21 Q What file would you have sent this to  
22 after you had read it?

23 A I know we had a filing system, but I don't  
24 remember how it was broken down to what the headings  
25 were or the numbers were in it, so I couldn't tell you



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2 which one I would have sent it to.

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Q I am not looking for a specific number or a  
4 specific heading. I am just trying to find out what  
5 general file area would you have sent this to.

6

A I don't know.

7

Q Do you know who sent it to you?

8

A No, I do not.

9

Q Was Frank Levandowski your immediate  
10 superior at the time you received this?

11

A I believe so, yes.

12

Q Were you instructed to take any action to  
13 get a B&W response to this letter and the Michelson  
14 study?

15

A No, I was not instructed to take action.

16

Q Let me show you GPU Exhibit 323, which is  
17 Michelson's study, and ask you, is this a copy of the  
18 report prepared by Michelson which you received with  
19 GPU 110?

20

MS. WAGNER: Are you excluding from your  
21 question reference to any marginalia which are on  
22 this basic document, or are you asking if this  
23 is his copy that he wrote on?

24

MR. SELTZER: No, I don't care about the  
25 marginalia.

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A What is your question?

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Q Is it correct that you got this Michelson study with the TVA letter which is marked GPU Exhibit 110?

5

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A I don't recall getting the report at the same time I got the letter.

7

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Q Do you believe you got them at different times, or you just don't have a recollection of when you got the report?

10

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A I don't recall when I got the report.

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Q In the first paragraph, first sentence of GPU Exhibit 110, TVA wrote to Babcock & Wilcox and said, "An increase of interest and questioning by ACRS in the area of very small break LOCA's has prompted TVA to take a closer look at this problem."

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ACRS was a committee formed by the Atomic Energy Commission to act as an advisory group to the AEC, right?

20

A I believe so.

21

22

Q Within the Licensing Section, I take it, B&W personnel responded to questions raised by ACRS?

23

24

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A As I recall, the questions we would respond to were questions from the NRC staff. Questions that were asked by the ACRS might very often become an

1  
2 NRC staff question, but generally our responses, as  
3 I recall, were to the NRC staff.

4 Q Did Licensing assist B&W customers in  
5 preparing for meetings with the ACRS?

6 A Yes. I think we do assist in preparation.

7 Q I think it is worth a little detour, and I  
8 am telling you I am holding out my hand to take a  
9 detour.

10 What did it mean that you were the  
11 cognizant engineer for ECCS?

12 A I don't believe I ever said I was a  
13 cognizant engineer for ECCS.

14 Q Other people have said that, like Jim  
15 Taylor. What were your responsibilities with respect  
16 to ECCS while you were in Licensing?

17 A I was asked to look at several issues. My  
18 duties included a range of things. Some were not ECCS  
19 related at all, and I was asked to look at some items  
20 that were ECCS related.

21 Q I asked you what were your responsibilities  
22 with respect to ECCS.

23 MS. WAGNER: I take it you are asking him  
24 what he was supposed to do about ECCS issues  
25 rather than a department or a piece of equipment.

I assume you are talking of issues relating to the emergency core cooling system; is that right?

MR. SELTZER: Yes.

A What were my responsibilities?

Q Yes.

A Upon being assigned a licensing issue, I would proceed to address the issues. It depended on what the specific circumstances required.

Q What, if anything, did you do to stay on top of ECCS matters that affected the licensing of B&W plants?

A I pursued the resolution of ECCS matters that I was assigned.

Q Assigned by whom?

A My supervisor.

Q Frank?

A Frank or whoever my supervisor was at the time.

Q In other words, you didn't take any initiative to stay current with B&W's work in the ECCS area?

MS. WAGNER: I object. That is not what he testified.

You can answer.

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A I think I had certain initiative for some awareness, but my duties that I concentrated on were the things that were assigned to me specifically to resolve.

Q What did you mean by a "certain initiative for some awareness"?

A I think most licensing engineers tried to keep some awareness of what was happening in the licensing arena and other areas that they were not assigned, to some extent.

Q I am not too much interested in what other licensing engineers did. I am interested in what you did. I would like to know what, if anything, you did to heighten your awareness of ongoing developments relating to ECCS.

MS. WAGNER: This is other than doing the work that was assigned to him?

MR. SELTZER: Other than specific assignments relating to particular problems.

A I would read the monthly reports of the other unit managers and the monthly report that the manager of Licensing sent to his supervisor.

Q When you say other unit managers, you are talking about Licensing Units?

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A Other Licensing Unit managers.

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Q And that is it? You took no other initiatives for establishing awareness of ECCS outside working on particular problems that you were assigned to?

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MS. WAGNER: I object to the form.

8

A I don't recall any specific initiative.

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Q Whenever a topical report was prepared by B&W that related to the response of the emergency core cooling system, did you function on it?

12

MS. WAGNER: What do you mean by "function"?

13

MR. SELTZER: Work.

14

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MS. WAGNER: Did he actually do some work on the report?

16

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MR. SELTZER: What other kind of work can there be other than actual work?

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19

MS. WAGNER: One can read things. One can review things. One can write things.

20

MR. SELTZER: I mean all of those things.

21

22

A There were some ECCS topical reports in which I worked on, yes.

23

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Q During the period 1975 through 1979 when an ECCS topical report was prepared, was it assigned to you to your knowledge, as opposed to other people in



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Licensing?

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MS. WAGNER: Topical report on any topic?

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MR. SELTZER: I said ECCS.

5

MS. WAGNER: No, you didn't.

6

(Question read)

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MS. WAGNER: I apologize. I am getting

8

senile.

9

A I can't say that every topical report was

10

assigned to me, no.

11

Q You are referring to the ECCS topicals?

12

A ECCS, yes.

13

Q Do you know for a fact that any ECCS topical

14

during that period was assigned to anybody else?

15

A I can't recall.

16

Q As a regular matter, did you get the

17

monthly report prepared by the manager of ECCS?

18

A I recall seeing some of his monthly reports.

19

Q Had you requested them or was he just sending

20

them to you?

21

A As I recall, when we were doing the small

22

break analysis on the pump suction, looking at the

23

pump discharge versus the pump suction that I had to

24

ask his secretary one month to send me a copy of his

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monthly report. That is the only request that I remember.



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Q Was there some point in time either when you were assigned to Licensing or during your assignment with Licensing when you were told that you were going to be the engineer in Licensing who would have the greatest responsibility for ECCS matters?

A There were assignments of responsibilities in groupings within the Generic Unit, and within the Generic Unit at least on one occasion I was identified as the engineer pursuing ECCS.

Q Does that mean that you were the cognizant engineer for ECCS?

A It meant that I could be expected to be assigned certain ECCS licensing issues. I didn't take it to mean that I would be the only one assigned.

Q At what time was that assignment made?

A I think that was back probably earlier when I first came over to Licensing.

Q Did you feel that you had any particular qualifications to be the engineer in Licensing who would generally be assigned to work on ECCS problems?

A No more than the other guys in the group.

Q Taking a look at GPU 110, which is TVA's letter which you received regarding Michelson's study, were you aware by the spring of 1978 that there was an

1  
2 "increase in interest in questioning by ACRS in the  
3 area of small break loss of coolant accidents"?

4 A I became aware of it, I believe, when I  
5 read this letter.

6 Q What, if anything, had Babcock & Wilcox  
7 been doing before getting this letter to study very  
8 small break loss of coolant accidents?

9 A We had gone through an analysis of which  
10 we had topical reports and that had been submitted to  
11 the commission which included small breaks.

12 Q Did it include very small breaks?

13 A I don't recall how small they were, but they  
14 were small breaks.

15 Q Is this something that had been submitted  
16 relatively recently in terms of the spring of 1978  
17 date when you received GPU 110?

18 A They had been submitted subsequent to the  
19 issuance of the final acceptance criteria, I believe,  
20 which was sometime after '75, I believe; '74 or '75.

21 Q What was your understanding about why  
22 there was any need to study small break loss of  
23 coolant accidents if B&W had already analyzed large  
24 breaks?

25 A As I said earlier, my understanding was that

1  
2 we had a customer here that had some questions on small  
3 break analyses that he attributed to questions by the  
4 ACRS.

5 Q I am not talking about the response to  
6 this letter. You said that in 1975 you know some topicals  
7 were submitted on B&W's small break loss of coolant  
8 analysis, right?

9 A I believe so, yes.

10 Q What is your understanding about why there  
11 was a need for B&W to study small break loss of coolant  
12 accidents if B&W had already analyzed large break loss  
13 of coolant accidents?

14 A I don't believe I said there was a need for  
15 B&W to analyze small break analyses. I said we had  
16 some questions from customers that were asking about  
17 small break.

18 Q Fascinating.

19 Is it a fact that B&W, to your understanding,  
20 would not have studied small break loss of coolant  
21 accidents but for customers asking B&W to study them?

22 MS. WAGNER: I don't think that was his  
23 testimony.

24 A I am saying that we had submitted topical  
25 reports which included small break analysis.

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Q And it is your understanding that B&W submitted those small break topical reports only because customers had asked B&W to do so?

A No. They submitted those topical reports in response to the final acceptance criteria which were published which essentially required a re-analysis of all ECCS analysis.

Q What are the final acceptance criteria?

A It is 10CFR50.46 and Appendix K.

Q You have worked with 10CRF50.46?

A I worked with it at the time we were putting the topical reports in in response to it.

Q Did B&W prepare small break analysis in response to the requirements of 10CFR50.46 and Appendix K?

A Yes.

Q Are you familiar with the concept of bounding in loss of coolant accident analyses?

A I have heard the word, yes.

Q Do you have an understanding of what it means?

A My understanding of bounding would be an analysis which has a certain amount of conservatism in it, meaning that it would bound a less severe accident.

Q Did you ever come to know that the properties of a small break loss of coolant accident are different

1  
2 in some respects from the properties of a large break  
3 loss of coolant accident?

4 MS. WAGNER: Could you define what you mean  
5 by "properties"?

6 MR. SELTZER: System response, thermodynamic  
7 characteristics.

8 A I believe that we published in our topicals  
9 the fact that a small break was a slower transient and  
10 a longer transient whereas a large break was a more  
11 violent transient.

12 Q In terms of the properties of a break, what  
13 is your understanding as to whether B&W's analyses  
14 of large breaks adequately bounded small break loss of  
15 coolant accidents? .

16 MS. WAGNER: Again, I assume you are using  
17 the normal English definition of "properties" and  
18 no statutory specific definition; is that correct?

19 MR. SELTZER: I am using "properties" as we  
20 have used it in the prior questions and answers.

21 A Could you repeat the question?

22 (Question read)

23 A The small break analysis which we published  
24 in our topical reports was in response to Appendix K  
25 which required a spectrum of breaks which was used to

↓ 2 bound all small breaks.

3 Q Other than the fact that you think a  
4 transient resulting in a small break would take longer,  
5 were the system responses significantly different, to  
6 your knowledge, for a small break as compared to a  
7 large break?

8 A I think that the large break, everything  
9 happens much faster.

10 Q I said other than the time duration.

11 A There would be the use of different systems.  
12 The pressure would be higher with the small break. The  
13 large break you didn't use the HPI, for example. So there  
14 are some differences in the pressure of the system, the  
15 systems that were used.

16 Q In the third sentence of GPU 110, there is  
17 a reference to "question similar to that asked by ACRS  
18 for Pebble Springs (Question 6)."

19 Do you see that?

20 A Yes.

21 Q Do you know what question was being referred  
22 to there?

23 A No, I do not.

24 Q You are not familiar with Pebble Springs  
25 Question 6?



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A In preparation -- not except for in preparation for this deposition.

Q You never worked on preparing B&W's response?

A No. I don't recall doing it.

Q Do you know who was assigned in Licensing, if anyone was, to work on the response to question 6?

A No, I do not.

Q Do you know who would know?

A No, I do not.

Q At the start of the second paragraph in GPU 110, it says, "After you reviewed this study, we would like to discuss it with you by telephone." It goes on to say, "However, we also propose that a meeting be held in Knoxville in the near future to examine the entire question of very small break loss of coolant accidents in sufficient depth to develop an adequate mutual understanding and assure TVA that B&W is working toward a timely resolution of all concerns."

To your knowledge, was the meeting which TVA was asking for in the near future ever held?

A I don't know.

Q Do you know whether anything was done in the ensuing four or five months after you got this letter to assure TVA that B&W was working toward a timely



1  
2 resolution of concerns in Michelson's study?

3 A As I recall, later on that year we did give  
4 them a response, so I don't remember specifically what  
5 was done, but I would have to assume some work was done.

6 Q You can't testify to that from any first-hand  
7 knowledge, can you?

8 A No, I can't.

9 Q That would be like assuming that if the  
10 Dunn memo was in your file, you must have put it there,  
11 right?

12 MS. WAGNER: I object to the question. I  
13 direct the witness not to answer.

14 Q Would you read to yourself the third  
15 paragraph on page 1.

16 Do you understand that that paragraph was  
17 referring to very small breaks, probably ranging up  
18 to 1/20 of a square foot?

19 MS. WAGNER: I take it you are asking him  
20 for his recollection of what he understood when  
21 he received it rather than his interpretation  
22 today; is that correct?

23 MR. SELTZER: I am just trying to establish  
24 a frame of reference for further questions on  
25 the paragraph.

2 A Could I hear the question again?

3 (Question read)

4 A That is what the paragraph says, yes.

5 Q In May 1978, did you understand that for  
6 breaks in that range, the steam generator must remove  
7 a significant portion of the decay heat during the  
8 initial phase of blowdown?

9 A I don't recall.

10 Q In or by May 1978, did you understand that  
11 if the steam generators did not remove a significant  
12 portion of the decay heat, reactor coolant system  
13 repressurization would occur since the break is too  
14 small to remove all of the decay heat?

15 A I don't recall what level of understanding .  
16 I had.

17 Q Did you understand before the Three Mile  
18 Island accident that for very small break loss of  
19 coolant accidents, the steam generators must remove a  
20 significant portion of the decay heat during the initial  
21 phase of blowdown?

22 A I recall reading our response that we sent  
23 to TVA, but I don't recall the particulars of it or  
24 what my understanding was of it at the time.

25 Q Did you know before the Three Mile Island

2 accident that repressurization or even prolonged  
3 pressure operation could seriously limit high pressure  
4 injection during blowdown?

5 A I don't recall what level of knowledge I  
6 had at the time.

7 Q Based on your involvement with ECCS matters  
8 at that time, is this a subject area in which you believe  
9 you were expected to function within the Licensing  
10 Section?

11 MS. WAGNER: You are referring now to small  
12 break LOCA analysis?

13 MR. SELTZER: Yes.

14 A Small break LOCA analysis was certainly one  
15 of the areas that I had been assigned previously to  
16 respond to NRC requirements.

17 Q Turn to page 2 and look at the last paragraph  
18 on that page.

19 Are those your vertical slashes in the  
20 right-hand margin?

21 A I don't believe so.

22 Q You don't make those kinds of marks?

23 A Not generally. I don't recall ever making  
24 any like this.

25 Q Have you read the paragraph?

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A Yes.

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Q Do you see the reference in the middle of it to substantial passage of liquid and/or two phase fluid through the pressurizer safety valves?

6

A Yes.

7

8

9

Q What, if anything, was done by you to examine the question of liquid and/or two phase fluid passage through the pressurizer safety valves?

10

A I was not involved in any analysis per se.

11

12

Q Do you know whether any analysis was done of this question after receiving this letter?

13

14

15

A I know that we made a response to TVA later on that year. I am not familiar with the analysis which may have been one.

16

17

18

Q Did you know in 1978 that the pressurizer safety valves were not qualified for liquid or two phase flow?

19

A I don't recall.

20

Q Have you ever heard that prior to today?

21

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A I have heard that as part of the EPRI program that was being done on valve testing.

23

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Q That is a program undertaken since the Three Mile Island accident?

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A Yes, I believe so.

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Q I take it you weren't concerned when you read GPU 110 and read that apparently the pressurizer safety valves had not been qualified for liquid or two phase flow?

A I don't recall what thought processes I had when I read it.

Q In the next sentence in the last paragraph of page 2, it says, "Also associated with operation in each of the above conditions is a concern that the pressurizer level is not a correct indicator of water level over the reactor core. Because of the loop seal on the pressurizer, it may be possible to have a full pressurizer while the core is partially uncovered."

Did you understand before you got TVA's letter that there could be a full pressure while the core is partially uncovered?

MS. WAGNER: Full pressurizer?

MR. SELTZER: That is what I meant to say.

A I think I came to understand when we put in the response to the TVA letter, I came to understand then that the engineers in the ECCS analysis' response which I came to understand said that pressurizer level was not an accurate indicator of inventory in the system and it should be coupled with other indications such as

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2 pressure and temperature.

3 Q Was the occasion of your reading B&W's  
4 response to TVA's letter the first time you realized  
5 that there could be a full pressurizer while the  
6 nuclear fuel core is partially uncovered?

7 A That is when I understood that the B&W  
8 reactor pressurizer level in itself was not an accurate  
9 indication of inventory in the system.

10 Q I understand that. Now I would like you to  
11 answer my question. I don't mind hearing what you have  
12 just volunteered, but now I would like you to focus  
13 on my question, if you can, which related full pressurizer  
14 and partially uncovered core. I am asking you, was the  
15 first time that you understood that there could be a  
16 full pressurizer while the core is partially uncovered  
17 something that you realized for the first time when you  
18 read B&W's response to TVA's letter?

19 A I am not sure.

20 Q Do you have any recollection of knowing  
21 that circumstance could exist before you read B&W's  
22 response to TVA's letter?

23 A I am not sure.

24 Q Do you have any recollection of knowing that  
25 fact before you got TVA's letter that states that?



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2 A I am not sure.

3 Q Is it consistent with your best recollection  
4 that you learned that fact at or about the time that  
5 you read either B&W's letter or TVA's initial set of  
6 questions?

7 A When I read our letter response, I know that  
8 I was aware of it, of the fact that pressurizer level  
9 was not an accurate indication in itself at that time.  
10 What I understood previously, I can't recall at this  
11 time.

12 Q After the sentence that I read about it  
13 is possible to have a full pressurizer while the core  
14 is partially uncovered, there is a final sentence on  
15 page 2 of GPU Exhibit 110 which says, "This could lead  
16 to incorrect operator actions."

17 Did you understand before May 1978 that  
18 the circumstances of a full pressurizer while the core  
19 is partially uncovered could lead to incorrect operator  
20 actions?

21 A I don't recall.

22 Q Is the first time that you do recall someone  
23 bringing that possibility to your attention the  
24 April 27, 1978 letter from TVA?

25 A I recall when that letter was received, I



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↓  
2 noted that as being one of their concerns.

3 Q Is that the first time you can recall anyone  
4 bringing that concern to your attention?

5 A I can't recall any specific time before then.

6 Q Does that mean that this is the first time  
7 that you can recall someone bringing this concern to  
8 your attention?

9 A To the best of my knowledge right, now, yes.

10 Q Take a look at Michelson's report, GPU 323,  
11 please. It begins with a summary on the first page,  
12 right?

13 A Yes.

14 Q If you would take a moment to please read  
15 the summary, the last sentence of the summary states,  
16 "These uncertainties may reflect on the adequacy of  
17 proposed emergency operating procedures and operator  
18 training for a very small break LOCA."

19 After receiving Michelson's study, what,  
20 if any, steps did you take to compare Michelson's  
21 concerns with the adequacy of B&W's proposed emergency  
22 operating procedures?

23 A I don't believe the Michelson report was  
24 assigned to me, so I don't remember specifically any  
25 actions I took. I remember a supervisor asked me what

1  
2 it was about, and I wrote him a memo describing what  
3 I thought it was about, but after that, I don't recall  
4 being assigned to take action on the memo. On the  
5 letter or the report.

6 Q Who was the study assigned to, if not to  
7 you?

8 A I can't recall. I don't know if I ever  
9 knew.

10 Q Do you know that it was assigned to anybody  
11 else other than you?

12 A I can't recall.

13 Q Have you ever heard that anyone else in  
14 Licensing was assigned to do anything on this report  
15 other than Henry Bailey?

16 MS. WAGNER: I object to the form of the  
17 question, because there is no testimony that  
18 Henry Bailey was assigned to do anything.

19 MR. SELTZER: Levandowski asked him for a  
20 summary of what it was all about.

21 MS. WAGNER: That is not the same as doing  
22 anything.

23 A What was the question?

24 (Question read)

25 A I am not aware of anyone.

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Q So you didn't do anything to compare Michelson's concerns with the adequacy of B&W's proposed emergency operating procedures; is that right?

A I can't recall doing anything.

Q Do you know if anybody else made such a comparison?

A The phone call that I sat in on, as I recall, the ECCS Analysis Unit indicated that they were going to look into the Michelson concerns.

Q Did they say they were going to compare his concerns with the adequacy of B&W proposed emergency operating procedures?

A I don't recall. Most of the phone conversation that I recall had to do with the repressurization and loss of natural circulation. I don't recall hearing anything about operating procedures in the phone call.

Q Did you pipe up and say, "Wait a minute, guys, they are concerned about the adequacy of our proposed emergency operating procedures. What should we do about that"?

A I didn't participate in the phone call except to monitor.

Q You were monitoring on behalf of the

2 Licensing Section?

3 A At that time we were working on the small  
4 break analyses wherein we went from the suction to  
5 the discharge break, and the TVA project manager, I  
6 believe it was Mr. McFarland, requested that I come  
7 over to sit in on the phone call.

8 Q Whether during the phone call or after, did  
9 you ever pipe up and tell the B&W people even if you  
10 didn't tell the TVA people, did you ever tell the B&W  
11 people, "Hey, you are forgetting about this question  
12 on whether our proposed emergency operating procedures  
13 are adequate"?

14 MS. WAGNER: Objection. The question has  
15 been asked and answered.

16 A No, I didn't take any action on the memo  
17 except to explain to my supervisor what I thought the  
18 memo was about.

19 Q So on the day of the phone call, when you  
20 heard about B&W engineers describing what they were  
21 doing to respond to Michelson's report, you didn't  
22 remind anybody that Michelson had raised a question  
23 about the adequacy of proposed emergency operating  
24 procedures?

25 A Michelson was on the end of the phone call,

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and he pretty much led the conversation. We were

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just getting his concerns, and he led the conversation,

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and the direction he led it had more to do with the

5

natural circulation and other aspects of the system.

6

Q Was there any discussion in that phone

7

conversation about a full pressurizer leading to

8

operator termination of high pressure injection?

9

A I don't recall anything about operator

10

action in the phone call.

11

Q Was there any discussion about

12

repressurization causing pressurizer water level to rise?

13

A I don't remember. I remember we talked

14

about loss of natural circulation.

15

Q Was there any discussion in the phone

16

conversation about a full pressurizer being or not

17

being a good indication of water level in the reactor

18

coolant system?

19

A I don't recall.

20

Q Was Bert Dunn participating in the phone

21

call?

22

A My recollection is that Bob Jones was on

23

the phone call.

24

Q Bob Jones was the representative from ECCS

25

who was participating in the phone call?

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A Yes, that is my recollection.

3

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Q Who else from B&W participated in the phone call?

5

6

A There was Jim McFarland, who was a TVA project manager.

7

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Q And you said there were about three people from B&W besides yourself. Who else from B&W participated in the phone call?

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A I don't recall who else -- who the other people were. I recall it being about three or four people.

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(Luncheon recess taken at 12:45 p.m.)

Afternoon Session

2:05 o'clock p.m.

H E N R Y        B A I L E Y, resumed:

BY MR. SELTZER:

Q        You know that your testimony this afternoon is under oath?

A        I do.

Q        Did there come a time during 1978 when you reviewed Michelson's report, GPU Exhibit 323?

A        I saw it at some point. I got the letter, but I don't remember if I got this with the letter or not.

Q        We covered that, and you said at some point you did get GPU 323. Did you review it when you got it?

A        I am sure I read it. I don't know how much time I spent on it.

Q        Would you turn to page 26. Would you look at the paragraph that begins five lines down with the words "A full pressurizer."

A        Yes.

Q        It states there, "A full pressurizer may convince the operator to trip the HPI pump and watch



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for a subsequent loss of level."

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p umps?

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A No, I did not.

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Q You didn't have any difficulty understanding how it was that a full pressurizer might convince an operator to trip the high pressure injection pumps, did you?

12

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16

A I don't recall how much of this report I understood when I read it. I noted that when we sent our response to this report to the TVA that we noted in there the pressurizer level in itself was not a reliable indication of inventory.

17

Q How do you know that?

18

19

MS. WAGNER: How do you know what the response said?

20

MR. SELTZER: Yes.

21

22

MS. WAGNER: He already testified that he reviewed it several times.

23

A Yes.

24

Q In preparation for your deposition?

25

A No. I read it before -- I read it at the

2 time it was sent to TVA.

3 Q Is the testimony you have just given me  
4 about what the report said with respect to pressurizer  
5 level something that you recall from three years ago,  
6 or is it something that is in your mind because Karen  
7 Wagner or somebody else from B&W's law firm showed you  
8 that document recently?

9 MS. WAGNER: You can testify if your memory  
10 was refreshed by having seen it.

11 A Certainly my memory was refreshed, but I  
12 recall reading the response that we sent to TVA, and  
13 I recall, at least my perception was I understood it.  
14 I don't recall that I was not -- that I didn't understand  
15 it.

16 Q Is your recollection that the report says  
17 pressurizer level is not a reliable indication of  
18 inventory --

19 A Not in itself, yes.

20 Q Is that something --

21 A Under certain conditions, as I recall.

22 Q Is that something that you recalled was  
23 in the letter even before the letter was shown to you  
24 again during preparation for this deposition?

25 A Before the letter was shown to me in

2 preparation for the deposition, I didn't recall  
3 specifically what was in the response. I recall that  
4 I had read the response and that I was not confused by  
5 it or at least I didn't think I was confused by it.

6 Q You understood it as well as you understood  
7 Bert Dunn's memo when you read Bert Dunn's memo shortly  
8 after the Three Mile Island accident; is that right?

9 MS. WAGNER: You mean he understood it  
10 equally well?

11 MR. SELTZER: Yes.

12 A I couldn't characterize which one I  
13 understood the best or the worst or the least.

14 Q You understood them both well, didn't you?

15 A I think I do, yes.

16 Q In February 1978, you were the person in  
17 Licensing who had the most continuous responsibility  
18 for ECCS matters, to the best of your knowledge, right?

19 A I believe I said I wasn't aware of anyone  
20 that had been assigned the ECCS topicals during this  
21 time.

22 Q Did you know from your responsibilities at  
23 or about that time that Bert Dunn was one of B&W's  
24 leading experts in the area of ECCS analysis?

25 A I understood that Bert Dunn was unit manager

1  
2 for the ECCS analysis unit.

3 Q Did you know of anybody at B&W who had  
4 greater expertise in ECCS analysis than Bert Dunn in  
5 or about 1978?

6 A My job as the licensing engineer, I wasn't  
7 in a position to judge the technical expertise of any  
8 of the people that might have been doing the ECCS  
9 analysis.

10 Q In 1978, did you have any reason to  
11 question the technical expertise of Bert Dunn in  
12 ECCS analysis matters?

13 A I don't think I questioned Bert any more  
14 than I questioned the other people that worked for him.  
15 I don't remember questioning Bert.

16 Q Had you formed a judgment by February 1978  
17 that Bert Dunn was some kind of crackpot?

18 MS. WAGNER: I object to the question. The  
19 witness has testified that he didn't question Bert.

20 A No.

21 Q Had you formed a judgment by February 1978  
22 that Bert Dunn put things in writing that were of so  
23 little importance that they didn't merit your attention?

24 A I think I try very hard not to make that  
25 judgment about anybody.

2 Q In other words, you had not made that  
3 judgment about Bert Dunn?

4 A I don't think so.

5 Q Had anybody ever advised you before  
6 February 1978 that you should disregard memoranda that  
7 you got from people outside Licensing?

8 A No.

9 Q Had you ever reached the conclusion before  
10 February 1978 that Dunn seemed to elevate ECCS matters  
11 to higher levels of importance than you thought they  
12 were worth?

13 A I don't think I had drawn any conclusions  
14 in that regard at all.

15 Q Is there any reason that you can think of  
16 why you would have taken a memo on which you were  
17 marked for a copy relating to operator interruption  
18 of high pressure injection and put it in a file without  
19 giving it any serious consideration?

20 MS. WAGNER: I object to the question.

21 There is no evidence in the record that the  
22 witness did any such thing, so any answer would  
23 be speculation on his part.

24 I direct you not to answer.

25 MR. SELTZER: It wouldn't be speculation

1  
2 because the witness has testified that the memo  
3 was addressed to him, that it was in his file,  
4 and he knows of nobody else who was putting  
5 memos into his file. So I think there is  
6 foundation. I think that your objection is  
7 properly noted on the record and a judge can rule  
8 on whether the testimony taken subject to  
9 objection should be admissible. But I think that  
10 on this particular memo when I am trying to find  
11 out why Mr. Bailey did nothing in response to it,  
12 I am entitled to get an answer.

13 MS. WAGNER: The first time Mr. Bailey is  
14 aware of this memo is after the accident, and I  
15 am sure it is obvious why people were not doing  
16 much about this memo after the accident. Therefore,  
17 I don't think there has been any foundation laid  
18 for this question.

19 MR. SELTZER: Let me suggest that there is  
20 ample foundation. The author of the memo has  
21 testified that he sent it to all of the people  
22 who were marked for copies of the memo. Mr. Bailey  
23 is marked for a copy. Mr. Bailey had a copy in  
24 his file. And Mr. Bailey has testified that he  
25 knows of nobody else who was putting these memos



1  
2 into his file. Therefore, there is a certain  
3 logic which I think some would find compelling  
4 that Mr. Bailey received GPU 78 from Mr. Dunn,  
5 that he probably received it at or about the  
6 time that it was sent to him, and my question is  
7 directed not at why you didn't do anything about  
8 it when you read it after the accident. My  
9 question is directed at why you would not have  
10 done anything about this memo before the Three  
11 Mile Island accident.

12 MS. WAGNER: I object to the question, but  
13 I will permit the witness to answer, if he can  
14 think right now of a reason why he would not have  
15 responded to a memo such as this.

16 A Since I don't remember receiving the memo,  
17 I don't recall what thought process I might have had  
18 not to do anything with it.

19 Q You have no recollection of talking with  
20 Kane, Agar or Taylor about this memo prior to the  
21 Three Mile Island accident?

22 A No, I do not.

23 Q You have no recollection of seeing if  
24 anybody else who was an addressee or copyee of this  
25 memo was giving it prompt attention or trying to obtain



1  
2 prompt correction; is that right?

3 MS. WAGNER: I object to the question. He  
4 doesn't remember receiving it. How could he have  
5 spoken to anybody about it, if he didn't receive  
6 it?

7 A No, I do not.

8 Q In light of Michelson's concern that a  
9 full pressurizer might convince the operator to trip  
10 the high pressure injection pumps, what, if any, steps  
11 did you take to review the adequacy of B&W's training  
12 of operators?

13 A I don't recall being assigned anything  
14 in this area or taking any steps in this area.

15 Q And you didn't exercise any initiative to  
16 take any steps that you weren't asked to take in this  
17 area; is that right?

18 A I don't remember taking any steps in this  
19 area.

20 Q Did you feel in 1978 that your job consisted  
21 by and large of doing what you were told and not taking  
22 initiative for doing other things?

23 MS. WAGNER: I object to the form.

24 A As I indicated earlier, I had a certain  
25 initiative to keep abreast of what the rest of the

1  
2 section was doing by reading the monthly reports of the  
3 other unit managers, but generally I was busy enough  
4 with the jobs that I have been assigned that that kept  
5 me pretty well occupied.

6 Q You didn't talk about any of Michelson's  
7 concerns with anyone in the Training Department, did you?

8 A No, I did not.

9 Q Is it correct to say that you did nothing  
10 with respect to Michelson's concerns about the adequacy  
11 of operators' training?

12 A I don't recall doing anything.

13 Q I would like to show you GPU Exhibit 111,  
14 which is your holographic memorandum to Levandowski  
15 dated May 25, 1978, subject, small break report.

16 Is GPU 111 a copy of a memorandum which  
17 you wrote to Levandowski on or about May 25, 1978?

18 A Yes, it is.

19 Q At whose request was this prepared?

20 A I believe Mr. Levandowski had asked me to  
21 brief him on what the TVA letter was about.

22 Q The TVA letter, you mean GPU Exhibit 110?

23 A I believe so.

24 Q Do you see the sentence of yours that  
25 begins five lines from the bottom with, "A more valid

1

2 concern"?

3

A Yes.

4

Q Could you read that sentence and the next  
5 sentence into the record, please.

6

A "A more valid concern may be the subject  
7 of operator action and the potential for erroneous  
8 pressurizer level. This matter is discussed also at some  
9 length."

10

Q When you say "this matter is discussed also  
11 at some length," you meant discussed in the TVA letter  
12 and in Michelson's report?

13

A I believe it to be the letter. As I  
14 indicated earlier, I am not sure when I got the report.

15

Q You referred to the potential for erroneous  
16 pressurizer level. In what way was the pressurizer  
17 level, in your words, erroneous?

18

A As I recall, it was words that I had read  
19 or seen in the letter. I am not sure what erroneous --  
20 I am not sure what specifically I had in mind at  
21 that point.

22

Q Take a look at the TVA letter, if you need  
23 to refresh your recollection. My question is, isn't it  
24 a fact that by the phrase "erroneous pressurizer level,"  
25 you were referring to the fact that the pressurizer

1  
2 level could read full when, in fact, the core could be  
3 uncovered?

4 A I don't really remember that. I don't  
5 remember that being the source of my sentence here.

6 Q Take a look at the last paragraph of page 2  
7 of GPU 110. Do you see where it says something about  
8 "a concern that the pressurizer level is not a correct  
9 indicator of water level over the reactor core."

10 A Yes, I see that.

11 Q Do you see anywhere else in GPU Exhibit 110  
12 where it talks about pressurizer level being erroneous?

13 MS. WAGNER: I object to this line of  
14 questioning insofar as you are asking Mr. Bailey  
15 to now speculate based on GPU 110 as to what he  
16 meant in GPU 111.

17 Mr. Bailey, if you have a recollection which  
18 is refreshed by GPU 110, fine, but don't attempt  
19 to analyze this document at this time.

20 Q What I have asked is, is there anywhere  
21 else that you see in GPU 110 where there is discussion  
22 about erroneous pressurizer level?

23 A No, I haven't seen anything here.

24 Q And you believe you were referring to the  
25 TVA letter, GPU Exhibit 110, when you wrote about

erroneous pressurizer level in your letter to Levandowski, right?

A Yes.

Q Why did you believe that operator action and the potential for erroneous pressurizer level was "a more valid concern"?

A I didn't draw any conclusion or attempt to draw any conclusions at this time. I offered it up as a subject that possibly might have more validity than the first concern, which was the loss of heat removal, I believe I said, from the RCS.

Q Why did you think it was a more valid concern?

Let me ask you more pointedly. Was it based on your prior experience with ECCS subjects that you thought the subject of operator action and the potential for erroneous pressurizer level indication was a more valid concern?

A I don't recall why I would have thought that would be a more valid concern.

Q Had you discussed the TVA cover memo or Michelson's report with anyone else before writing GPU 111?

A I don't remember if this was before or

1  
2 after the phone call with TVA. If it were after the  
3 phone call, then I would have heard it discussed over  
4 the phone call.

5 Q On the next page of GPU Exhibit 111, you  
6 say, "Bert Dunn plans to start looking at the report  
7 next week to see what is there and to consider what  
8 action or investigation should be pursued (if any)."

9 How did you know that Bert Dunn planned  
10 to start looking at the report sometime around the  
11 beginning of June?

12 A The time of the telephone conversation, at  
13 least one of the phone conversations, in the  
14 conversation it was left that B&W, the ECCS Analysis  
15 Unit, would look at the TVA concern.

16 Q Was there more than one telephone  
17 conversation?

18 A I remember two.

19 Q How many people participated in each of  
20 them?

21 A I think it was about four people. I can't  
22 recall who. I know there was Mr. McFarland and myself,  
23 and I thought Bob Jones was in at least one. I don't  
24 remember who else.

25 Q When, approximately, did the two phone calls

2 take place?

3 A After we received the letter was the only  
4 date I know.

5 Q You don't remember whether one took place  
6 in November?

7 A No, I don't remember.

8 Q In the phone conversations that you recall  
9 listening in on, did anyone mention to Michelson that  
10 B&W had already been examining the problem of operator  
11 termination of high pressure injection in response to  
12 rising pressurizer water level?

13 A I don't recall operator action being  
14 discussed in the phone conversation.

15 Q Did anybody from B&W tell Michelson that  
16 B&W would send them some operating procedures that had  
17 already been drafted for the operation of high pressure  
18 injection?

19 A I don't recall that.

20 Q Are you aware that B&W had drafted procedures  
21 for the operation of high pressure injection which  
22 included the 50 degrees subcooling rule and that such  
23 procedures had been drafted in 1978?

24 A I was not aware of that.

25 Q Even today, nobody has informed you that



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2

B&W had drafted procedures for a particular 205 plant  
that included the 50 degree subcooling rule?

3

4

A No, even today.

5

Q Even prior to today?

6

A Yes.

7

Q Let me show you something else that will  
bring back pangs of recollection. This is GPU Exhibit  
112, Jones to Lightle, January 19, 1979.

10

Is GPU Exhibit 112 a copy of a memorandum  
which you received on or about January 19, 1979, in  
the regular course of business?

12

13

A I believe so.

14

Q Is this the B&W response to the Michelson  
study that you have referred to at several points in  
your testimony today?

16

17

A I believe so.

18

Q G.O.G. is Geissler, right?

19

A Yes.

20

Q By early 1979, had he replaced Levandowski  
as your superior?

21

22

A I think so.

23

Q Do you see the note that Geissler sent to  
you?

24

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A Yes.

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Q Geissler asked you, "What is TVA going to do with A) this letter and B) the TVA report?"

Did you ever get back to George and give him answers to those questions?

A I don't recall if I did or not.

Q What, to the best of your understanding, was TVA going to do with, A) this letter from B&W, and B) the TVA report?

A I don't think I had an understanding of what they were going to do with it.

Q Did you ever ask Bob Jones in ECCS analysis how this relates to concern for the worst case evaluation, assuming non IE equipment failures have a "benign" effect on safety analysis?

MS. WAGNER: The record should reflect that Mr. Seltzer is reading something from GPU 112, because I don't think it is necessarily clear with the "this" is.

A I don't recall asking Bob Jones this question.

Q To the best of your knowledge, is the two-page attachment to GPU 112 the response which B&W eventually sent to TVA?

A I believe it is.

Q Did Bob Jones ever tell you that he had

1

2

viewed Michelson's report as bullshit?

3

A No.

4

Q Did you ever hear that anybody in ECCS

5

Analysis had labeled parts of Michelson's report as  
6 crap?

7

A Not prior to preparation for this deposition.

8

Q Do you have any understanding why people

9

in the ECCS Analysis unit were labeling Michelson's  
10 report bullshit and crap?

11

MS. WAGNER: Since the witness does not

12

recall that they were doing so, I don't think he

13

should speculate as to why they did so.

14

MR. SELTZER: He may have heard.

15

MS. WAGNER: If you heard, you may answer.

16

A No, I do not.

17

Q Do you recall any other technical reports

18

circulated at B&W that had marginal inscriptions

19

indicating that ECCS Analysis members had thought

20

the ideas expressed were bullshit or crap?

21

A I don't think so.

22

Q Did anybody seek you out for advice or

23

consultation with respect to the Three Mile Island

24

accident on the day that it was occurring?

25

A No.

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Q When is the first time you heard that one of your plants was going down?

A I heard that someone in the hall mentioned there was a problem at Three Mile Island along about ten o'clock.

Q When is the first time you heard they had a loss of coolant accident at TMI?

A Sometime in the afternoon. It was characterized as a severe transient over sometime in the afternoon.

Q The afternoon of the day of the accident?

A Yes.

Q When is the first time you heard it was a loss of coolant accident?

A I don't remember when I would have heard for the first time that characterization.

(Recess taken)

MR. SELTZER: I would like to mark as GPU Exhibit 467, a two-page document from Mr. Bailey to Mr. Taylor dated April 3, 1979 relating to the effect of the loop seal on the level of the pressurizer.

(Two-page document from Mr. Bailey to Mr. Taylor dated April 3, 1979 relating to the effect

of the loop seal on the level of the pressurizer was marked GPU Exhibit 467 for identification, as of this date.)

Q Is GPU 467 a copy of some notes which you prepared and circulated on or about April 3, 1979?

A I prepared these notes. I don't recall who, if anybody, I sent them to specifically.

Q Is that your handwriting in the upper right-hand corner of the first page?

A I am not sure if that is my handwriting or not. The handwriting on the left is not mine, I don't believe.

Q Could I ask you just on the sheet that is in front of you if you can write B. Karrasch, the yellow pad?

A (Writing)

Q How would you write B.M. Dunn?

A (Writing)

MR. SELTZER: I would like to mark as GPU Exhibit 468, the handwriting sample of Mr. Bailey.

(Handwriting sample of Mr. Bailey was marked GPU Exhibit 468 for identification, as of this date.)

1

2

Q Is that your handwriting at the bottom of the first page and the second page?

3

4

A Yes.

5

6

Q Is the diagram, a diagram which you prepared?

7

A Yes.

8

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Q Could you read the text of your memorandum, GPU 467?

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A "The pressurizer did not drain because of the loop seal which exists. If the steam pressurizer were to increase in the above situation and press the water up into the pressurizer, then the water would back up only to point A, at which time it would bubble up through the pressurizer. If the pressurizer surge line had a downward slope on it from the pressurizer to the hot leg, it would have completely drained when the water level dropped below point B. If the pressurizer had drained, the HPI pumps would have probably been left on."

21

22

23

24

Q In your last sentence where you said, "If the pressurizer had drained, the HPI pumps would have probably been left on," you were referring to the Three Mile Island accident, right?

25

A I believe I was, yes.

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2

Q How did you figure out the material that you wrote in the sentence prior to the last sentence?

3

4

A I don't remember what thought process I used other than just basic physics of the isothermal system.

5

6

7

Q Did you understand these concepts before the Three Mile Island accident?

8

9

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11

MS. WAGNER: Can we just say what concepts you are talking about? The physics concepts he was talking about?

12

13

14

MR. SELTZER: The concepts that are embodied in all of the sentences prior to the last sentence of GPU 467.

15

16

A I didn't have any additional input after the Three Mile Island accident before I drew this.

17

18

Q Do you see the location which you labeled point B?

19

A Yes.

20

21

Q Point B is the place where the surge line to the pressurizer is connected to the hot leg, right?

22

A Yes.

23

Q Point B is above the top of the core, right?

24

A Yes.

25

Q What you were saying, you are hypothesizing



1  
2 what the system response would have been if the line  
3 connecting the pressurizer to point B had simply had a  
4 downward slope is that so?

5 A I believe so.

6 Q In order for that to have existed, the  
7 pressurizer would have to have been moved upward in the  
8 plant, right?

9 A Yes.

10 Q The surge line still would have been  
11 connected to the bottom of the pressurizer, right?

12 A Yes.

13 Q If the surge line had been connected in  
14 that fashion, all the water in the pressurizer would  
15 have drained down into the hot leg, right?

16 A Are you asking me that question now?

17 Q I am asking you whether that was what you  
18 were saying at the time you wrote GPU 467.

19 A That is what I was saying when I wrote  
20 this, yes.

21 Q If the pressurizer had drained and if high  
22 pressure injection had been on full when the pressurizer  
23 drained into the hot leg at point B, then the core  
24 would not have uncovered; isn't that right?

25 MS. WAGNER: Based on what facts?

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MR. SELTZER: Based on what Mr. Bailey was saying in GPU 467.

3

4

MS. WAGNER: I don't think GPU 467 mentions the core.

5

6

A I don't think I can draw any other conclusions about what I was thinking other than what I have written here.

7

8

9

Q You said point B is above the core?

10

A Yes.

11

Q And at the point at which you were

12

hypothesizing that the pressurizer would completely

13

drain into the hot leg, there would not have been core

14

uncovery, would there?

15

A Would you repeat that?

16

Q At the point at which you were hypothesizing

17

that the pressurizer would completely drain into the

18

hot leg, there would not have been core uncovery, would

19

there?

20

MS. WAGNER: I don't understand what

21

conditions it is that Mr. Seltzer is positing,

22

but you can answer.

23

A I guess I don't understand the question.

24

Q You refer to the fact that, "If the

25

pressurizer surge line had a downward slope on it, from

the pressurizer to the hot leg, it would have completely drained when the water level dropped below point B."

A Yes.

Q The time at which it would have drained is when the water level just began to be below point B, right?

A I believe so.

Q At that point the pressurizer would have completely drained into the hot leg, right?

A I believe so.

Q At that point, the core has not uncovered, has it?

A I don't believe so.

Q If high pressure injection were on full at that point and all that existed were a stuck-open pilot operated relief valve, there would not have been core uncover, would there?

MS. WAGNER: Objection. The memo doesn't refer to any stuck-open pilot operated relief valve.

A I can't draw any further conclusions about what I wrote here, because I later came to believe that -- came to realize that I didn't have-- I didn't have sufficient data when I drew this.

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Q Who has called to your attention the fact that you didn't have sufficient data?

A I don't recall that anyone called it to my attention.

Q When for the first time did you realize that you had had purportedly insufficient data?

A Later on after the Three Mile Island accident, B&W started to perform some analysis to try to simulate the Three Mile Island accident, and only at that time did I see enough data to understand that the plant had been in a severe transient that it had been in, what pumps had been off, and that the pressurizer at this point was still quite hot. I don't recall what temperature.

At that point I realized with a hot pressurizer that the steam would have forced the water right out of the pressurizer.

Q Under what circumstances would the steam have forced the water out of the pressurizer?

A If the vapor pressure of the water in the pressurizer were higher than the pressure in the surge line.

Q Why didn't that happen during the Three Mile Island accident?

2           A       During the Three Mile Island accident, as  
3 I recall now from doing the simulation, there was a  
4 relief valve that was failed open which I didn't even  
5 draw-- I didn't even model here at the time because I  
6 was working with no doubt at all. I was postulating  
7 something I didn't know anything about.

8           Q       You know that at some point the operators  
9 closed the block valve during the Three Mile Island  
10 accident, don't you?

11          A       I believe they did at some point, yes.

12          Q       Why didn't the water in the pressurizer  
13 drain back into the reactor coolant system then?

14          A       As I recall, the analysis that we did after  
15 the Three Mile Island incident involved predictions  
16 of steam bubbles in the loops which would have kept  
17 the level of the pressurizer up.

18          Q       Isn't it a fact that there was a surge  
19 line on the Three Mile Island pressurizer that was  
20 configured as a loop seal?

21          A       I believe it is, yes.

22          Q       Wasn't it your conclusion that without any  
23 break at the top of the pressurizer as long as there  
24 was a loop seal on the pressurizer and steam in the hot  
25 leg, there would not be draining of the pressurizer

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2

water into the hot leg?

3

4

A I don't believe I mentioned what was in the loop.

5

6

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Q If the steam pressure were to increase in the above situation, you say, and press the water up into the pressurizer, you said.

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A What is your question again?

(Question read)

MS. WAGNER: I object to the question

insofar as it assumes this witness knows anything about the specific elements of the accident at Three Mile Island and has analyzed those incidents. If you are asking him in the context of what he knew when he wrote this and what he intended to say, you are welcome to get an answer.

A That was my conclusion based on the day that I wrote this memo with the data that I had at hand.

Q Have you subsequently obtained any data which has caused you to question the validity of that conclusion, and if so, what data have you received?

A As I pointed out earlier, we did some analysis to try to simulate the Three Mile Island incident, and at that time as I recall, the pressurizer temperatures were such that I had concluded that this



1  
2 conclusion would be an error and that the pressurizer  
3 temperature under these conditions would have forced  
4 the water out of the pressurizer.

5 Q Has anybody ever told you that at Three  
6 Mile Island the pressure and temperatures in the  
7 pressurizer did not force the water out of the  
8 pressurizer when the block valve was closed?

9 A I remember going through some of the  
10 scenario on Three Mile Island. I wasn't involved in  
11 the analysis. At this point, I don't remember the  
12 specifics of the accident.

13 Q It sounds to me like your calculations were  
14 a more accurate reflection of real life at Three Mile  
15 island than the B&W simulations.

16 MS. WAGNER: I object to that statement.  
17 I move to strike it.

18 Q Did B&W ever do analyses of what would have  
19 happened if there had been a downward sloping surge  
20 line?

21 A I don't know.

22 Q Has anyone ever told you that they had  
23 concluded that your analysis in GPU 467 was wrong?

24 A No, no one ever told me.

25 Q Do you know why you prepared this analysis?

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A No, I do not.

3

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Q At the time you wrote the last sentence, did you know that the operators had terminated high pressure injection in response to high pressurizer water level?

7

MS. WAGNER: At Three Mile Island?

8

MR. SELTZER: Right.

9

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11

A Yes, I did understand at that time that HPI pumps had been turned off for an extended period of time for some reason.

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16

Q When you said that the HPI pumps would probably have been left on if the pressurizer had drained, were you saying that because you understood when you wrote this that the Three Mile Island operators had shut off HPI because they saw a full pressurizer?

17

A I don't recall why.

18

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21

Q I take it you did learn sometime after the Three Mile Island accident that the operators had shut off high pressure injection in response to rising pressurizer water level?

22

23

24

A I believe that came out during our analysis of the accident or at least the ECCS analysis of the accident which I was at least somewhat aware of.

25

Q When, if ever, did it occur to you that what

2 the operators had done in terminating high pressure  
3 injection at Three Mile Island was substantially  
4 similar to what Michelson and TVA had predicted in  
5 documents that you had seen and read in 1978?

6 A I don't recall ever trying to compare  
7 directly Michelson's concerns with the Three Mile  
8 Island incident.

9 Q Michelson said, "A full pressurizer may  
10 convince the operator to trip the HPI pump."

11 Do you recall that?

12 A I don't recall what is in Michelson's  
13 report.

14 Q Take a look at pages 26 and 27. Do you  
15 see the sentence on page 26, line 5, "A full pressurizer  
16 may convince the operator to trip the HPI pump"?

17 A Yes.

18 Q Do you see on 27, the second sentence, "A  
19 full pressurizer may convince the operator to trip the  
20 HPI pump"?

21 A Yes.

22 Q And you did learn after the Three Mile  
23 Island accident that a full pressurizer had apparently  
24 convinced the Three Mile Island operators to trip the  
25 HPI pumps, right?

1  
2 A I learned after the Three Mile Island  
3 accident that the HPI pumps had been tripped for an  
4 extended period of time.

5 Q Did you ever hear even from reading the  
6 newspapers or anything else that apparently the reason  
7 that the operators had tripped the HPI pumps was because  
8 of rising pressurizer water level?

9 A I don't recall that I ever saw the reasons  
10 that they tripped.

11 Q You never have heard that before today?  
12 I am telling you something for the first time, as far  
13 as you know.

14 A When we did the analysis, I recall that  
15 after the accident, that was certainly one consideration,  
16 but I guess we were a little bit surprised that they  
17 would trip the HPI pumps based on one single indication  
18 of the pressurizer level. We thought they would  
19 compare pressure and temperatures also.

20 Q When you had as one consideration that the  
21 operators had tripped HPI because of rising pressurizer  
22 level, did you remember that this had been exactly  
23 what Michelson had predicted in his 1978 report that  
24 you received?

25 A I don't recall comparing the two.

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Q After you saw the B&W response to TVA,

did it ever occur to you that perhaps B&W should

warn other operators of its plants of not relying on

pressurizer level as an indication of reactor coolant

system inventory?

A As I recall, this was a case of a specific

customer asking us a specific question on his plant,

on his 205 fuel assembly plant, and I don't recall

feeling the need to notify the other utilities of his

concern or confusion in this matter.

Q What was the name of your unit?

A The Generic Unit.

Q "Generic" means applicable to more than  
one plant, right?

A Yes.

Q Didn't you understand that the filling of  
a pressurizer in response to voiding in the primary  
loop was a phenomenon that had generic implications?

MS. WAGNER: Do you mean it could happen  
in other plants?

MR. SELTZER: You bet.

A We were involved in answering a specific  
question that a customer asked, and we didn't feel  
that it was a need to tell the other owners about

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this specific customer's concerns.

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Q Did you have any reason to believe in 1978 that TVA's concern about pressurizer water level not being a reliable indication of reactor coolant system inventory was not a concern that had generic applicability?

A Would you read it again?

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Q Was there any reason why the problem that TVA was concerned about was not a problem that would be just as applicable to any other B&W-designed nuclear steam supply system sold in the United States?

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A We viewed this as a matter of operator understanding of the hardware that was available, and we explained to TVA that the pressurizer level in itself was not an accurate indication of the inventory in the pressurizer. If this had been a matter that was clearly a hardware problem, then of course I think we would have had a case to tell other utilities.

20

21

Q The pressurizer is a piece of hardware, isn't it?

22

A Yes.

23

24

Q The pilot operated relief valve is a piece of hardware, isn't it?

25

A Yes.



2 Q The surge line is hardware, isn't it?

3 A Yes.

4 Q It is the operation of those pieces of  
5 hardware that produced the rising pressurizer water  
6 level effect, isn't it?

7 A The hardware is operated by the operators.  
8 Certainly the hardware is involved, yes.

9 Q The phenomenon of saturation in the  
10 reactor coolant system forcing the pressurizer water  
11 level up was not a phenomenon that was unique to the  
12 plants being sold to Tennessee Valley Authority, was  
13 it?

14 A No, but -- no, I don't believe it was.

15 Q In fact, based on your knowledge in 1978,  
16 you had no reason to believe that that phenomenon would  
17 not be equally applicable to all B&W plants; isn't that  
18 right?

19 A No. However, our understanding of the  
20 concern was mostly operator confusion, and we felt  
21 that we had addressed the TVA confusion and we had  
22 settled it and we felt no need to contact other owners  
23 about this confusion.

24 Q You began your answer with the word "No,"  
25 and I think that might be confusing. The phenomenon

2 would be equally applicable to all B&W plants, wouldn't  
3 it?

4 MS. WAGNER: This is the phenomenon of  
5 high pressurizer level because of saturation?

6 MR. SELTZER: Yes.

7 A I believe so under the same operator actions.

8 Q When you got TVA's letter and Michelson's  
9 report, did you have any glimmer of recollection about  
10 having received one or more memos from Bert Dunn that  
11 described the potential for operator termination of  
12 high pressure injection in response to rising pressurizer  
13 level?

14 MS. WAGNER: I object to the question. Asked  
15 and answered.

16 A No, I do not remember.

17 Q You said that the phenomenon would apply  
18 to all the 177 plants under the same operator actions.  
19 What operator actions were you referring to?

20 A If the HPI pumps were turned off for an  
21 extended period of time as they were at Three Mile  
22 Island, I believe the same characteristics would be  
23 seen under the same circumstances as Three Mile Island.

24 Q Isn't it a fact that if the high pressure  
25 injection pumps are left on, there would still be

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depressurization through an open pilot operated relief valve that would lead to voiding in the primary system?

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MS. WAGNER: Just so we don't get confused, a while ago we were talking about Michelson and now we are talking of the Three Mile Island accident; isn't that right?

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MR. SELTZER: We are talking of Michelson and the phenomenon that Michelson describes of rising pressurizer water level in response to saturation.

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MS. WAGNER: The only thing I want to get straight is, and I could be wrong about this, I don't think Michelson refers to an open PORV. He is just referring to a break someplace.

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MR. SELTZER: On page 27, Michelson does talk about venting by actuation of the pressurizer vent valve.

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MS. WAGNER: I understand that, but all I am saying is I am not sure that his focus is that which resulted in the Three Mile Island accident, and I don't want this record to get confused as to what phenomenon we are talking of here.

25

MR. SELTZER: The phenomenon that I am

1  
2 talking about is saturation in the reactor coolant  
3 system outside the pressurizer forcing water level  
4 up in the pressurizer.

5 Q Did you have some understanding before today  
6 that it required operator termination of high pressure  
7 injection in order to produce saturation in the reactor  
8 coolant system outside the pressurizer?

9 A No. I believe I was answering your question  
10 about the similarity between the Three Mile Island and  
11 the other plants, and I said the same -- I would suspect  
12 the same phenomenon to occur at the other plants as  
13 Three Mile Island.

14 Q I think Karen Wagner has done us a great  
15 service by spotting the difficulty in communication.  
16 Michelson is writing about a 205 fuel assembly plant  
17 that B&W was building for TVA, right?

18 A Yes.

19 Q It was with respect to that B&W plant  
20 that he said a full pressurizer may convince the operator  
21 to trip the HPI pumps, right?

22 A Yes.

23 Q The phenomenon that might lead them to see  
24 a full pressurizer was saturation in the reactor coolant  
25 system pushing pressurizer water level up, right?

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A Yes.

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Q And that is a phenomenon that he had spotted in a 205 fuel assembly plant, right?

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A Yes.

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Q Using that as our base, didn't you understand in 1978 that that phenomenon identified by Michelson with respect to TVA's plant was a phenomenon that had generic applicability to all of the B&W plants that had been designed and built in the United States?

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A I understood what was in the response that we made to TVA, which was that pressurizer level in itself was not a reliable indication of inventory in the primary system.

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MR. SELTZER: I move to strike that as non-responsive, and I would like to ask the reporter to reread the question.

19

20

MS. WAGNER: I think the answer was perfectly responsive.

21

(Record read)

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MS. WAGNER: The witness has answered this question several times. I will allow him to answer one more time and then direct him not to answer.

1

2 Q Do you understand the question?

3 A I am saying the thing that I understood --

4 Q First, do you understand the question? That  
5 is the question on the table.

6 A Yes, I believe I do.

7 Q Do you understand that the phenomenon I am  
8 referring to is saturation in the reactor coolant  
9 system outside the pressurizer forcing water level up  
10 in the pressurizer?

11 A Yes.

12 Q Do you understand that that is a phenomenon  
13 that Michelson has identified?

14 A Yes.

15 Q The only remaining question is, did you  
16 understand in 1978 that that limited phenomenon of  
17 saturation outside the pressurizer forcing water level  
18 up in the pressurizer was a phenomenon that was  
19 generally applicable to all of the B&W-designed nuclear  
20 plants in the United States?

21 MS. WAGNER: I think what Mr. Seltzer is  
22 asking is if whatever Michelson assumed happened  
23 to cause this, also happened at another plant,  
24 another B&W plant, would the same thing happen?

25 Is that what your question is?



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MR. SELTZER: Yes.

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A Yes, I know of no reason why not.

4

Q So you understand that the phenomenon, the physical phenomenon had generic applicability?

6

A Yes, I think so.

7

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Q You never suggested to anybody before the Three Mile Island accident that the response which B&W had drafted relating to operator reliance on a pressurizer level be sent to other owners of B&W plants, did you?

12

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MS. WAGNER: The witness has testified several times that he didn't think other plants had to be told about TVA's confusion. What more do you want from him?

16

17

MR. SELTZER: The answer to this next question.

18

19

MS. WAGNER: It is the same question you asked him already eight times.

20

21

A No, I didn't recommend it be sent to any other.

22

23

Q Have you ever been a teacher or an instructor?

24

A Not in any official role.

25

Q In connection with any of your



1  
2 responsibilities at B&W, did it ever occur to you that  
3 if one operating utility was confused about how to  
4 interpret a response of the B&W system that other  
5 utilities might have a similar confusion?

6 A I never evaluated that.

7 Q Have you ever given any sworn testimony  
8 in connection with the Three Mile Island accident before  
9 today?

10 A No, I haven't.

11 Q Have you ever had a transcript of any  
12 statements you have made about the Three Mile Island  
13 accident?

14 A No, I haven't.

15 Q Have you ever been interviewed by anybody  
16 outside B&W with respect to the Three Mile Island  
17 accident?

18 A No, I have not.

19 Q Isn't it a fact that representatives of  
20 I&E interviewed you in the aftermath of Three Mile  
21 Island?

22 A Yes, I believe you are right. I think there  
23 was some -- I think the NRC did send some people down  
24 that I talked to at least on one occasion.

25 Q Had you forgotten about that?

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A Yes, I had.

3

4

Q Do you remember telling the NRC that you felt that the prospect of a PSC ending up in the NRC public document room has had a chilling effect upon the use of the PSC system?

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A I don't remember telling them. I don't remember any of our conversation with the NRC.

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Q Do you remember concluding at any point prior to or within a year after the Three Mile Island accident that the prospect of a preliminary safety concern ending up in the NRC public document room has had a chilling effect upon the use of the PSC system at B&W?

15

16

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MS. WAGNER: Are you referring to the document which B&W calls preliminary safety concern?

18

19

MR. SELTZER: I am referring to those documents.

20

A I don't remember telling them that, no.

21

22

23

Q I am not asking whether you told it to anybody. Now I am asking whether that is a conclusion that you had come to.

24

A I don't remember.

25

Q Are you aware that since the Three Mile

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2

Island accident, B&W has initiated new procedures to  
comply with Part 21?

3

4

A In preparation for the deposition, I became  
aware that there were later revisions to the procedure.

5

6

Q You don't remember that you told the NRC  
about that on November 7, 1979?

7

8

A No, I don't remember any part of the  
conversation.

9

10

Q Didn't you participate in training sessions  
in 1979 where people explained to you the new procedures  
to comply with Part 21?

11

12

13

A I don't recall any sessions.

14

15

Q So the sessions you had with Karen was the  
first time you recall being advised of the new B&W  
procedures to comply with Part 21?

16

17

A I believe so, yes.

18

19

Q You have referred several times during  
your testimony to the analysis that B&W did with  
respect to a break in the pump discharge line. That  
analysis resulted in a preliminary safety concern and  
in a Part 21 report, didn't it?

20

21

22

23

A I believe so.

24

25

Q Both of those documents were generated in  
1978, weren't they, the spring?

1

2 A I believe so.

3 Q Were you familiar with the preliminary  
4 safety concern procedures that were in effect before  
5 the Three Mile Island accident?

6 A I believe so.

7 Q Once somebody spotted something that was  
8 a matter of significant concern, how quickly did the  
9 procedures for preliminary safety concern require that  
10 the matter be documented as a PSC?

11 A Once a concern had been concluded to be  
12 a substantial safety hazard, we notified the NRC within  
13 48 hours, I believe.

14 Q I asked how quickly did the concern have  
15 to be turned into a preliminary safety concern, not how  
16 quickly did it have to be turned into a Part 21 report.

17 MS. WAGNER: I take it you are asking him  
18 potential concern. I think that might be the  
19 source of the confusion, not one which has already  
20 been decided to be a concern.

21 Q If an engineer has a concern that something  
22 is a significant deficiency, what did the procedures  
23 say about how quickly he should write it up as a PSC?

24 A I don't recall any specific time.

25 Q Would it be consistent with your recollection

1  
2 of those procedures for somebody to have waited a year  
3 before writing it up as a preliminary safety concern?

4 A I can't make any judgment on it. As I  
5 recall, the procedures said if you have a concern, you  
6 write a PSC.

7 Q Did you understand you could wait a year  
8 before you could write it up?

9 A I don't think I ever thought about it in  
10 terms of how long you had.

11 Q Do you know that the pump discharge line  
12 break problem was perceived as a matter for a safety  
13 concern more than a year before a preliminary safety  
14 concern memo was written?

15 A I didn't know how long it had been thought  
16 about. At least I don't remember how long it had been  
17 thought about.

18 Q Don't you remember getting Dunn's monthly  
19 report for April 1977 telling you that the concern was  
20 already being thought about?

21 A I don't remember getting any specific Dunn  
22 report.

23 Q I show you GPU Exhibit 104 and see if this  
24 refreshes your recollection. This is a top secret,  
25 confidential counsel-only document, so I would like to

1 request that you don't discuss this outside this room.

2 Have you been cleared for confidential  
3 counsel-only documents?  
4

5 MS. WAGNER: I don't know if the witness  
6 will be allowed to see this document.

7 It is O.K. The witness can see this  
8 document.

9 Q Is that your name on the first page?

10 A Yes, it is.

11 Q Is this a copy of Dunn's monthly activities  
12 report for the month of April which you received in the  
13 regular course of business in or about late April 1977?

14 A I believe it is.

15 Q Take a look at page 3 of the document, item  
16 E. Do you recognize the description of the problem there  
17 as being the problem which became a preliminary safety  
18 concern and a Part 21 in the spring of 1978?

19 A I believe it is the same one.

20 Q You were aware, weren't you, in 1977 and  
21 1978 that there was a reluctance to raise a safety  
22 concern to the level of a PSC without doing an  
23 evaluation first; isn't that right?

24 MS. WAGNER: I object to the question.  
25 You may answer.



2 A I don't recall that I had that conclusion.

3 Q Let me show you notes of an interview of  
4 Henry A. Bailey, Jr., and see if showing you all these  
5 statements in black and white as transcribed by the  
6 NRC refreshes your recollection. What I am showing is  
7 the report of the Nuclear Regulatory Commission entitled  
8 "Babcock & Wilcox NPG/Possible Violation of 10CFR Part 21"  
9 dated January 24, 1980.

10 Would you take a look at page 11, please.  
11 You do recall now that you were interviewed by NRC  
12 personnel in or about early November 1979?

13 A Yes, I recall being interviewed by them.

14 Q Do you see the third paragraph on page 11?

15 A Yes.

16 Q Do you see the statements there about the  
17 chilling effect upon the use of the PSC system and the  
18 reluctance to raise an issue to the level of a PSC  
19 without doing some sort of evaluation first?

20 A Yes, I see the words.

21 Q Does that refresh your recollection that you  
22 communicated these thoughts either in words or substance  
23 to the NRC in an interview of you in or about early  
24 November 1979?

25 A I can't verify that I did or didn't.



1

2

Q Do you deny that you said it?

3

A No.

4

5

Q Have you ever heard any explanation as to why the safety concern regarding a pump discharge line break which Dunn is referring to in April 1977 didn't rise to the level of a PSC and a Part 21 report until April 1978?

8

9

A No, I don't believe so.

10

Q Did you ever hear of a chap named Duerson?

11

A Yes.

12

13

Q Is he somebody that controls the funding for projects at B&W?

14

15

16

A He is no longer with B&W. He has had several jobs around B&W. He may have been in that position.

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MR. SELTZER: I would like to mark as GPU Exhibit 469, a memo from H.A. Bailey to Distribution, subject, minutes of meeting with the NRC on 177 fuel assembly lower loop small break analysis, dated April 28, 1978. These notes of a meeting attended by GPU, Duke, the NRC, Arkansas Power, and about everybody else that wanted to attend are stamped "Confidential, counsel only."

(Document from H.A. Bailey to Distribution,

1  
2 subject, minutes of meeting with the NRC on 177  
3 fuel assembly lower loop small break analysis,  
4 dated April 28, 1978 was marked GPU Exhibit 469  
5 for identification, as of this date.)

6 MS. WAGNER: I think Met Ed should be  
7 pleased we regard their activities and those of  
8 other customers as confidential.

9 Q Are these notes which you prepared in or  
10 about late April, 1978?

11 MS. WAGNER: You are talking about every  
12 page in this document?

13 A Yes, I believe it is.

14 Q You attended the meeting, right?

15 A Yes.

16 Q Was anything said at this meeting about any  
17 lessons learned by B&W as a result of the Michelson  
18 report?

19 A I don't recall any. I don't recall what  
20 is in these minutes.

21 Q Take a minute to refresh your recollection.  
22 Did anybody from B&W mention any concern  
23 at this meeting about pressurizer level going up in  
24 response to a small break loss of coolant accident?

25 A I don't recall that they did.

1  
2 Q Did anybody mention at this meeting the  
3 potential for operators to be misled by pressurizer  
4 water level during a small break loss of coolant  
5 accident?

6 A I don't recall that they did.

7 Q Was there any discussion about the need for  
8 different procedures for the regulation of high pressure  
9 injection during loss of coolant accidents? In other  
10 words, different from the procedures B&W had previously  
11 recommended.

12 A Yes, I believe we discussed operator action  
13 to open some cross-connect valves as a short-term  
14 solution to the problem.

15 Q That was a solution to the pump discharge  
16 line break problem, right?

17 A Yes.

18 Q Did anybody mention Dunn's proposed guidelines  
19 for operator termination of high pressure injection  
20 contained in his February 16, 1978 memorandum?

21 A Not that I recall.

22 MR. SELTZER: Your witness.

23 MS. WAGNER: May I have five minutes?

24 (Recess taken)

25 EXAMINATION BY

1  
2 Q Did anybody mention at this meeting the  
3 potential for operators to be misled by pressurizer  
4 water level during a small break loss of coolant  
5 accident?

6 A I don't recall that they did.

7 Q Was there any discussion about the need for  
8 different procedures for the regulation of high pressure  
9 injection during loss of coolant accidents? In other  
10 words, different from the procedures B&W had previously  
11 recommended.

12 A Yes, I believe we discussed operator action  
13 to open some cross-connect valves as a short-term  
14 solution to the problem.

15 Q That was a solution to the pump discharge  
16 line break problem, right?

17 A Yes.

18 Q Did anybody mention Dunn's proposed guidelines  
19 for operator termination of high pressure injection  
20 contained in his February 16, 1978 memorandum?

21 A Not that I recall.

22 MR. SELTZER: Your witness.

23 MS. WAGNER: May I have five minutes?

24 (Recess taken)

25 EXAMINATION BY

1  
2 MS. WAGNER:

3 Q You testified that you did not believe that  
4 the conclusion expressed in GPU 112 that there were  
5 circumstances under which pressurizer level indication  
6 alone was not an accurate indication of system inventory  
7 was transmitted to plants other than TVA.

8 Can you explain why you didn't transmit  
9 this conclusion to plants other than TVA?

10 MR. SELTZER: Objection. No foundation  
11 that this witness was even consulted on to whom  
12 it should be sent or has any knowledge why it  
13 was sent to the company it was sent to.

14 MS. WAGNER: I believe you asked him why he  
15 didn't pass it along to other plants, so I am  
16 asking why he didn't.

17 MR. SELTZER: I asked him why he didn't  
18 recommend it.

19 Q Why did you not recommend that this  
20 conclusion be transmitted to other plants?

21 A It was my impression that after reading  
22 the response that we made to TVA, it was my impression  
23 that this sort of thing was included in the training  
24 program for the operators and that they should not  
25 rely on pressurizer level indication by itself as an

1  
2 accurate indication of inventory.

3 Q Did you think at or about the time that  
4 GPU 112 was prepared that other plants shared the  
5 confusion that you thought TVA had with respect to  
6 what pressurizer level indicated?

7 MR. SELTZER: Are you including in that  
8 question Davis-Besse plant about which he had  
9 been advised by Dunn that the operators had already  
10 terminated high pressure injection in response  
11 to rising pressurizer water level?

12 MS. WAGNER: The witness doesn't recall  
13 receiving Mr. Dunn's memo. I am asking for his  
14 understanding as to whether or not other plants  
15 shared the confusion of TVA with respect to the  
16 significance of pressurizer level.

17 MR. SELTZER: That is not a pertinent  
18 question to a witness who doesn't even read his  
19 mail.

20 A Could you say the question over again?

21 (Question read)

22 A No, I had no basis to think that the other  
23 plants shared this confusion.

24 MS. WAGNER: I have no further questions.

25 BY MR. SELTZER:

1  
2 Q If you had read Dunn's memo before January 19,  
3 1979, you would have had a basis for knowing that there  
4 was confusion at other plants, would't you?

5 MS. WAGNER: I object to the question and  
6 direct the witness not to answer. Speculation.  
7 He testified he didn't read it before the accident.

8 MR. SELTZER: If you are not going to let  
9 him answer my question, all I can do is protest.

10 (Time noted: 4:35 p.m.)

11 oOo

12 Henry Bailey

13  
14 Subscribed and sworn to  
15 before me this  
16 day of , 1982.



STATE OF NEW YORK )  
: ss.:  
COUNTY OF NEW YORK )

That the said witness was duly sworn  
before the commencement of his testimony and  
that the within transcript is a true record of said  
testimony;

That I am not connected by blood or marriage with any of the parties herein nor interested directly or indirectly in the matter in controversy, nor am I in the employ of any of the counsel.

IN WITNESS WHEREOF, I have hereunto set  
my hand this 4 day of March 1982.

Joseph R. Danyo

## I N D E X

Witness	Page
Henry Bailey	4

## E X H I B I T S

GPU		For Ident.
466	Document entitled "Resume of Jenry A. Bailey"	4
467	Two-page document from Mr. Bailey to Mr. Taylor dated April 3, 1979 relating to the effect of the loop seal on the level of the pressurizer	99
468	Handwriting sample of Mr. Bailey	100
469	Document from H.A. Bailey to Distribution, subject, minutes of meeting with the NRC on 177 fuel assembly lower loop small break analysis, dated April 28, 1978	130

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