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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

Continued deposition of THE BABCOCK &
WILCOX COMPANY, by BRUCE ADOLPH KARRASCH,
taken by Plaintiffs, pursuant to Notice, and
as adjourned, at the offices of Kaye, Scholer,
Fierman, Hays & Handler, Esqs., 425 Park Avenue,
New York, New York, on Friday, June 19, 1981,
at 9:19 o'clock in the forenoon, before Charles
Shapiro, a Certified Shorthand Reporter and
Notary Public within and for the State of New York.

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PDR ADCK 05000289
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Also Present:

DAVID TAYLOR

* * *

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B R U C E A D O L P H K A R R A S C H ,

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resumed, having been previously duly sworn by a

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Notary Public, was examined and testified further

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as follows:

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EXAMINATION (cont'd)

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BY MR. SELTZER:

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Q Mr. Karrasch, you said that while you had

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not personally initiated preliminary safety concerns

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your plant integration unit had or members of the unit

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had, is that right?

12

A Yes, sir.

13

Q On what subjects?

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A I don't recall any specific ones at this time.

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Q Had any of the PSC's initiated by people

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in plant integration resulted in part 21 reports?

17

A I don't recall.

18

Q Did you review the PSC reports prepared by

19

people in plant integration?

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A Yes, I do recall reviewing reports prepared by

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people in plant integration.

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Q About how many PSC's were initiated by plant

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integration?

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A I don't recall the exact number but I would say

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it was on the order of five or ten.

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Q You don't remember the subject matter of a single one of them?

A I recall one on the subject of equipment errors used in the safety analysis of the plant, but I can't think of the specific nature of the concern right now.

Q What do you mean by "equipment error"?

A The safety analysis group assumes certain instrumentation errors used in the reactor protection system.

I vaguely recall a PSC where the actual hardware qualification data was indicating errors which were larger than those which had been assumed in the analysis.

Q Would you take a look at page 2 of GPU Exhibit 94?

(Handing document to witness.)

Under the "Definition of Significant Deficiency," do you see the items "a., b., c., and d."?

A Yes, I do.

Q It indicates there that a significant deficiency would exist as a result of one or more of the following d. is "A significant deviation from performance specifications requiring corrective action involving extensive effort."

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What are the performance specifications referred to there?

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MR. FISKE: You mean what did he understand them to be in 1978?

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MR. SELTZER: Right.

A I don't remember trying to understand the specific definition of performance specifications in 1978.

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Q Were you able to apply part d. without knowing what the performance specifications meant?

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A Yes, sir, I would say so.

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Q How did you apply it?

A As I testified earlier, my understanding of the procedure is that it requires a safety concern to be filed if there is a defect or an error in any of the design documentation which is used to show that the plant is safe or to procure hardware for safety-related equipment. That includes a very large hierarchy of documentation all the way from safety analysis calculations to equipment specs to by hardware to hardware performance specifications that the vendors give back to us to show that they have met the E specs.

I looked at that entire hierarchy of design documentation as that required to show an adequate design.

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Q Did anyone ever explain to you what "a significant deviation from performance specifications" meant?

A I don't recall.

Q Did you ever have any instruction that took you step by step through the B & W procedure for processing safety concerns?

MR. FISKE: I don't quite understand what you mean by step by step. Is that a line-by-line review?

MR. SEITZER: Or paragraph by paragraph, heading by heading.

A I recall training sessions which were conducted for all the employees at NPGD to inform them that the procedure was in place, to give them a general overview of the intent of the procedure and to go through the step-by-step process which is outlined on Exhibit A.

The details of what was presented in those training sessions, I really don't recall.

Q Did you believe that those training sessions were a serious matter?

A Yes, sir, I did.

Q Did you take your responsibilities under the preliminary safety concern procedure seriously?

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2

A Yes, I believe I did.

3

Q Why?

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A I was very much involved in the entire process of design and analysis of safety systems for B & W plants. I understood the importance those safety systems play in the safe operation of a plant.

8

9

I felt, and I still do, that a mistake made in the design process should be corrected.

10

11

Q You said you were very much involved in safety system design.

12

13

Did that include emergency or cooling systems?

14

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A Plant integration prepared the system requirements for the Emergency Core Cooling Systems.

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17

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Q Were you concerned that the Emergency Core Cooling Systems should function so that there was not core uncover and fuel melting?

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22

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A My understanding is that the system design analysis which was performed related to Emergency Core Cooling Systems was done to show that they would show results which fell within the limits of the NRC design criteria.

24

25

Q Did you understand that there were any NRC design criteria directed at effective core cooling?

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2

A I am not specifically aware of the criteria but I understood that they did exist.

3

4

Q Did you understand that the NRC had design criteria to insure that there was not substantial melting of the fuel cladding?

6

7

I am not asking you whether you can recite the regulation, I am just asking you whether you were aware in 1978 that the NRC imposed design criteria that were intended to prevent substantial rupturing of the fuel cladding.

10

11

12

A The only thing I recall about the design criteria is that it imposed a cladding temperature limit.

14

15

Q 2100 degrees Fahrenheit or 2200 degrees Fahrenheit?

16

17

A I believe the number was 2200 degrees Fahrenheit.

18

19

Q Is it your understanding that the melting point of zirconium alloy fuel cladding is above 2200 degrees?

20

21

A Yes, that is my understanding.

22

23

Q On any of the occasions when you read Don Hallman's memo, GPU Exhibit 80, prior to the Three Mile Island accident, did it ever occur to you that his raising the possibility of possible uncovering of the

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nuclear core raised a safety concern?

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MR. FISKE: You mean a safety concern in

4

the context as that term is used in the TPSC

5

procedures?

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MR. SELTZER: Right.

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MR. FISKE: Do you understand the

8

question, Mr. Karrasch?

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MR. FISKE: Off the record.

10

(Discussion off the record.)

11

MR. SELTZER: I will restate the question.

12

BY MR. SELTZER:

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Q When you got GPU Exhibit 80, Don Hallman's

14

memo and at any time that you read it before the

15

Three Mile Island accident, did it ever occur to you

16

that his description of the possibility of uncovering

17

the nuclear core raised a safety concern within the

18

rubric of B & W's preliminary safety concern procedures?

19

A No, it did not occur to me.

20

Q Did it ever occur to you that the

21

possibility of uncovering the core which Don Hallman

22

described and which Bert Dunn had described in his

23

February 1978 memoranda raised a safety concern

24

within the context of B & W's preliminary safety

25

concern procedures?

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2

A No, it did not occur to me.

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Q I would like to show you GPU Exhibit 95 which is a B & W policy and procedure relating to the reporting of defects and non-compliance concerning safety, (10CFR21).

7

(Handing document to the witness.)

8

9

Is GPU Exhibit 95 a copy of a document which you received in or about December 1977?

10

11

A I do not recall receiving or reading this document.

12

13

Q Do you maintain a binder of B & W policies and procedures?

14

15

A The policies and procedures are maintained by the Administrative Services Section at B & W.

16

17

Q Did you have an administrative policy binder in the Plant Integration Section?

18

19

A Yes, there was one set of procedures for the entire section.

20

21

Q When additions were made to that set of procedures, were copies of the new edition sent to you?

22

A No, they were not.

23

24

Q Will you turn to the attachment to GPU Exhibit 95 marked for identification, please?

25

Have you seen a copy of 10CFR Part 21

1
2 of the type and form attached to GPU Exhibit 95?

3 A I have not seen a copy of this type and form
4 of Part 21.

5 Q In other words, you didn't have a copy of
6 this posted anywhere in or around the Plant Integration
7 Section?

8 A That is correct.

9 Q Will you take a look at the last page of
10 GPU Exhibit 95.

11 Have you seen a copy of that during the
12 time that you were head of the Plant Integration
13 Section?

14 A I don't recall.

15 Q I take it then you don't have any
16 recollection that this was posted anywhere in or near
17 the Plant Integration Section, is that right?

18 A I just don't remember one way or the other.

19 Q You don't recall anywhere specifically
20 that it was posted, do you?

21 A I do not remember seeing it posted.

22 Q Was there any particular manager at B & W
23 whom you understood had principal responsibility for
24 implementing B & W's obligations under 10CFR Part 21?

25 A My understanding was that the Manager of

1
2 Licensing had primary responsibility.

3 Q Who was that?

4 A To the best of my knowledge, Jim Taylor was
5 Manager of Licensing in 1978.

6 Q Taylor has been head of Licensing for at
7 least the last seven or more years, hasn't he?

8 A I don't recall when Mr. Taylor was given that
9 position.

10 Q Can you recall any other Manager of
11 Licensing?

12 A Yes.

13 Q Who?

14 A I recall Mr. Ken Shurke was Manager of Licensing
15 sometime ago.

16 Q Is it your understanding that in 1977
17 and 1978 and 1979 Jim Taylor was the Manager at B & W
18 principally responsible for implementing B & W's
19 preliminary safety concern procedures?

20 A Yes, I think that is correct.

21 Q Are you aware that the NRC issued a
22 citation against the Babcock & Wilcox for failing,
23 according to the NRC, to take proper action with
24 regard to the Dunn recommendation?

25 A I recall some discussion about such a citation

1
2 over a year ago.

3 I was not involved in the B & W response
4 to that citation.

5 Q Among whom was the discussion?

6 A I guess it would be more accurate to say I recall
7 hearing about it.

8 I do not recall the specific discussion.

9 Q Other than Dunn, Womack and Kelly, have you
10 had any discussions with anyone else regarding the
11 failure of B & W to send out the guidelines recommended
12 by Dunn prior to the Three Mile Island accident?

13 A I don't recall discussing the failure of B & W
14 to send out the guidelines with Dunn, Womack and Kelly.

15 Q Have you had a discussion with anybody
16 about the fact that B & W never sent out the Dunn
17 recommendations before the Three Mile Island accident?

18 A The only discussions I recall are the depositions
19 and testimony in front of Rogovin and Kemeny and this
20 deposition which is underway now.

21 Q Is it true that to the best of your
22 knowledge B & W never did send out the guidelines
23 proposed by Bert Dunn prior to the Three Mile Island
24 accident?

25 MR. FISKE: Off the record.

(Discussion off the record.)

Q If it would help you to take a look at Dunn's recommendations as set forth in GPU Exhibit 79, feel free to.

Would you like to?

(Handing document to the witness.)

A I am only aware of the information I have gathered during the Kemeny Commission and Rogovin Commission hearings.

I really don't know for sure whether or not B & W took any action.

Q Mr. Karrasch, don't be so anguished. I am not searching for things that are not within your knowledge, so when I ask you do you know whether B & W sent it out, I am just asking whether you have ever seen a memorandum or sight instruction that you know went out before the Three Mile Island accident containing Dunn's prescription or, did anybody ever tell you, "We sent that bloody thing out, I don't know why they didn't get it"?

Did you ever hear or see evidence that the operating guidelines proposed by Dunn in February 1978 were sent by B & W to the operating utilities prior to the Three Mile Island accident?

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2

A I do not recall seeing an instruction of that nature to our customers before Three Mile Island.

3

4

Q Has anybody ever told you that such an instruction had been sent out?

5

6

A No, sir, I have never been told that such an instruction had been sent out.

7

8

Q Is it correct that you have had discussions with Dunn, Womack and Kelly regarding your role in the handling of Bert Dunn recommendations for operation of high pressure injection?

10

11

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A I recall discussions with Womack, Kelly and Dunn about the action that I took on Mr. Hallman's memorandum to me.

13

14

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Q Did you have discussions with anybody else regarding your role in handling anything relating to Bert Dunn's recommendations on how to operate high pressure injection?

16

17

A Again, the only other discussions I recall were related to inquiries by the Kemeny and Rogovin Groups.

18

19

Q Did John MacMillan ever talk to you about your role in this matter?

20

21

A No, sir, he didn't.

22

23

Q Have you ever talked to John MacMillan about anything?

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A Yes, I have.

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Q Have you talked to him since the Kemeny Commission hearings?

5

MR. FISKE: You mean about anything?

6

MR. SELTZER: Right.

7

A Yes, I have.

8

Q Has the subject of the Dunn memorandum and your role in handling Dunn's recommendations never came up in those conversations?

9

10

A No, sir, it did not.

11

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Q Has anybody at B & W ever expressed criticism to you of your handling of Don Hallman's memo, GPU Exhibit 80?

15

A No, sir, they have not.

16

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Q Has anybody ever told you in words or substance that you should have handled Don Hallman's memo quicker?

19

A I recall Dr. Kemeny --

20

21

MR. FISKE: You mean people at B & W, don't you?

22

He means people at B & W.

23

A No.

24

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Q Has anybody at B & W ever said to you in words or substance that you should have done a more

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effective job of following up on your purported

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assignment to others to work on Don Hallman's memo?

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A No.

5

Q Has there ever been an investigation

6

conducted at B & W other than by lawyers to determine

7

why the Dunn recommendations were not sent out before

8

the Three Mile Island accident?

9

A I am unaware of any such investigations.

10

Q Where did you meet with Allen Womack when

11

you discussed your role in the Dunn-Hallman matter?

12

A To the best of my recollection it was in his

13

office.

14

Q Had he called you in as you understood it

15

specifically to discuss your involvement in that matter?

16

A I recall that it came up when we were discussing

17

another matter.

18

There was not a specific meeting for that

19

purpose.

20

Q Who initiated the discussion of the Dunn-

21

Hallman matter?

22

A I don't recall.

23

Q How long did you and he discuss the Dunn-

24

Hallman matter?

25

A I don't believe it was any longer than several

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minutes.

3

Q As best you can recall, what did you say to him and what did he say to you?

4

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A I recall Allen coaching me on the way to conduct yourself in such a hearing.

6

7

Q What do you mean by "such a hearing"?

8

A In giving testimony under oath. I had never done it before and as I best recall Allen's advice to me was "Listen carefully to the questions and answer them truthfully."

10

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I then briefly related to Allen the action that I had taken on Mr. Hallman's memorandum to me.

13

14

Q What did you tell Dr. Womack?

15

A I told him that I recalled receiving Don's letter, that I recalled passing it on to either McBride or Swanson for action, that I recalled several follow-up conversations with Mr. Hallman during the fall of 1978, that I recalled taking action on the letter myself in early 1979.

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I think that was the extent of the conversation. It was very brief.

22

23

Q As or after you related those events to Allen Womack, what did he say to you in words or substance?

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2 A I don't recall a response from him at all.

3 Q Was he still your boss at the time you had
4 this conversation?

5 A Yes, sir, he was.

6 Q Where did you and Bert discuss your role
7 in the Dunn-Hallman affair?

8 A I don't recall for sure.

9 Q Was it a face-to-face meeting?

10 A Yes, it was.

11 Q Had the meeting been arranged in order to
12 have this discussion?

13 A No, sir, it was not.

14 Q Approximately how long did you and he
15 discuss your involvement in the Dunn-Hallman affair?

16 A It was just for several minutes.

17 Q Did Bert say anything to you about what had
18 impelled him to write the memoranda which he had in 1978?

19 A No. As I best recall bert asked me what action
20 I had taken on Mr. Hallman's memo and I told him
21 essentially the same thing that I told Dr. Womack.

22 That was the extent of my conversation with
23 Bert to the best of my recollection.

24 Q Did you ask Bert any questions?

25 A I don't recall.

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Q Have you ever had any other conversation with Bert Dunn regarding the guidelines which he drafted for improving the procedures for operator termination of high pressure injection?

A No, sir, I don't think I have.

Q Since the Three Mile Island accident, you have worked and traveled together with Bob Jones of the ECCS Analysis Unit, haven't you?

A Yes, sir, I have.

Q Do you get along well with Jones?

A Yes.

Q Have you ever discussed with Bob Jones anything relating to the Dunn-Hallman-Karrasch matter?

A I don't recall any discussions with Bob Jones on this matter.

Q Where was your conversation with Joe Kelly on this matter?

A I am pretty sure my conversation with Joe was in his office.

Q How long did it last?

A Very briefly. No more than several minutes.

Q Who initiated the discussion of the Dunn-Hallman-Karrasch affair?

A I did.

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Q Why?

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A As I best recall Bert had told me that there was a series of memos leading up to Mr. Hallman's memo to me. That happened in the conversation that I alluded to earlier with Bert.

I then went to Joe who worked for me and asked him for a copy of the five memos so that I could review them. So, I went to see him.

Q Did he know what five memos you were referring to?

A Yes, he did.

Q Did he have copies of them ready to hand to you?

A I believe he had one copy and he agreed to get me a copy himself.

Q How had Joe Kelly, if you know, obtained copies of all five memos?

A I do not know.

Q Let me show you GPU Exhibit 76 and ask you if this memo from Kelly to distribution is one of the five memos that you were just referring to?

(Handing document to the witness.)

A Yes, it was, to the best of my knowledge.

Q After you got this memo from Joe Kelly

1
2 you read it, right?

3 A Yes.

4 Q After reading it did you recall at that time
5 that you had previously received a copy of GPU Exhibit
6 76?

7 Let me be very clear what I am asking you.
8 I am not asking you today whether you recall getting
9 GPU Exhibit 76 on or about November 1, 1977, I am
10 asking you whether when you obtained a copy from Joe
11 Kelly after the Three Mile Island accident and read
12 it, did you then recall that you had previously
13 received a copy of GPU Exhibit 76?

14 A No, sir, I did not then recall receiving a copy
15 of GPU Exhibit 76.

16 Q About when in time did Joe Kelly give you
17 a copy of GPU Exhibit 76 and the other four memos that
18 are part of this Kelly-Dunn-Hallman-Karrasch scenario?

19 A I believe I received the five memos from Joe very
20 shortly after my return from vacation in July of 1979.

21 Q When you read GPU Exhibit 76 in July of
22 1979, did you understand all of it?

23 A I believe I understood it in a general way, yes.

24 Q Were you aware that the September 24, 1977
25 Toledo event that is referred to was an event at the

1

2

Davis-Besse I nuclear plant designed by B & W?

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A The first paragraph of the letter told me that

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so I was aware of it after reading the letter.

5

Q You knew that Joe Kelly had been sent from

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your unit out to Toledo Edison to investigate the

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events relating to the September 24, 1977 transient

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shortly after that transient occurred, right?

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A I don't recall connecting up that situation with

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the incident as described in this memo.

11

Q I wasn't asking for the nexus, I was just

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asking, you knew, did you not, that Joe Kelly had been

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sent from your unit out to Davis-Besse to investigate

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the events relating to the September 24, 1977 transient

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and that he had been sent shortly after the transient?

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MR. FISKE: I think what Mr. Karrasch

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said was he didn't connect that with the

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transient referred to in the memo.

19

MR. SELTZER: I thought he was saying

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he didn't make that connection when he read the

21

letter.

22

MR. FISKE: Well --

23

A When I read this letter I didn't then know that

24

that was the transient that Joe had gone out to study

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at the Davis-Besse plant.

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2 Q You knew that Joe Kelly had been sent out
3 in the fall of 1977 to study a transient at Davis-Besse,
4 didn't you?

5 A Yes. I was involved in sending him.

6 Q What do you mean you were involved?

7 A I was asked permission for him to go and I gave
8 that permission.

9 Q You were asked permission for him to go
10 and do what?

11 A Assist Toledo Edison in evaluating a reactor trip
12 which had occurred.

13 Q Did you ever discuss the contents of GPU
14 Exhibit 76 with Joe Kelly?

15 A No, sir, I do not believe that I did.

16 Q Will you take a look at the first paragraph.
17 There is a sentence about two thirds of the way down
18 that begins with the words "As a result." Do you see
19 that?

20 A Yes.

21 Q That sentence reads, "As a result the
22 transient continued on with boiling in the reactor
23 cooling system," et cetera, et cetera.

24 When you read this document, did you
25 understand that boiling in the reactor coolant system

1
2 meant that the water in the reactor coolant system
3 had reached its saturation temperature?

4 MR. FISKE: You are talking now about this
5 period of time sometime in July of 1979?

6 MR. SELTZER: Right.

7 A That is my understanding of the onset of boiling,
8 yes.

9 Q The preceding sentence says "The operator
10 stopped high pressure injection when pressurizer
11 level began to recover, without regard to primary
12 pressure."

13 What did you understand again at the same
14 time in July of 1979 the concept meant of "Pressurizer
15 level began to recover"? What does that mean?

16 MR. FISKE: What did that mean in July
17 of 1979?

18 A That meant the pressurizer level began
19 increasing after an initial decrease.

20 Q In other words, the level of water in the
21 pressurizer was being restored to its normal operating
22 level?

23 A Yes, it was increasing back to its normal
24 operating level.

25 Q Is that the point at which you understood

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from GPU Exhibit 76 that the Davis-Besse operators shut off or terminated the high pressure injection into the Davis-Besse reactor coolant system?

A Yes.

Q It says in that same sentence that they took that action "without regard to primary pressure."

What did you understand that meant when you read GPU Exhibit 76 in July of 1979?

A That the operator did not look at primary pressure nor did he look at primary temperature to assure he had a subcooled reactor coolant system.

Q Your man Kelly says in the second paragraph, the first sentence, "Since there are accidents which require the continuous operation of the high pressure injection system, I wonder what guidance, if any, we should be giving to our customers on when they can safely shut the system down following an accident."

At the time you read this in July of 1979 did you understand that there are accidents which required the continuous operation of the high pressure injection system?

MR. FISKE: You mean did he understand in 1979 that there were accidents which would require the continuous operation of HPI?

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MR. SELTZER: I think you have just exactly parroted my question.

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MR. FISKE: Yes, I know. That's what I hoped I was doing.

5

6

MR. SELTZER: I don't mind the echo as long as --

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MR. FISKE: I just --

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MR. SELTZER: As long as it doesn't confuse the witness to hear two people say the same thing.

10

11

MR. FISKE: It just confirms that my understanding of the question is correct.

12

13

A I understood at the time I read this memo that there are accidents which require operation of the high pressure injection system to replenish lost reactor coolant fluid during a small break LOCA.

14

15

16

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Q Did you also understand from the first sentence of the memo where Kelly says "Perhaps we are not giving our customers enough guidance on the operation of the high pressure injection system," and from the first sentence of the second paragraph where he says "I wonder what guidance, if any, we should be giving to our customers," that Joe Kelly was raising a question in this memo about whether further guidance should be given to Babcock & Wilcox customers regarding

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the operation of the high pressure injection system?

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MR. FISKE: Do you remember?

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The question again is:

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Does he remember what his understanding

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was in July of 1979?

7

MR. SELTZER: Yes.

8

(Continued on page 353.)

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1
2 BY MR. SELTZER:

3 Q Did those sentences impart to you a
4 meaning that Kelly was asking the question whether
5 further guidance should be given to operators on when
6 they can safely shut the high pressure injection system
7 down?

8 A Yes. I think the second paragraph states what
9 Joe was asking the distribution list to think about.

10 Q O.K.

11 What does the last sentence in the memo
12 say?

13 A It says, quote, I would appreciate your thoughts
14 on this subject, close quote.

15 Q Have you ever given Joe Kelly your
16 thoughts on this subject?

17 MR. SELTZER: Off the record.

18 (Discussion off the record.)

19 A I do not recall.

20 Q You don't recall ever giving him your
21 thoughts on this subject; is that right?

22 A I don't know whether I did or not.

23 Q All right.

24 A I do not recall.

25 Q You can't recall a specific conversation

1

2 that you had with Kelly in which you gave him your
3 thoughts on this subject, do you?

4 A No, sir, I cannot recall one.

5 Q You said that your routine method of
6 reading mail that comes into your office was to look
7 through it and see if it called for any action on your
8 part; is that right?

9 A Yes, I think that is correct.

10 Q When you read GPU Exhibit 76 in July of
11 1979 did you recognize that it called for action on
12 your part?

13 MR. FISKE: Well, I am going to object
14 to that, Mr. Seltzer. I don't think whether
15 he thought in 1979 that had called for action
16 on his part is relevant to this at all.

17 MR. SELTZER: O.K.

18 MR. FISKE: This is two months after the
19 accident. He was obviously not reading it at that
20 point for the purpose of deciding whether or not
21 he had to respond to the memo. He was reading
22 it in terms of being prepared for his Kemeny
23 testimony.

24 So, I didn't object to the other
25 questions in terms of his understanding of what

1
2 the content of the memo was, but I think in
3 terms of the question relating to the last
4 sentence, the only relevant question is what
5 did Mr. Karrasch understand when he received
6 the memo in 1977, if he received it.

7 MR. SELTZER: He has already testified
8 that in all probability he did receive it.

9 MR. FISKE: We don't have to go back
10 through that and rehash the testimony.

11 MR. SELTZER: "All probability," that
12 means it is 100 percent likely, in all
13 probability he received it.

14 So let's proceed with his sworn
15 testimony that in all probability he received
16 it.

17 MR. FISKE: Mr. Seltzer, I am not
18 quarreling with you as to what the prior
19 testimony is; it is all in the record.

20 All I am saying is, the only relevant
21 time period for the question that you just put
22 is 1977, not 1979. It is totally irrelevant
23 whether he thought in 1977 --

24 MR. SELTZER: Totally irrelevant?

25 MR. FISKE: Yes, whether he thought in

1
2 1979 Mr. Kelly was then asking him for his
3 thoughts. This is two months after the
4 accident.

5 MR. SELTZER: I am not concerned with the
6 silly question that you are suggesting that
7 Kelly is asking for his thoughts in July 1979.
8 I am asking him whether when he read this in
9 July of 1979 he understood that this November 1,
10 1977 memo was a memorandum which sought some
11 action from Mr. Karrasch.

12 MR. FISKE: Yes, and that is my -- I
13 understand that is what you are asking.

14 MR. SELTZER: Your objection is noted.

15 BY MR. SELTZER:

16 Q Will you answer the question, please?

17 MR. FISKE: If you can.

18 A Joe is asking the people on distribution if they
19 would give him our thoughts on the subject.

20 Q Including your thoughts, right?

21 A Yes.

22 Q And giving somebody your thoughts is
23 taking some action; right?

24 A Yes, I believe that is right.

25 Q I would like to show you GPU Exhibit 78

1
2 for identification, which is Bert Dunn's now famous
3 memo on operator interruption of high pressure
4 injection, February 9, 1978.

5 (Document handed to the witness.)

6 If you would like to take an opportunity
7 to reread it, please do.

8 A Yes.

9 Q Did you ever delegate to anyone else the
10 responsibility of responding to Joe Kelly's
11 November 1 memo, GPU Exhibit 76?

12 A I don't recall.

13 Q You don't recall anybody to whom you gave
14 that responsibility?

15 A I don't recall receiving the memo nor delegating
16 my action on the memo.

17 Q After you got GPU Exhibit 78 from Joe
18 Kelly in July of 1979, you read it, right?

19 A Yes, I did.

20 Q Did you read it with the anticipation
21 that you might be questioned on its contents by the
22 staff and members of the Kemeny Commission?

23 A Yes, I did.

24 Q Did you know that your name is on the
25 distribution list?

1

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A Yes.

3

4

Q Did you make any efforts to locate any other copies of GPU Exhibit 78 in your files?

5

A Yes.

6

Q What did you do to look for it?

7

8

A I have a few number of files which are identified by the high-priority subjects which I am working on.

10

11

Q You didn't find this memo in any of those files?

12

A No, I did not.

13

14

Q Is it fair to conclude that if you got a copy of GPU Exhibit 78, you didn't keep it?

15

16

A I did not find it in my files; therefore, I did not have it.

17

18

Q When you read GPU Exhibit 78 in July of 1979 did you understand all of it?

19

A I understood it in a general sense, yes.

20

21

22

Q In the second paragraph, the sixth line, there is a reference to the reactor coolant system being in, quote, a two-phase state, unquote.

23

24

What did you understand "two-phase state" meant?

25

A "Two-phase" to me means that there is a

1
2 combination of liquid and steam.

3 Q Those are two of the three phases in which
4 water can exist; is that right?

5 A Yes.

6 Q Turning to the last sentence of the second
7 paragraph, Bert says, "Had this event occurred in a
8 reactor at full power with other than insignificant
9 burnup it is quite possible, perhaps probable, that
10 core uncovering and possible fuel damage would have
11 resulted."

12 Do you see the words, "insignificant
13 burnup"?

14 A Yes, I do.

15 Q What did that phrase mean to you in July
16 of 1979?

17 A It meant that the fuel had not been operated
18 in the reactor for a very long period of time.

19 Q What did you understand was the
20 significance of that in the context of this sentence?

21 A That would imply that the decay heat level of
22 the fuel after a reactor trip is at a low value.

23 Q Even after a reactor has been completely
24 scrammed, it continues to generate decay heat,
25 doesn't it?

1

2 A Yes, it does.

3

Q Is the amount of decay heat generated
4 directly proportional to the quantity of radioactive
5 fission products that are available in the core?

6

A I don't know if there is a direct relationship
7 between the decay heat level and the quantity of
8 fission products.

9

Q What is it that produces decay heat?

10

MR. FISKE: You are talking about his
11 understanding when?

12

MR. SELTZER: In 1978.

13

Q Radioisotopes?

14

A My understanding is that decay heat is produced
15 as a result of the fissioning process.

16

I don't recall today exactly which part
17 of that process causes the decay heat.

18

Q Why is decay heat greater in a reactor
19 that has been running for several months than in a
20 reactor that has had insignificant burnup?

21

MR. FISKE: Again you are asking about
22 his understanding in '78?

23

MR. SELTZER: Right.

24

Q 1978, when you were the top dog in Plant
25 Integration.

1
2 A If the decay heat is a result of the fissioning
3 process, I would conclude that the longer the
4 fissioning process goes, the greater the decay heat
5 level would be.

6 Q Bert also said that if the Toldeo event
7 occurred in a reactor at full power, that would have
8 made it quite possible, perhaps probable, that there
9 would be core uncover and possible fuel damage.

10 What was your understanding in 1979 when
11 you read this about the effect of lower versus full
12 power on the probability of core uncover and fuel
13 damage?

14 A At higher power levels -- let me start that
15 over, please.

16 If the reactor is run at a higher power
17 level, the decay heat following a reactor trip will
18 be higher. It is a direct relationship.

19 Q So if the power level is ten times
20 greater, the decay heat would be ten times greater?

21 A I don't know if it is a one-to-one relationship.

22 Q Was there anybody in your Plant
23 Integration Group in 1978 who would have known that?

24 A Yes.

25 Q Who?

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2

When you said "Yes," whom were you thinking

3

of?

4

5

A I was thinking of some number of the engineers that worked day in and day out with the analysis in the fuel and the safety analysis of the core.

7

8

I don't know for sure that they would know that relationship.

9

10

11

Q But there are a lot of people that you could have gone to in your unit in 1978 to find out the answer, right?

12

A I would say that is correct.

13

14

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16

17

Q When you read the last sentence of the second paragraph of GPU Exhibit 78 in July of 1979, were you aware of any facts which caused you to question the accuracy of what Bert Dunn had said in that sentence?

18

19

A I do not recall questioning the accuracy of what Bert Dunn said in that sentence.

20

MR. SELTZER: Off the record.

21

(Discussion off the record.)

22

(Recess taken.)

23

BY MR. SELTZER:

24

25

Q When you read GPU Exhibit 78 you knew that Bert Dunn was writing about a concern regarding

1
2 operator interruption of high pressure injection,
3 right?

4 MR. FISKE: This is in July of '79?

5 MR. SELTZER: Right.

6 A Yes.

7 Q You understood that Dunn was concerned
8 that the operator interruption of high pressure
9 injection could lead to core uncovering and possible
10 fuel damage, right?

11 A That is right.

12 Q You knew that Dunn felt that this was a
13 matter of serious concern?

14 A I believe Bert stated that in the last sentence
15 in the letter, yes.

16 Q He also stated it in the first sentence,
17 right?

18 A That is right.

19 Q You understood at the time you read this
20 in July of 1979 that Bert Dunn believed that this
21 matter deserved prompt attention and correction at
22 B & W, right?

23 MR. FISKE: I have the same objection
24 to the question that I had with respect to the
25 last sentence in the Kelly memorandum; being

1

2

totally irrelevant.

3

MR. SELTZER: Right.

4

BY MR. SELTZER:

5

Q You may answer.

6

A The words state that Bert believes this matter deserves prompt attention and correction.

7

I read the words.

8

9

Q And you knew that he was expressing the thought that it deserved prompt attention and correction by B & W, right?

10

11

A I would assume that, yes.

12

13

Q When you got a copy of GPU Exhibit 78 from Joe Kelly, did seeing it then refresh your recollection that you had previously received a copy of this memo?

14

15

16

A No, sir, it did not.

17

18

Q Can you recall any person to whom you directed GPU Exhibit 78 for attention and correction prior to the Three Mile Island accident?

19

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MR. FISKE: You mean other than the people who already received copies of it?

21

22

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MR. SELTZER: Oh, I would be thrilled if he directed it to those people.

24

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MR. FISKE: You mean the second time?

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MR. SELTZER: I am asking whether

3

Mr. Karrasch personally directed GPU Exhibit

4

78 to any person.

5

A I neither recall receiving the memorandum nor

6

directing it to somebody else for action.

7

Q Swanson and Kelly are both marked for

8

copies of GPU Exhibit 78, do you see that?

9

A Yes, I do.

10

Q They were both in your Plant Integration

11

Unit in 1978, weren't they?

12

A Yes.

13

Q Is it your understanding that in 1978

14

there was either a spoken or unspoken agreement

15

among people in your unit that you would not discuss

16

the concern over operator interruption of high

17

pressure injection?

18

MR. FISKE: Wait a second. Can I hear

19

that question again, please?

20

(Record read.)

21

MR. FISKE: Mr. Seltzer, Mr. Karrasch

22

testified that he doesn't recall being aware

23

of a concern about interruption of high

24

pressure injection in 1978.

25

MR. SELTZER: I don't think he has

1 testified to that at all. In fact, he claims
2 although there is absolutely no evidence to
3 support it, that when he got Hallman's memo
4 in 1978, he sent it to somebody, although
5 nobody will admit he sent it to
6 them to take action on it. I don't think
7 that shows no concern.
8

9 MR. FISKE: I am sorry, you are referring
10 to the period of time in August?

11 MR. SELTZER: I am talking about all
12 1978. The calendar year 1978.

13 MR. FISKE: Well, go ahead anyway. I
14 am sure you can answer the question.

15 Will you read it one more time?

16 (Record read.)

17 MR. FISKE: I will object to the form
18 of the question.

19 That means you are allowed to answer.

20 A I am quite sure there was neither a spoken
21 or an unspoken agreement of that nature.

22 Q Did people in your unit discuss things
23 in 1978 that concerned the design of nuclear plants?

24 A Yes, sir, they did.

25 Q Did they discuss among themselves matters

1
2 involving the operation of nuclear plants?

3 A Yes.

4 Q Yet on this subject of operator
5 interruption of high pressure injection where you,
6 Swanson and Kelly are all copied on Dunn's two memos
7 and you claim that you may have asked Art McBride to
8 function on it, nobody has mentioned anything to one
9 another orally about the subject of operator
10 termination of high pressure injection?

11 MR. FISKE: I object to the form of
12 the question.

13 Q Is that your testimony?

14 A I do not recall any discussions in my unit
15 where I was involved on the subject of operator
16 interruption of high pressure injection in 1978.

17 Q I would like to call your attention to
18 testimony which you gave before the full Kemeny
19 Commission, in particular I would like to call your
20 attention to a question asked by Commissioner
21 Peterson on page 257 beginning at line 9.

22 (Handing transcript to the witness.)

23 Q Commissioner Peterson asked you "My
24 question is could it be that all of the atomic energy
25 industry's efforts to tell everyone how safe nuclear

1
2 energy is could have provided a mind set so it kind
3 of downgraded any threats to safety and give priority
4 instead to fulfilling some requests of the Nuclear
5 Regulatory Commission."

6 Mr. Karrasch answers " I think so. My
7 earlier remarks on shifting now our priorities, I
8 think answer that question."

9 BY MR. SELTZER:

10 Q Were you asked that question and did you
11 give that answer?

12 MR. FISKE: Wait a second, Mr. Seltzer.

13 I think if you are going to read his answer
14 you might as well read the whole thing.

15 Q You continued to say, "We have been
16 studying, for many years, and spending many millions
17 of dollars in analysis and design of those features
18 of a plant which are very, very improbable. And we
19 have been designing -- and these are the major events
20 which are documented in the safety analysis reports.
21 We haven't really thought much about the operator
22 and his role, because we've been designing the systems
23 to automatically keep the plant safe for those very
24 unlikely events. And when I talk about changing
25 priorities, I believe what I really mean is that

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the emphasis should now be changed to one of first having the analysts, the Bert Dunns, the guys who really know how this plan works, focus more upon looking at a sequence of events that can really happen on an operating reactor, and then making sure that the operators can handle the abnormal." Your answer goes on.

9

10

MR. FISKE: How about reading the rest of it?

11

12

MR. SELTZER: I am getting tired. Do you want to read the rest?

13

14

15

MR. FISKE: Sure. Mr. Seltzer has indicated that he would prefer that I continue to read which I will be delighted to do.

16

17

MR. SELTZER: You could elicit Miss Vaughn to read it.

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MR. FISKE: "I don't believe we can design nuclear power plants to handle an infinite number of different scenarios or different event trees, if you will. There's too many things in that very complex system not only in the NSS, but in the whole plant, which you could never guess would happen and try to analyze and then give the operator a

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2

cookbook or a recipe on what to do in the

3

event of. And I believe the lesson to be

4

learned here is that the operators have just

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got to understand more about the plant."

6

That concludes his answer.

7

BY MR. SELTZER:

8

Q Were you asked that question and did you

9

give that long-winded answer?

10

MR. FISKE: I will object to the form

11

of the question.

12

A To the best of my knowledge that is my answer

13

to that question, yes, sir.

14

Q You said at the bottom of page 257 " -- when

15

I talk about changing priorities I believe that what

16

I really mean is that the emphasis should now be

17

changed to one of first having the analysts, the

18

Bert Dunns, the guys who really know how this plant

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works, focus more upon looking at a sequence of

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events that can really happen on an operating

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reactor, and then making sure that the operators

22

can handle the abnormal."

23

Were you saying there that you think

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that Bert Dunn is one of the guys "who really know

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how this plant works"?

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A The point I was trying to make here was that the engineers who do the safety analysis of the plant have the best understanding of how the plant responds and how it reacts to a given sequence of events.

Bert Dunn is one such analyst.

Q You thought he was a good example of the class that you were referring to?

A Yes.

Q He is one of the analysts at B & W who really knows how B & W nuclear plants work, to use your words?

A He knows how the plant responds during a small break LOCA as well as anybody at B & W.

Q Now, you thought, as you expressed it here, that the Bert Dunns of B & W should focus more upon looking at a sequence of events that can really happen on an operating reactor.

What did you mean by that? I am asking you to tell me what you meant by events that can really happen.

Were you intending to contrast that with what you had said on the preceding page about B & W in the past having been designing the systems to

1
2 automatically keep the plant safe for very unlikely
3 events?

4 A I believe the point of my statement here was
5 that I thought the emphasis should change from one
6 of studying unlikely events which were mandated to
7 us by the NRC to one of looking more at the types
8 of things that can and have really happened on an
9 operating plant.

10 Q When you say "have really happened," do
11 you mean that you thought that B & W should be
12 studying transients that had actually occurred on
13 B & W plants in the past?

14 A I don't believe I was referring specifically
15 to B & W.

16 Q Do you mean on any nuclear plants?

17 A I was referring to a general change in
18 emphasis for the entire industry when I answered
19 this question.

20 Q When you said that you thought that the
21 priorities should be shifted to studying events
22 that have happened, did you mean that you thought
23 the designers of nuclear steam supply systems,
24 including B & W, should be placing greater emphasis
25 on studying transients that have already taken

1

2 place?

3 A Yes.

4 Q Is that like Allen Womack's suggestion
5 to you in 1978 that study be done on events like
6 Rancho Seco's rapid cooldown transient and the
7 Davis-Besse transient?

8 MR. FISKE: Well, are you referring
9 to a Davis-Besse blowdown, whatever that was?

10 MR. SELTZER: That's the one.

11 MR. FISKE: I think I will object to
12 the form of the question. You are asking
13 Mr. Karrasch to make a comparison as to
14 whether one thing is similar to another. I
15 don't think he needs to do that in that form.

16 BY MR. SELTZER:

17 Q Is what you were saying any different
18 from what you understood Allen Womack had said to
19 you in 1978 about studying transients that had
20 already occurred on B & W plants?

21 A Yes, I think it was. I think Allen was asking
22 me to focus on improving the design of plants which
23 are currently under construction, I think my
24 testimony in front of the Kemeny Commission is more
25 to provide a focus on operating plants.

1

2 Q Did the idea that you were expressing
3 to the Kemeny Commission embrace the notion that
4 B & W should put emphasis now on analyzing prior
5 events like the Davis-Besse event?

6 A I think the emphasis I was trying to make in
7 that answer is that we should study scenarios which
8 are more likely to occur versus focusing our
9 attention on improbable events.

10 Q All right. Let me see if I understand
11 what you are saying.

12 Prior to the Three Mile Island accident
13 B & W had performed many analyses on what used to
14 be called the maximum credible accident; right, or
15 so-called design basis accidents?

16 A The majority of our attention in safety
17 analysis was focused upon "design basis accidents."

18 Q A design basis accident was intended
19 to be the worst type of accident that could take
20 place, is that right?

21 A I don't understand what you mean by "worst."

22 Q The theory under which B & W operated,
23 as you understood it, was if the plant was capable
24 of responding to a design basis accident, then it
25 should be capable of responding safely to accidents

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2

that were less severe than design basis accidents,
right?

3

4

A I am not sure if that was the basis for a
philosophy.

5

6

I do know it is a fact that we studied
design basis accidents.

7

8

Q You said that large breaks were studied
more than small breaks, is that right?

9

10

A I don't recall saying that.

11

Q I thought you did just a few minutes ago.

12

You talked in your testimony before the
Kemeny Commission and in your testimony here about
accidents which were very unlikely versus accidents
which are more likely.

13

14

15

16

In 1978 did you have any understanding
about whether small breaks were more likely to
occur than large breaks in the reactor coolant
system?

17

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A I would say that in 1978 B & W focused more
attention on small breaks and the analysis of small
breaks than they did on large breaks.

21

22

23

Q In what year?

24

A In 1978.

25

Q Is that the year in which the company

1
2 discovered they hadn't analyzed the pump discharge
3 line break?

4 A I don't know if that was the exact year but
5 it was in that time frame.

6 Q You have said that the NRC in its
7 licensing tended to focus on events that were very
8 unlikely to occur.

9 Did the NRC in any way prohibit B & W
10 from studying more likely events?

11 A They did not require us to study the more
12 likely events; they did not prohibit us from
13 studying the more likely events.

14 Q To your knowledge was there a tendency
15 at B & W to study those things which the NRC required
16 you to study, and, conversely, for B & W to tend not
17 to study those things which the NRC did not require
18 you to study?

19 MR. FISKE: Can you answer that
20 question?

21 A I only know about the area in which I focused
22 most of my attention and most of my attention was
23 focused on design and analysis of our plants under
24 construction to show that they met new and changing
25 NRC regulations for the design.

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Q In the area that you were most familiar with then, you did see a tendency to study those things that the NRC wanted studied and a tendency not to study the things that the NRC was not requesting, is that right?

A The majority of the work performed during that time frame by my group was in response to NRC requirements.

Q Commissioner Peterson had asked you, "could it be that all of the atomic energy industry's efforts to tell people how safe nuclear energy is could have provided a mind set so that it kind of downgraded any threats to safety and gave priority instead to fulfilling some requests of the Nuclear Regulatory Commission"; the first three words of your answer were, "I think so."

When you said "I think so," were you telling Commissioner Peterson that you agreed that it can be that all of the nuclear industry's efforts to tell everyone how safe nuclear energy is could have provided a mind set so that it downgraded any threats to safety?

A To the best of my recollection when I said the words "I think so," I was responding to an

1
2 implication that priority was given to fulfilling
3 requests by the Nuclear Regulatory Commission.

4 Q Did you answer the first part of the
5 Commissioner's question regarding the mind set of
6 downgraded threats to safety?

7 A I recall that my initial response was in
8 response to the second part of his question related
9 to the priorities by the Nuclear Regulatory
10 Commission.

11 Q Was there any part of your answer that
12 responded to the initial part of Commissioner
13 Peterson's question?

14 A I just can't remember what my thought process
15 was as I was answering that question.

16 Q Well, look at your answer and tell me,
17 as you see it, if there is anything that you believe
18 was responsive to the first part of Commissioner
19 Peterson's question?

20 MR. FISKE: I don't think, Mr. Seltzer,
21 Mr. Karrasch has to do that.

22 MR. SELTZER: I am just asking him to
23 look at a document which shows the words he
24 spoke.

25 MR. FISKE: He just told you he can't

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recall what his thought process was.

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Q Does it refresh your recollection to look at the words you spoke there?

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MR. FISKE: If you want to ask him that question, that's all right.

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MR. SELTZER: Thank you.

MR. FISKE: Does it refresh your recollection to look at your answer as to whether or not your answer was responding to the first part of the question as opposed to the second?

A In rereading this response and trying to recall my thought process leading up to that response, I believe I answered the second part of his question on priorities related to requests by the Nuclear Regulatory Commission. That's all I can recall.

Q Why didn't you answer the first part when he asked you whether there was a mind set so that people downgraded threats to safety?

A I just don't recall the thought process I went through after hearing his question.

MR. FISKE: That illustrates one of the problems in putting two questions into one.

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2 MR. SELTZER: Well, I don't think it
3 is a compound question. I thought it was one
4 question and the witness chose not to answer
5 the important part of it.

6 MR. FISKE: Well, I think the witness
7 has testified that he responded to the latter
8 part of the question. It happens all the
9 time we people put two questions into one.
10 It's a perfectly natural response.

11 MR. SELTZER: I thought it was studied
12 evasion and a non-natural response.

13 MR. FISKE: I guess what you and I
14 think really doesn't make much difference.

15 (Continued on page 380.)
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2 BY MR. SELTZER:

3 Q I would like you to look at GPU Exhibit 79.

4 This is a memorandum which you got from
5 Joe Kelly in July of 1979.

6 (Document handed to the witness.)

7 A Yes. This is one of the five memos which Joe
8 gave me in July of 1979.

9 Q You read it after you got it from Joe?

10 A Yes, I did.

11 Q Did you understand it?

12 A Yes, I understood it when I read it in 1979.

13 Q Did you understand that it was a follow-up
14 to GPU Exhibit 78?

15 A Yes, sir.

16 Q Did you recall when Joe Kelly gave this to
17 you in July of 1979 that you had previously received
18 a copy of it?19 A No, I did not recall previously seeing this
20 memo prior to 19 -- prior to July of 1979.21 Q Do you remember from July of 1979 whether
22 the copy of Don Hallman's memo, which Joe gave you,
23 had Bert Dunn's two memoranda attached to it?24 THE WITNESS: Would you read that back,
25 please?

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Q Do you remember Don Hallman's memo, GPU Exhibit 80, has an indication that Bert Dunn's two memos are attached?

A Yes, I recall that.

Q In July of 1979 your working confrere, Joe Kelly, gave you a copy of Don Hallman's memo, right?

A Yes.

Q Did the copy of Don's memo, which Joe gave you, have Bert Dunn's two memos attached to it?

A The two memos were included in the package of five that he gave me.

MR. FISKE: He wants to know whether they were there a second time.

A (Continuing) I don't think they were there a second time.

Q You are not sure?

A I am quite sure they were not.

Q Were there any markings on the documents that you got from Joe Kelly?

A I don't recall.

Q Did you make any marks on them?

A I don't recall that either.

Q What did you do with the copies that you

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got from Joe Kelly?

3

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A I read them. I know I kept them for some time after that, at least until the Kemeny Commission hearing, and then I do not recall what I did with them.

6

7

Q Did you review them again before you gave testimony before the Rogovin group?

8

A I don't recall.

9

10

Q Did you reread your prior sworn testimony before you showed up for your deposition this week?

11

A Yes, I did.

12

Q You read all of it?

13

A Yes, I did.

14

15

Q Did you find any of your sworn testimony which you believed on rereading was not accurate and truthful?

16

17

A No, I did not.

18

19

20

Q What, if anything, was your understanding as to why Bert Dunn had sent you copies of GPU Exhibit 78 and 79?

21

22

MR. FISKE: At what point in time are you talking about?

23

24

Q The first time you recall reading GPU Exhibit 78 and 79.

25

MR. FISKE: You mean, in other words,

1

2

July of '79?

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MR. SELTZER: Maybe after talking about it with us for the last two hours, maybe he remembers he read it earlier.

6

7

MR. FISKE: I think the time frame should be clear in your question.

8

9

THE WITNESS: Could you please repeat the question?

10

BY MR. SELTZER:

11

12

13

14

Q At the time you first recall reading GPU Exhibit 78 and 79, what understanding, if any, did you form as to why Bert Dunn had sent you GPU Exhibit 78 and 79?

15

16

A I don't recall giving that any consideration when I read the memos in July of 1979.

17

18

19

Q What was your understanding, if any, as to why Joe Kelly had sent you a copy of GPU Exhibit 76?

20

MR. FISKE: Again, in July of '79?

21

22

MR. SELTZER: Or at any earlier time that he recalls reading it.

23

24

A Again, I don't recall giving that any consideration at the time I first read the memos.

25

Q When for the first time were you aware

1
2 that B & W's limits and precautions precluded filling
3 the pressurizer solid except during hydrostatic
4 testing?

5 MR. FISKE: I object to the form of the
6 question.

7 I don't think there has been any evidence
8 that Mr. Karrasch has become aware of that.

9 Q When, if ever?

10 A I don't recall ever becoming aware of that.

11 Q You said in your own description of the
12 position of Manager of Plant Integration that the
13 Manager of Plant Integration should keep himself
14 abreast of a lot of things by reading and attending
15 meetings. Do you recall that?

16 MR. FISKE: Well, let's see that. I
17 think we can do a little better than, quote, a
18 lot of things, unquote.

19 MR. SELTZER: "Keeps abreast of the
20 latest developments, techniques, and
21 philosophies in NSS design through study,
22 research and participation."

23 Q Do you remember writing those things?

24 A Yes, sir.

25 Q Given your role in the Kelly, Dunn,

1
2 Hallman, Karrasch matter, did you read the reports of
3 the President's Commission when they came out?

4 A I recall obtaining a copy of the President's
5 Commission Report and scanning it very briefly.

6 Q What about any of the 27 backup reports;
7 did you ever get a copy of any of those?

8 A No, sir, I did not.

9 Q Do you know that there is one that
10 discusses extensively B & W's role?

11 MR. FISKE: I think it is the role of the
12 managing utility and its supplier.

13 MR. SELTZER: Right. That is the one.

14 A I do not recall seeing that document.

15 Q Do you recall reading in the Kemeny
16 Commission Report that there was something in there
17 about B & W's instructions to utilities on not
18 permitting the pressurizer to go solid?

19 A No, I do not recall that.

20 Q Did you read Mitch Rogovin's breezy
21 report prepared for the NRC?

22 A Again, I have a copy of that report. I recall
23 glancing through it. I do not recall reading it
24 thoroughly.

25 Q Have you read anything thoroughly dealing

1

2 with the causes of the Three Mile Island accident?

3 A Yes, sir.

4 Q What?

5 A During the time frame that these reports were
6 published and available to me, I was spending the
7 majority of my time preparing for the hearings at
8 Rancho Seco, and I recall reading in great depth many
9 volumes of technical information about the B & W
10 plant design at SMUD in preparation for those
11 hearings.

12 Q What did the B & W technical design for
13 the Sacramento plant have to do with the causes of
14 the Three Mile Island accident, which is what my
15 question dealt with?

16 Let me be clear, because we will waste a
17 lot of time if you don't understand my question.
18 I am not talking about things which related
19 inferentially the way you claimed pressurizer
20 pressure on the secondary side related to temperature
21 on the primary side of a reactor cooling system.

22 I am talking about, did you read
23 anything that directly described and discussed the
24 causes of the Three Mile Island accident?

25 A I recall reading a very detailed sequence of

1

2

events for the Three Mile Island accident within several months after it occurred.

3

4

Q Do you recall reading anything else that

5

described the causes of the Three Mile Island

6

accident, I mean, other than Dunn's two memos and

7

Hallman's memo?

8

A After the Three Mile Island accident I was very

9

much involved in assisting operating plant customers

10

in responding to the new regulations by the NRC in

11

order to keep their plants running. There was a great

12

amount of technical information which I had to

13

understand --

14

Q I am talking about the cause of the

15

accident, and I don't mean to cut you off, if you are

16

getting to something that relates to the cause of the

17

Three Mile Island accident, but you said you read a

18

detailed sequence of events.

19

Is there anything else that you read that

20

related directly and specifically to the cause of the

21

Three Mile Island accident?

22

A I don't recall.

23

Q Has B & W prepared, to your knowledge,

24

any study or analysis of the causes of the Three Mile

25

Island accident?

1
2 A I cannot remember any specific documents.

3 Q Are you aware -- I didn't ask you about
4 specific documents -- are you aware whether B & W has
5 prepared any analysis of the cause of the Three Mile
6 Island accident?

7 A I am not aware of any.

8 Q Are you aware that after the accident
9 various managers at B & W prepared what have been
10 called lessons-learned memos?

11 A No, I do not recall.

12 Q Did you prepare any memo or list of
13 lessons learned from or as a result of the Three
14 Mile Island debacle?

15 A I don't believe so.

16 Q Did Allen Womack ever ask you for your
17 contribution to any product that he was preparing on
18 lessons learned from the Three Mile Island calamity?

19 A I don't recall.

20 Q Did you ever ask anybody in Plant
21 Integration to contribute to or to prepare such a
22 list?

23 A I really don't remember.

24 Q You don't remember doing so; is that what
25 you mean?

1
2 A Yes.

3 Q What was your special assignment for
4 Allen Womack?

5 A There were two primary roles on that special
6 assignment; one was to relieve me of the duties of
7 managing a large group so that I could devote almost
8 full time to the ASLB hearings at Rancho Seco; the
9 other was to make myself available to assist Allen in
10 managing the Plant Design Section.

11 Q How long did that special assignment
12 persist, from when to when?

13 A I think it was just for a couple of months in
14 the spring of 1980.

15 Q At the time that you were on special
16 assignment to Allen Womack, was Charlie Parks still
17 working as an assistant to Womack?

18 A Yes, he was, to the best of my knowledge.

19 Q When Joe Kelly came back from his field
20 trip to Davis-Besse to check out the transient that
21 they had had there in the fall of 1977, did you talk
22 to him about his trip?

23 A Yes, I did.

24 Q Did he tell you a little bit about it?

25 A I think the extent of our conversation was my

1 asking him, "Did you complete the evaluation," and I
2 got a positive response back.

3 Then Joe told me he was very busy preparing
4 for a meeting to present the results of that evaluation,
5 and that I should attend that meeting if I wanted to.

6 Q He told you that you should attend his
7 meeting?

8 A Yes.

9 He invited me to the meeting.

10 Q Did Joe Kelly tell you that while he was
11 out at Toledo Edison, Toledo Edison officials had let
12 him know that they wanted to have a better indication
13 of the position of the pilot operated relief valve
14 installed in their plant?

15 MR. FISKE: Could I hear that question
16 again, please?

17 (Question read.)

18 A I do not recall Joe mentioning that to me at all.

19 Q Do you recall Joe Kelly telling you that
20 Toledo Edison officials had told him that they wanted
21 to have a device installed in their plant that would
22 automatically close the block valve if the pilot
23 operated relief valve failed to close when it should?

24 A I do not recall him mentioning that to me, either?
25

1
2 Q Do you recall Joe Kelly telling you that
3 Toledo Edison had let it be known to Kelly that they
4 wanted to have a feature installed in their plant that
5 would automatically trip the reactor whenever the
6 steam and feed water rupture control system had
7 activated?

8 A I do not recall that, either.

9 Q Have you ever, from your high school
10 biology course forward to today, heard of any kind of
11 mechanism being designed for automatically closing a
12 block valve when a pilot operated relief valve fails
13 to close?

14 A We are currently involved in a work task for
15 the Consumers' project to define the requirements and
16 a conceptual design for providing an automatic
17 closure of the PORV block valve.

18 Q Are you involved in that effort in any way?

19 A No, I am not, but I am aware of it.

20 Q Who is working on it?

21 A It is a project that is currently under way
22 for the Consumers Power Company.

23 Q So you said.

24 Who is working on it? Who is in charge?

25 A I don't know for sure.

1

2

Q How do you know anybody is working on it?

3

A I am aware that it is an active project within

4

B & W.

5

Q Who told you that?

6

A I don't recall.

7

Q Has anybody ever told you or let you know

8

that B & W already designed an automatic closure for

9

a block valve on a plant?

10

A I am not aware of any such design.

11

Q Hearing it from me, is that the first time

12

you have ever heard that?

13

A I know we had been discussing such a design

14

feature possibly with all of our customers.

15

Q No, I mean that before the Three Mile

16

Island accident B & W had already designed such an

17

automatic closure.

18

Did you know that?

19

A I did not know that.

20

Q Have you ever heard of an outfit that goes

21

by the handle Brown Boveri Reaktorat?

22

A Yes, sir.

23

Q Do you know that your company has been for

24

a period of time in a joint venture with BBR to design

25

a nuclear electric generating plant in

1

2

Muelheim-Kaerlich, Germany?

3

A Yes, I am aware of the joint venture.

4

5

Q Have you ever seen anything in connection with the design of that plant?

6

A Yes.

7

8

Q But you haven't seen anything that indicated they had designed an automatic closure for the block valve for that plant?

9

10

A I am unaware of any such design feature in that plant.

11

12

13

Q Have you ever talked to any of the people who worked on any aspect of the design of that plant?

14

A Yes.

15

16

Q Who?

A Some of the people in Plant Integration were asked on occasion to contribute to the design of that plant.

17

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Q Did it ever occur to you before the Three Mile Island plant accident that you might be able to learn something useful by looking at design innovations that were being planned or installed in the Muelheim-Kaerlich plant?

A Yes, it did.

Q Did you ever act upon that?

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A I recall, not personally, but I recall studies being performed to do comparisons between the design of the Muelheim-Kaerlich plant and our 205 fuel assembly plants which are under construction.

Q When was that undertaken?

A My involvement was greater than two or three years ago.

Q But you never found out that a block valve that would close automatically had been designed for that plant?

A No, sir, I did not know that.

Q Do you know that B & W has concluded in a written report that if the Muelheim-Kaerlich design for automatic closure of a block valve had been installed at Three Mile Island on March 28th, 1979, there would not have been a Three Mile Island accident?

A I am not aware of any such report.

Q On March 28th, 1979 B & W set up a communications control center for obtaining information from Three Mile Island, right?

A That is right.

Q Who first told you that there was a transient that had taken place or was in progress at

1

2

TMI or March 28th, 1979?

3

A I believe it was Allen Womack.

4

5

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8

MR. FISKE: Mr. Seltzer, let me just make a suggestion. I don't guess that this line of inquiry is one that is going to terminate in the next five minutes. I mean, if it is, fine, but --

9

MR. SELTZER: Well, maybe 15.

10

11

MR. FISKE: I think I am going to have to leave within five or ten minutes.

12

13

MR. SELTZER: O.K. What would you like to do?

14

Off the record.

15

(Discussion off the record.)

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MR. SELTZER: Let me put this on the record. I think that but for some of the perhaps unavoidable interruptions because of other people's schedules, we could have finished Mr. Karrasch's deposition within the four days this week.

22

23

24

25

David Taylor and I particularly tailored -- if that is not too much of a play on words -- our intended documents for Mr. Karrasch, so that we could finish it within this week rather

1
2 than having to carry it over; and my preference
3 would have been to try and finish it.

4 I hope that rescheduling the conclusion
5 of his deposition won't interfere with our
6 taking in order and expeditiously the other
7 people whom we would like to depose.

8 MR. FISKE: Well, let me say, as long as
9 we are on the record, that we are not raising
10 any objection to the fact that the deposition
11 was not concluded in four days, recognizing
12 that there were delays during the four days
13 that we are not attributable to counsel for the
14 plaintiff. So, there is no issue as to that;
15 and we are prepared to have Mr. Karrasch come
16 back on any one of three suggested dates in
17 July.

18 MR. SELTZER: How about next Monday?

19 MR. FISKE: I simply can't.

20 MR. SELTZER: Or Tuesday or Wednesday or
21 Thursday or Friday?

22 MR. FISKE: Let me -- I certainly can't
23 do it -- well, why don't we go off the record.
24 There is no need to put all of this on the
25 record.

(Discussion off the record.)

(Time noted: 12:40 o'clock p.m.)

Bruce Adolph Karrasch

Subscribed and sworn to before me

this day of 1981

Notary Public

CERTIFICATE

STATE OF NEW YORK)
 : ss.:
COUNTY OF NEW YORK)

I, CHARLES SHAPIRO, C.S.R., a Notary
Public of the State of New York, do hereby
certify that the continued deposition of
BRUCE ADOLPH KARRASCH was taken before
me on Friday, June 19, 1981 consisting
of pages 325 through 397-A ;

I further certify that the witness had
been previously sworn 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 said parties 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 9th day of July, 1981.

Charles Shapiro
CHARLES SHAPIRO, C.S.R.

DAVIS POLK & WARDWELL

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December 3, 1982

Joel Katcoff, Esq.
Kaye, Scholer, Fierman,
Hays & Handler
425 Park Avenue
New York, New York 10022

Re: GPU v. B&W

Dear Mr. Katcoff:

Enclosed is the missing page 398 of Bruce Karrach's original deposition transcript. It has been signed and notarized.

Please bind it with his June 19, 1981 testimony; it is the last page of that day's transcript. Thank you.

Sincerely,

Katharine Swett

Katharine Swett
Legal Assistant

Enclosure

CERTIFICATE

STATE OF NEW YORK)
: ss.:
COUNTY OF NEW YORK)

I, CHARLES SHAPIRO, C.S.R., a Notary
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certify that the continued deposition of
BRUCE ADOLPH KARRASCH was taken before
me on Friday, June 19, 1981 consisting
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That I am not connected by blood or
marriage with any of the said parties 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 9th day of JULY, 1981.

[Signature]
11/23/82
Subscribed and Sworn Before
me this 23 day of Nov., 1982.

[Signature]
CHARLES SHAPIRO, C.S.R.

[Signature]
Notary Public

Commissioned Notary as Danita D. Robertson

Commission Expires: July 1, 1983