UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

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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 METROPOLITAN EDISON COMPANY by JAMES R. FLOYD, taken by Defendants pursuant to adjournment, at the offices of Davis Polk & Wardwell, Esqs., One Chase Manhattan Plaza, New York, New York, on Thursday, April 29, 1982 at 11:50 o'clock in the forenoon, before Joseph R. Danyo, a Shorthand Reporter and Notary Public within and for the State of New York.

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Also Present:

DEBORAH JACOBS

* * *

JAMES R. FLOYD, resumed, having been previously sworn by a Notary Public, and testified further as follows:

MR. SELTZER: You know that your testimony today continues to be under oath?

THE WITNESS: Yes.

EXAMINATION (CONTINUED)

BY MS. WAGNER:

Q I just have a few more questions, and then I will turn you over to Mr. Seltzer.

Were you familiar during the time when you were supervisor of operations of TMI-1 with position indication in the TMI-1 control room for the PORV position?

A I believe I was.

Q Could you describe for me what indication was available in the TMI-1 control room for the position of the PORV?

A I don't recall what that position indication was.

Q Do you recall that there was position indication?

A I don't recall if it was position indication or command signal indication.

Q Do you recall whether it was the same indication as was available after March 29, 1978 in TMI-2?

A No, I do not recall.

Q Do you recall whether it is different?

A No.

Q Do you recall whether when you and others were trying to decide what type of position indication to install in TMI-2 whether you ever studied the position indication in TMI-1?

A I don't recall.

Q You don't recall making any evaluation as to whether the indication available in TMI-1 was adequate?

A No, I do not recall.

Q I would like to show you three documents, all of which have been marked as part of a larger exhibit, B&W 208. These documents are periodicals, each of which describes an event at Davis-Besse in 1977.

First let me ask you if you are aware independently of the documents of an event which occurred in September 1977 at Davis-Besse in which, among other things, the PORV stuck open?

MR. SELTZER: Are you asking was he aware of it before the Three Mile Island accident?

MS. WAGNER: That would be my next question.

A I was not aware of it before the Three Mile Island accident.

Q Are you aware of it now?

A Yes.

Q You testified previously that you were familiar with a periodical called Nuclear Power Experience. The first document I would like you to look at, which is the top one, is an issue of Nuclear Power Experience for July 1978, and I would like to refer you to the paragraph under the section entitled "SFRCS Pressurizer Relief Valve and FW Pump Control System Failures."

Do you see that section?

A Yes.

Q Do you recall ever having seen that before?

A No.

Q I refer you to the next page of that exhibit, the first full paragraph, and a sentence in that paragraph which says, "RCS pressure continued to

decrease until saturation pressure was reached and steam began to form in the RCS (approximate T = 8 min). This caused an insurge of water into the pressurizer and the pressurizer level went off scale at 320 inches."

Do you recall ever readin that before?

A No.

Q Do you recall anybody ever telling you in words or substance something to that effect about the Davis-Besse event before the accident at TMI?

A No.

Q Do you recall Gary Miller ever telling you in words or substance something to that effect that he had been told at a User's Group meeting?

A No, I do not recall.

Q I would like to refer you now to the document entitled "Current Events Power Reactors," which you have also testified was a periodical which you saw periodically, and I would like to ask you if you recall having seen this issue.

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

Q Page 3 of that document indicates essentially the same ideas I read to you from the last document, in the third paragraph on page 3.

I take it you do not recall having seen

that before either?

A No, I do not.

Q Finally, I would like to refer you to the last document, which is called the "Atomic Energy Clearinghouse," which is, again, a document you have testified you recalled seeing periodically.

I would like to ask you if you recall having seen this issue before.

A No, I do not recall seeing this issue before.

Q If you would turn to the third page of the document, again the third paragraph, which is not terribly legible, actually the fourth paragraph, which says in words or substance the same notion that I read to you previously.

I take it you do not recall having seen that before?

MR. SELTZER: It is very difficult to read what it says there. I doubt if anybody can remember reading that.

MS. WAGNER: I can read it to the witness if he would like me to.

A It gives a different pressurizer level than the other doucments, but I don't recall seeing it

before.

Q Again, I take it you don't recall hearing from anybody else what was in this issue?

A No.

MS. WAGNER: Your witness.

EXAMINATION BY MR. KIRSCHBAUM:

Q Did you join the Navy as an enlisted man or as a commissioned officer?

A As an enlisted man.

Q While you were in the Navy, did you ever become a commissioned officer?

A No.

Q You testified at page 6 of your direct examination that you attended the Navy Advanced Nuclear Powr School in Vallejo, California, and that you took courses there in mathematics, physics, nuclear physics, and electrical engineering, among others.

Was that school open to enlisted men or just to commissioned officers?

MS. WAGNER: I object to the question as leading.

MR. SELTZER: Overruled.

A The school was designed for officers' training, and I think I am the only enlisted man who

ever succesfully completed the school.

Q As an enlisted man, how did you come to attend this school?

A I had a recommendation from a previous commanding officer, Captain Wilkinson. Since the commanding officer of the school was a commander, he agreed with the captain's recommendation to allow me to enroll in the advanced course.

Q What was that recommendation based upon?

A My performance in my previous six months where I was teaching mathematics review to people who were scheduled to go to Nuclear Power School.

Q Can you tell me how you got to be an instructor in that mathematics course?

A Our division officer recognized the availability of our time and wished to utilize it in a mathematics review, so he drew up a rather broad-based math exam based on high school mathematics to see where this class of 20 people should be taught.

My performance on that exam was 104 points out of a possible 105, and the next highest mark in the class was about a 65. He decided I was qualified to teach the course.

Q Do you know of any other enlisted men who

ever attended the Advanced Nuclear Power School?

A Several enrolled in the class immediately behind me, but to the best of my knowledge none of them completed.

Q While you were supervisor of operations at TMI Units 1 and 2, were you generally familiar with the service and academic bacgrounds of the reactor operators who worked under you?

A Yes.

Q To the best of your knowledge, were any of the reactor operators who worked under you at TMI Navy veterans?

A Yes.

Q Did any of them attend the Navy Advanced Nuclear Power School?

A No.

Q You testified at page 18 of your direct examination that you received a Bachelor of Science degree from Columbia University in 1965 in chemical engineering.

Did any of the reactor operators who worked under you at TMI have engineering degrees?

A No.

Q Did any of the operators under you have

college degrees of any kind?

MS. WAGNER: Objection to the form.

A Yes.

Q How many?

A One had a Bachelor of Science, I believe, in chemistry.

Q Based on your experience in the commercial nuclear power industry, was it normal in the industry to staff nuclear power plant control rooms with control room operators who were not college graduates?

MS. WAGNER: Objection to the form.

There has been no testimony that this witness is familiar with the staffing of nuclear power plants.

Q Let me ask you how longwere you supervisor of operations at TMI Units 1 and 2?

MS. WAGNER: Objection. Asked and answered.

A Since 1971, I guess.

Q Prior to that, were you involved in nuclear power plant operations?

A Yes, commercial business from '65 until the present.

Q During that time, did you have contacts with management of other nuclear power plants other

than the ones that you were employed at?

A Some, yes.

Q Based on those contacts and based on your own employment in the nuclear power plant industry, did you have any understanding as to the general requirements for nuclear power plant control room operators?

MS. WAGNER: Objection to the form.

A Yes.

Q Based on that understanding, was it normal in the industry for control room operators to have college degrees or not to have college degrees?

MS. WAGNER: Objection; still no foundation for the witness to give this testimony.

A Noncollege-degree personnel were normally filling that role.

Q You testified at page 18 of your direct examination that you worked as an assistant in Columbia's Nuclear Physics Department on a research project considering the nuclear fission process, headed by Dr. Malconian.

Did any of the reactor operators who served under you at TMI ever participate in the time

of academic research in nuclear physics that you worked on under Dr. Malconian at Columbia?

MS. WAGNER: Objection to the form.

A Not to my knowledge.

Q Can you compare your academic background in the sciences, engineering, and nuclear power theory with the general academic background of the reactor operators who worked under you at TMI-1 and 2?

MS. WAGNER: I object to the question because I believe the witness was unable to describe those backgrounds when I was asking him about them.

MR. KIRSCHBAUM: Your question was, as I recall, "Do you know where they came from?" I already asked the witness fi he was familiar generally with the academic and service backgrounds of the operators, and his answer was "Yes."

MS. WAGNER: I object to the form.

A I don't believe there is any comparison really between my background and the average operator, if there is such a person.

I would say, I probably had at least an order of magnitude of more training than the average

reactor operator would have had.

Q Did that difference in academic background between you and your operators, would that also hold true if you were to compare your background with that of the average reactor operator in the industry generally?

MS. WAGNER: I object to the form.

The witness doesn't know if there is an average reactor operator.

MR. KIRSCHBAUM: I will take out the word "average."

Q I am asking you whether your answer would hold true for reactor operators in the field generally.

MS. WAGNER: There is no testimony that he knows of the reactor operators' experience generally.

MR. KIRSCHBAUM: I believe the witness already testified to his knowledge of the industry generally and reactor operators in the industry, and based on that knowledge he can answer.

MS. WAGNER: I object.

A Yes.

Q Yes, what?

MS. WAGNER: I object to the question.

MR. KIRSCHBAUM: Unfortunately, the question has been interrupted so many times from your objections, I am afraid the record will appear disjointed unless I tie it back. We can have it read back.

MS. WAGNER: I would like it read back.

(Record read)

BY MR. KIRSCHBAUM:

Q Your answer is?

A Yes.

(continued on next page)

Q I refer you to your deposition testimony before the President's Commission given on August 1, 1979, and specifically to the testimony at page 98, beginning on line 12, and continuing on page 99 through line 8, which reads as follows:

"Question: Do you remember any of the specific complaints with respect to substantive areas?"

The question was referring to training.

"Answer: No. The training department liked to teach us some transient analysis, and the control room operators are normally reticent to learn transient analysis.

"Question: Why is that?

"Answer: They are rather a deep and complicated subject. The engineers love it and the people that write the programs and run computers like to tell you what hot spots in the core is and make a livelihood and manage every year to dress it up enough to keep the engineers interested in what they are doing. We have not yet progressed to the point where we can bring it down to the operators' level and get them very excited about it. It tends to come out in the early morning very rapidly when you bring up such a subject as that. There are traditional areas

where operators are not interested. There are others where they are very interested such as the nuts and bolts of the systems and the components, such lectures."

Were you asked those questions and did you give those answers?

MS. WAGNER: I object. It has been asked and answered.

MR. SELTZER: Off the record.

(Discussion off the record.)

A I believe that to be true.

Q Is that testimony correct, to the best of your knowledge?

A It was correct then and it is correct now. However, hearing it read back, it could probably be clarified.

Q Could you do that, please?

A The subject that I was addressing in here was transient analyses which is a rather deep and complicated subject and requires several highly educated engineers with further specializations to conduct. The operators are very interested in the output of that analysis. In the course of the transient itself they are vitally interested, as they

are in the emergency procedure which comes out of that analysis, so I didn't mean to imply by omission that the operators weren't interested in either the transient or the procedure which comes from it but rather they did not have the technical background to understand the analyses that went into usually the computer program that is called the transient analysis.

Q Shouldn't the control room operators be able to understand transient analysis?

A No, I think it is too complicated and as an engineer, a degreed engineer, I am not sure I understand all of the transient analysis. It is a speciality unique to the nuclear industry, and we rely heavily on the vendor to supply us that expertise.

Q Who is the vendor in this case that you are talking about?

A Babcock & Wilcox.

Q While you were supervisor of operations at Unit 2, were the reactor operators and supervisors who worked under you divided into crews?

MS. WAGNER: Objection.

A Yes.

Q Did the members of those crews generally

work together on a particular shift or were they changed from day to day?

MS. WAGNER: Objection to the form.

A They generally stayed together as a crew.

Q Who were the reactor operators and supervisors on duty at Unit 2 at 4:00 a.m. on March 28, 1979?

A The shift supervisor was Bill Zewe. Shift foreman was Fred Scheimann. The control room operators were Craig Faust and Ed Frederick.

Q Have these men worked together before as a crew on Unit 2?

A Yes.

Q One time or many times?

A I think for at least six months.

MS. WAGNER: Objection.

Q For at least six months on a continuous basis?

A Yes.

Q Prior to the accident at TMI-2, had you made any evaluation in your own mind as to how well the various crews working under your supervision were functioning?

A Yes.

MS. WAGNER: I object to the form as leading and it is not within the scope of cross-examination.

Q What factors did you take into account in arriving at these evaluations?

A Primarily their job performance although some areas such as their expected response to emergency procedures was extrapolated from my understanding of their base of knowledge and as such, it wasn't based solely on performance.

Q Did your evaluations take into account the ability of the members of the crew to work together?

A Yes.

MS. WAGNER: Objection.

Q Prior to the accident, had you made comparisons in your own mind between the performance of the various crews under your supervision based on these factors?

MS. WAGNER: Objection.

A Yes.

Q Prior to the accident, what was your evaluation of the Zewe crew's performance, and I am referring to the crew for which Bill Zewe was the

shift supervisor?

MS. WAGNER: I want to have a continuing objection to this entire line of questioning.

MR. KIRSCHBAUM: On the grounds that it is outside the scope of direct?

MS. WAGNER: Yes, and leading.

MR. KIRSCHBAUM: I don't think I can agree to an outstanding objection that it is leading.

MS. WAGNER: I will have a continuing objection that this whole line of questioning is outside the scope.

MR. KIRSCHBAUM: If you have determined in your mind that you are going to object to every question because you are convinced that every question is leading, I will not agree to that.

MS. WAGNER: I am asking for a continuing objection on the grounds that it is outside the scope, and I will interject another objection if I believe it is leading.

MR. KIRSCHBAUM: I don't believe I have asked a single leading question today, but be that as it may.

(Record was read back.)

Q The crew at Unit 2 for which Bill Zewe was the shift supervisor.

A I ranked Bill's crew among the better crews. Certainly above average.

Q You testified at page 28 of your direct examination that you attended the B&W technology course in 1969. Can you describe the content and format of that course?

A The content of the course was everything in the B&W scope of supply and the format was 40 hours a week for nine weeks.

Q Can you just describe briefly what you understood at that time to be within the B&W scope of supply?

A Basically the nuclear steam supply system and supporting auxiliaries and fuel-handling equipment.

Q You testified at page 30 of your direct examination that the training provided by Met Ed on the first group of TMI operators was tailored primarily on what had been taught in the B&W technology course.

Could you explain what you meant by that?

MS. WAGNER: Are you referring to the first group at TMI or the first group of TMI-2 operators?

MR. KIRSCHBAUM: I am referring to the testimony at page 30 which I believe was the first group of TMI operators.

A What I meant by that was that we used B&W terminology, B&W ideas and concepts and theory that was taught to us and just transmitted it on to the next group that needed to be trained, and in fact the handout materials may have been identical.

Q Where did the first instructors, where did Met Ed's first training instructors receive their training?

MS. WAGNER: Objection.

A With us the first time the technology course was taught and that was January and February 1969.

Q You testified a number of times during your direct examination about the B&W simulator training which you and the Met Ed operators received in Lynchburg.

What, in your view, are the relative advantages and disadvantages, if any, of simulated training as compared to the type of training which Met Ed provided to its operators at Three Mile Island?

MS. WAGNER: Objection to the form. It is

leading.

A While at Metropolitan Edison at Three Mile Island we were able to sit the people down in a classroom and go over the words on a piece of paper or even take them to a console and say this meter will move up scale this far or down scale this far, it does not lead to the imprinting or patterning which you can gain at the simulator, by talking about the procedure in the classroom, telling the man this is what you are going to see, and then immediately taking him to the machine, showing it to him, letting his eyes see what is going on and his hands carrying out the procedure by finding the right switches and turning them at the proper time.

In addition, if he turns the wrong switch, he will see that is unexpected, and then in the critique, you can point out his error and point out what happened as a result of his error, so it is a much more positive learning experience to do it in conjunction with the similator.

Q Are there aspects of operating a nuclear power plant as to ~~its~~ which simulator training that is more useful than the type of training provided by Met Ed at Three Mile Island and vice versa?

MS. WAGNER: Objection.

A There are aspects that I just mentioned possibly that can't be taught without a simulator. Emergency procedures is one whole large area. Transients in general, whether they are covered by emergency procedures, but even such things as repeated startups would be very time consuming on the plant itself where it can be done on the simulator at much less cost.

Q Where did the most important traning for Met Ed operators on transients take place?

MS. WAGNER: Objection.

A At the simulator.

Q To what degree, if any, was it important to Met Ed that the simulator accurately portray the conditions which the operators would encounter at TMI-2?

A It was vitally important in that if they were imprinted with false information, it would be to their detriment when they actually saw the plant respond.

Q What was your understanding of the effect if they were given correct information?

MS. WAGNER: Objection.

A That is probably why I used the word "imprinting" or "patterning." It is a conditioned response that when you see these meters doing these things, your hands automatically do that. It is like practicing a piano piece before going to a recital.

Q Prior to the accident, did Met Ed operators receive traning at the simulator on loss of coolant accidents or incidents?

A Yes.

Q When TMI-2 operators were trained at the simulator on loss of coolant accidents, what procedures, if any, did they use?

A We used our own procedures.

Q Did the B&W simulator training on loss of coolant accidents cover different break sizes and locations?

A Yes.

(Continued on the following page.)

Q Did any training which you received at B&W prepare you for a loss of coolant accident in response to ~~when~~ which pressurizer level rose and system pressure dropped?

MS. WAGNER: Objection.

A No, neither the classroom training nor the simulator training.

Q To what extent, if any, did the training which you received from B&W lead you to expect that pressure and pressurizer level would trend in the same direction in response to a loss of coolant accident?

MS. WAGNER: Objection.

A Every loss of coolant accident which we were instructed on or which we saw on the simulator had them both tracking down together.

Q What do you mean by tracking?

A Running in a parallel path on the face of the meter.

Q In your previous answer, were you referring to simulator training and classroom training?

A Yes.

Q Based on the training which you received from B&W prior to the accident what, if anything, did you expect would be the response of pressurizer level

to a loss of coolant accident at TMI-1 or TMI-2?

MS. WAGNER: Objection.

A I would have expected pressurizer level to decrease.

Q Where were you on the morning of March 28, 1979 from 7:30 a.m. on?

A B&W offices in Lynchburg, Virginia.

Q What were you doing at B&W on that morning?

A I was there for annual simulator requalification.

Q Did you receive any information from the TMI-2 control room that morning concerning the events which were taking place there?

A Yes. I made two telephone calls.

Q What information did you receive in those calls?

MS. WAGNER: Could we have a time, perhaps, for these calls?

Q You referred to phone calls, is that correct?

A Yes.

Q When did those phone calls take place, approximately?

A One about 7:30 and one approximately 9:30.

The 7:30 phone call I learned that the reactor had tripped about 4 in the morning due to a loss of feedwater, total loss of feedwater, both feed pumps had tripped, and that emergency feedwater was delayed about ten minutes before it was initiated, that the plant pressure was between 1000 and 1200 pounds per square inch, that the radiation monitoring panel was lit up like a Christmas tree, and I inquired about two particular radiation monitors and received numbers on those. That was HPR 214 and HPR 227.

In the 9:30 phone call, I also learned that the PORV had been stuck open.

Q Using the information which you received from the control room that morning, did you attempt to simulate the accident on the B&W simulator?

A Yes.

Q Were you able to simulate the accident that morning on the B&W simulator?

A No.

Q Why not?

A I could never get pressurizer level to rise as it did at the Island.

Q When you say pressurizer level to rise as it did at the Island, what do you mean by that?

A fter I had time to study the transient in detail, I became aware that pressurizer level rose rather rapidly just a few minutes into the transient, and I never saw that behavior that morning on the simulator.

Q ere you unable to simulate the rise in pressurizer level which you just described as having taken place at the plant because you failed to let any of your simulations run fro sufficient time before terminating them?

MS. WAGNER: I object to the form. Leading.

A May I hear the question?

(Record read.)

A I ran simulations long enough in time that that should have manifested itself.

Q What is it that you are testifying should have manifested itself?

A The rise in pressurizer level.

Q That should have manifested itself within the time that you performed the simulation?

A Yes.

Q Ket ne refer tiy ti your interview with the United States Senate Subcommittee staff which took

place on August 23, 1979, and particularly to the testimony which appears beginning on page 5, line 16 and continues on to page 6, line 10.

The last part of that testimony on page 6, starting with line 5, reads as follows:

"Again I did not let it run out to the 20, 25, 30 minutes that would have been required to see the drop in pressure down to 1000 or 1200 pounds so I was still all afternoon unsuccessful in simulating what had happened to this plant primarily because I didn't let the thing run far enough in real time."

Do you recall being asked those questions and giving that testimony or giving those answers?

MS. WAGNER: I object.

A I do not have a specific recollection of this question or this answer, but since it is here in front of me, I suspect it was so given.

Q Is it correct that you were unsuccessful in simulating what occurred at TMI-2 on March 28, 1979, primarily because you didn't let the simulation run far enough in real time.

MS. WAGNER: Objection;leading. It has been asked and answered.

A I think this testimony was true, to my

knowledge, at the time I gave it. There is knowledge that I gained since then that tells me I was watching the wrong parameter to determine success or non-success of simulation.

Q What knowledge is that that you are referring to?

A The rise in pressurizer level.

Q On the date of the accident, did you know how long it had taken for the plant pressure to drop to 1000 to 1200 pounds?

A No.

Q Based on what you now know concerning the behavior of system pressure on the date of the accident, do you believe that the simulator accurately portrayed the behavior of system pressure which took place at the plant that day?

MS. WAGNER: Objection to the question. No foundation and leading.

A No.

Q Why not?

MS. WAGNER: I have a continuing objection to this line.

A The actual pressure in the plant dropped much more rapidly than it dropped in the simulator.

Q On what are you basing your testimony as to how rapidly pressure dropped on the day of the accident at the plant?

A Various plant parameters have been plotted up on various time scales but basically out to 8 o'clock in the evening of the 20th, and by comparing those actual plant performance parameters with what I saw on the simulator, it was difficult to get the simulator to come down to the HPI set point even, let alone to a thousand or 1200.

Q Prior to the accident at TMI-2, did you ever see the pressurizer go solid in response to a simulated loss of coolant accident on the B&W simulator?

A No.

MS. WAGNER: Objection.

Q What training, if any, did B&W give Met Ed operators regarding whether it was ever permissible to let the pressurizer go solid?

MS. WAGNER: Objection.

A I do not know of any training from B&W which said it was permissible to go solid in the pressurizer.

Q Was there a B&W limit and precaution in

effect at TMI-2 at the time of the accident which dealt with the question of operation in a solid mode in the reactor coolant system?

A Yes.

Q What did that limit and precaution provide?

A That pressurizer level should never go above 400 inches indicated.

Q Prior to the accident, did you understand that limit and precaution to apply whether or not the reactor was critical at the time?

MS. WAGNER: Objection.

A Yes.

Q Prior to the accident at TMI-2, was there a tech spec in force relating to TMI-2 which dealt with the issue of whether or not it was permissible to operate the reactor coolant system in a solid mode?

MS. WAGNER: Objection.

A Yes.

Q What did that tech spec provide on the subject?

A In modes 1, 2 and 3, pressurizer level was not to exceed 385 inches.

Q You testified at page 288 of your direct examination concerning the operation of Navy reactors

in what you called the semi-solid state. Was any distinction drawn in either the B&W limits and precautions or in the tech specs or in the plant procedures for TMI-2 which distinguished in any way operation in a solid state and operation in what you referred to as a semi-solid state?

MS. WAGNER: Objection.

A No.

Q To your knowledge, did anyone from B&W ever criticiae operators for permitting the pressurizer to go solid?

MS. WAGNER: Objection.

A In performance at the simulator, it would be expected that they would have.

Q Did they?

A I know of one instance where I was told by a B&W instructor that the people from Oconee who had let the plant go solid were severely criticized for that action.

Q What, if anything, were you taught by B&W to use as an indicator of a reactor coolant system inventor?

A Pressurizer level.

MS. WAGNER: Objection.

Q Where did B&W teach you that?

A In a classroom and on the simulator.

Q Did anyone from B&W ever indicate to you in any way that pressurizer level could be a misleading indicator of reactor coolant system inventory?

MS. WAGNER: Objection.

A No.

Q You were given certain documents a few minutes ago by Ms. Wagner concerning an event at Davis-Besse which took place on September 24, 1977. After the date of that incident, did anyone from B&W ever tell you or indicate to you in any way that pressurizer level could be a misleading indicator of reactor coolant system inventory?

MS. WAGNER: Objection to the form.

A No.

(Luncheon recess: 12:50 p.m.)

oOo

(AFTERNOON SESSION)

(Date: April 29, 1982)

(Time noted: 2:30 p.m.)

J A M E S R. F L O Y D, resumed, having been previously duly sworn, was examined and testified further as follows:

EXAMINATION (Cont'd.)

BY MR. KIRSCHBAUM:

Q While you were supervisor of operations at Unite 2, what was the nature of the relationship between the operations department which you headed and the training department?

MS. WAGNER: Objection.

A The training department was responsible for providing training to the people that worked with me, and in that sense, we had a fairly close working relationship.

Q While you were supervisor of operations for Unit 2, did you or members of your department ever make suggestions to the training department as to the content or format of the training which it was providing?

A Yes.

Q What was your reason for making these

suggestions?

A To produce better operators.

Q Generally speaking, was the training department responsive or unresponsive to your suggestions?

A They were responsive to my suggestions.

Q Do you know of any instance in which the training department refused a request by you to provide training as to any particular aspect of the operation of TMI-2?

MS. WAGNER: Objection.

A No.

Q As supervisor of operations, were you satisfied or dissatisfied with the training being provided to your operators by Met Ed's training department prior to March 28, 1979?

A Satisfied.

Q Let me refer you to the testimony which you gave at your Kemeny Commission deposition on August 1, 1979. The testimony begins on page 96, line 6, and continues through page 98, line 11 on the subject of training.

Could you take a look at that testimony, please.

Have you finished looking at that testimony?

A Yes.

Q Were there continuous complaints by members of your department as to how and what the training department was teaching?

A There were continuous comments as you would expect from any group of persons receiving common training, and these comments were meant to improve the end result that is to end up with a more trained operator. Some of them may have been in the nature of complaints, but I think it was with a constructive frame of mind that they were made.

MS. WAGNER: Are you asking him to comment on his prior testimony or are you asking him a question independent of his prior testimony?

MR. KIRSCHBAUM: He can read back the question but I believe the question stands on its own.

MS. WAGNER: I was wondering why you showed him this testimony. Does his testimony refer to that?

MR. KIRSCHBAUM: The testimony is on the subject of training.

MS. WAGNER: I don't quite get the connection, but if you are happy with the record, I am.

Q Did members of your department complain that the training department was not doing the job?

A No.

MS. WAGNER: Objection to the question as leading.

Q Referring you to that testimony that you have before you at page 97, lines 12 through 15, what did you mean in that testimony?

MS. WAGNER: Objection. No foundation that he recalls it.

Q If you don't recall it, you can so state, and then you can testify as to whether or not the testimony recorded there is true and complete, to the best of your present knowledge.

A My reference to the training department not doing the job was my invention of a criticism which then I could work off of as to how I would resolve typical comments coming from people in my department.

I did not make an allusion to a specific comment that I had heard previously.

Q Do you recall sitting here now ever hearing

a member of your department say, in words or substance, that the training department was not doing the job?

A Words very close to that would be not doing as good a job as they could, but I don't remember the precise words you used.

Q What did you understand such comments to mean?

MS. WAGNER: Objection unless you are asking for his recollection rather than his present-day understanding.

Q The question was what did you understand those comments to mean?

MS. WAGNER: I am becoming confused whether the witness is analyzing his prior testimony or whether he is giving his recollection about his prior testimony or his recollection independent of the prior testimony.

That is the basis of my confusion.

If you can clarify that the witness is giving his recollection of his testimony or independently, I would be happier.

Q I am not asking for recollection of your testimony.

A May I hear the question?

(Record was read back.)

A I understood them to mean that there is a better way of doing business in any business you are in, and this was a cry for eliciting a better performance.

Q Did you understa nd those comments to mean that the members of your department were dissatisfied with the general performance of the training department?

MS. WAGNER: Objection.

A Again, I would interpret those comments to be that there should be an improvement in performance, an attempt to find a better way to invent the wheel.

Q Prior to the accident, how high a priority, if any, did you personally place on the training of your operators?

A Very high priority.

Q Why was that?

A It was important that they know what they were doing and how they were doing it.

Q Prior to the accident, how high a priority, if any, did you place on your own requalification training?

A Not nearly as high as I placed on the training for my operators.

Q Why was that?

A I felt that I was capable of providing my own training, and if I detected weaknesses in my own knowledge, I was free to go about correcting them and could correct them pretty much on my own, since my time was not nearly as structured as the control room operators' time.

Q When I referred to operators in the last few questions, and you also referred in your answeres, you understood that I was referring to control room operators, shift supervisors and shift foremen?

A Yes.

MS. WAGNER: Objection; leading. You should ask the witness what he means by operators.

Q What do you mean by operators?

A Control room operators, shift supervisors and shift foremen, the operating crew.

Q When Ms. Wagner asked you yesterday about cheating on the part of operators, did you understand her questions in the same sense in terms of the use of the word operators?

A Yes, the operating shift, the shift foremen, shift supervisors, and CRO's.

Q Prior to the accident on March 28, 1979 at

TMI-2, were you familiar with the events which took place at Toledo Edison's nuclear plant at Davis-Besse on September 24, 1977?

A No.

Q Prior to the TMI-2 accident, had you heard that a PORV had stuck open at Davis-Besse on that date?

A No.

Q Prior to the TMI-2 accident, had you heard that the reactor operators at Davis-Bessee had failed to recognize the stuck open PORV for some period of time?

MS. WAGNER: Objection.

A No.

Q Prior to the accident, were you aware of the activity of the pressurizer at the Davis-Besse plant on September 24, 1977?

A No.

Q Were you aware that the pressurizer had filled when pressure had gone down?

MS. WAGNER: Objection.

A No.

Q Do you know someone by the name of Norm Elliott?

A Yes.

Q Who is Mr. Elliott?

A I believe manager of training for B&W.

Q Did Mr. Elliott ever tell you prior to the accident that the pressurizer had filled while pressure dropped at Davis-Besse on September 24, 1977?

MS. WAGNER: Objection.

A No.

MS. WAGNER: Leading and no foundation that he ever spoke to Mr. Elliott before the accident.

Q Prior to the accident on March 28, 1979, had you ever spoken to Mr. Norm Elliott?

A Yes, usually whenever I was in Lynchburg I would see Norm.

Q Would you speak to him on those occasions?

A Yes.

Q Did any such occasions take place between September 24, 1977 and March 28, 1979?

A If my training records show I was at the simulator in that time period, they would have.

Q Did anyone from B&W tell you prior to the accident that the pressurizer had filled while pressure dropped at Davis-Besse?

A No.

Q Prior to the accident, were you aware that

the operators at Davis-Besse had terminated high pressure injection in response to the rise in pressurizer level?

MS. WAGNER: Objection.

A No.

Q Were you ever told by anyone from B&W anything about improper operator action at Davis-Besse?

A No.

MS. WAGNER: Objection.

Q I am handing you two memoranda which have previously been marked as GPU Exhibit 78, a memorandum from Bert Dunn to Jim Taylor dated February 9, 1978, and a memorandum from Bert Dunn to Jim Taylor dated February 16, 1978.

Prior to the accident, had you seen either of these two memoranda written by Mr. Dunn?

A No.

Q Were you aware of their contents prior to the accident?

A No.

Q There has been previous reference in this deposition to the Michelson report. Do you know what I mean by that?

A Yes.

Q Prior to the accident, were you aware of the existence of the Michelson report?

A No.

Q Prior to the accident, were you aware of its contents?

A No.

Q Do you know of anyone at Met Ed or GPU who was aware of the Michelson report or its contents prior to the accident?

A No.

Q Do you know of anyone at Met Ed or GPU who was aware of the existence or the contents of the Dunn memoranda, which were marked as GPU Exhibits 78 and 79, prior to the accident?

A No.

Q Let me refer you again to your Kemeny Commission deposition testimony beginning on page 101, line 4, and continuing through page 106, line 1. I will ask you to read that testimony over, please, to yourself.

MS. WAGNER: If I can make a suggestion for testimony about prior testimony, the record I think is extremely confused if you don't read into the record what it is the witness is

testifying about when you are trying to get him to clarify prior testimony.

It is up to you whether you want to do that.

MR. KIRSCHBAUM: I think the record has been clear up to now but if you find any problem, I am sure you will let me know.

Q Have you finished reading that testimony?

A Yes.

(Continued on the following page.)

Q Were you aware of the Dunn memoranda or their contents at the time you gave that testimony?

MS. WAGNER: Objection.

A I don't believe I was aware of the Dunn memo at this time.

Q By "this time," you mean?

A This was given in August, I believe of 1979.

Q Were you aware at the time you gave this testimony that B&W had received the Michelson report prior to the accident?

MS. WAGNER: Would it be possible for the record to indicate what the testimony is about that you are talking about? You don't have to if you don't want to. I don't see any relation between whatever you are asking Mr. Floyd and whatever is in his testimony.

MR. KIRSCHBAUM: I believe it will become clear to you if it isn't already.

MS. WAGNER: It isn't.

MR. KIRSCHBAUM: Read back the last question.

(Record read)

MS. WAGNER: I also object because there

is no foundation.

A At this time I gave this testimony, I knew that Michelson report existed. I don't recall if I knew that B&W had it before the accident.,

Q In light of what you now know concerning the Dunn memoranda and the Michelson report, is the testimony which I have referred you to accurate to the best of your present knowledge?

MS. WAGNER: Objection.

A It is probably right in substance, but not in degree. The existence of the knowledge within B&W to have properly trained us for this transient which we saw and thereby prevented it from deteriorating to the point where it did would bear heavily on their responsibility to us.

Q Let me refer you to the answer which begins at the bottom of page 102, line 25, which reads, "Well, the Michelson report, of course, was unknown to any of us, and we should have been aware of that, but I guess that we could have even viewed it on the simulator and could have been trained for that specific thing which happened to us, but we weren't. B&W probably bears some responsibility on that. We probably bear some responsibility on that, but it turns

out we wern't prepared for it. When something awfully close was written down on a piece of paper, it would have been recognizable had we been familiar with that piece of paper before March 28th."

Can you tell me whether or not that testimony is accurate and complete, to the best of your present knowledge?

MS. WAGNER: Objection.

A It was accurate at the time I gave it, but in light of my present knowledge, it is not accurate in that a much larger share of the responsibilities is transferred to the person who knew about it before the fact.

Q Who is the person who knew about it before the fact?

A Apparently B&W.

Q Referring you to GPU Exhibit 78, which is a memorandum from Mr. Dunn to Mr. Taylor dated February 9, 1978, the third paragraph, first sentence states: "The incident..." -- referring to the incident at Davis-Besse -- "...points out that we have not supplied sufficient information to reactor operators in the area of recovery from LOCA."

Based on your present knowledge of the

Davis-Besse incident, is that sentence correct or incorrect?

MS. WAGNER: Objection.

A Correct.

Q What, if anything, was B&W's role in formulating the emergency procedures for TMI-1 and TMI-2?

MS. WAGNER: Objection.

I think we already had testimony on this.

MR. KIRSCHBAUM: That is what cross-examination is about.

A In the formulation of emergency procedures, you first run a transient analysis and find out what the plant is expected to do and how you have to design equipment to mitigate those consequences.

So B&W played a very heavy role in this formulation in reducing that to an emergency procedure. I think in Unit 1, B&W supplied rough drafts of emergency procedures which carried the substance of what had to be done, and we took that procedure and made it plant specific by writing in our valve numbers. In Unit 2, I think they supplied a plant specific draft.

Q With respect to the procedures for Unit 1,

did B&W review the final procedures?

A After we had put in our valve numbers, the procedure that went into the plant to be used was, in fact, reviewed by B&W.

Q Did you ever attend PORC meetings?

A Yes.

Q For Unit 1?

A Yes.

Q For Unit 2?

A Yes.

Q At any of those meetings, were there discussions concerning changes or proposed changes in emergency procedures?

A Yes.

Q Was there anyone from B&W present at such meetings?

A B&W was not present as a member of PORC. However, they attended whenever their scope of supply was involved.

Q What, if anything, was B&W's role in formulating the operating procedures for TMI-1 and TMI-2?

A The operating procedures come out of a foundation called the operating envelope, which was

created by B&W and used in their transient analysis, and in their scope of supply they provided operating procedures, drafts in Unit 1, which we made unit specific, and unit specific procedures in Unit 2.

Q Did you or, to your knowledge, anyone else at Met Ed undertake an independent study as to the accuracy and completeness of the transient analyses underlying the B&W draft emergency procedures?

A No.

Q Why not?

A It would have been outside our scope of expertise.

Q Did you or, to your knowledge, anyone else at Met Ed undertake an independent study as to the accuracy and completeness of the plant limitations and precautions supplied by B&W?

MS. WAGNER: Objection to the form.

A The procedures that were supplied by B&W were reviewed by Met Ed, but to say an independent study would be, the answer to the question would be no.

Q What was the type of review that was performed by Met Ed?

A We would frequently question them as to why this limite or precaution existed, and we were

looking for the technical justification of it, especially if it was impinging on the area of the room to operate the plant.

Q You referred to "them" in your previous answer.

Who did you mean by "them"?

A B&W.

Q In your direct examination by Ms. Wagner, you were referred to page 36 of your November 15, 1979 Senate Subcommittee interview which contained the following question and answer on page -- or on lines 13 through 20.

"Question: Do you know who, I guess, put together the operating procedures for Unit 2?"

"Answer: I have to have a very vital hand in that. It really, I guess, is the PORC responsibility, Plant Operations Review Committee, but as a member of that group and as the operations supervisor and as the man with the most years of nuclear operating experience, why the operating procedures were very much in my domain."

Do you see that testimony?

A Yes.

Q Do you recall being asked that question and giving that answer?

A I don't recall it specifically, but it is testimony that is here, and I imagine it was given that way.

Q In what sense, if any, did you have, quote, a very vital hand, close quote, in putting together the operating procedures for Unit 2?

MS. WAGNER: Now you are asking for his present recollection of what he actually did in terms of procedures rather than his recollection of his testimony, is that correct?

MR. KIRSCHBAUM: I think that is exactly what was asked.

A I had to insure that there were procedures available to operate the plant when it was time to operate the plant, since that was my area of responsibility.

In addition, the procedures that were not nuclear safety related were issued over my signature, and, therefore, I had direct responsibility for those. The ones that were nuclear safety related, the responsibility fell to the PORC; however, as a PORC member and the PORC member with the most experience in

nuclear power plants, I had a very real input to the review of those procedures also.

Q Do you see any inconsistency between that testimony that you have before you and the statement that you just made now and your previous testimony this afternoon concerning B&W's role with respect to the emergency procedures at TMI?

MS. WAGNER: Objection.

A No.

Q Let me refer you again to that testimony at page 36. In what sense, if any, were the Unit 2 operating procedures very much in your "domain"?

MS. WAGNER: I take it you are asking for his recollection of those events rather than his interpretation of his prior testimony which he does not recall, is that correct?

MR. KIRSCHBAUM: I am asking for his present recollection. That's correct.

MS. WAGNER: Of what he actually did, not his prior testimony.

MR. KIRSCHBAUM: There has been no suggestion that I am asking about his prior testimony.

MS. WAGNER: You are referring to his

prior testimony. I want to make sure the record is clear.

A It was my department that was responsible for executing those procedures on the plant. Since we were the end user, what was in there was important to me.

(Recess)

(continued on next page)

Q Did B&W supply Met Ed with a set of limits and precautions for TMI Unit 1?

A Yes.

Q Did B&W supply Met Ed with a set of plant limits and precautions for TMI Unit 2?

A Yes.

Q Was the set of limits and precautions supplied for Unit 2 the same or different than the set supplied for Unit 1?

MS. WAGNER: Objection. There is no foundation that the witness ever saw the limits and precautions, ever examined them or ever compared them to answer this question.

Q You may answer the question.

A The areas covered were similar. Since the power level in Unit 2 was higher and the reactor coolant pumps were different, there had to be unique or different things in Unit 2 than there were in Unit 1.

Q Were there differences in the draft procedures which B&W supplied for Unit 1 and Unit 2?

MS. WAGNER: Objection.

A Yes. The Unit 1, they supplied generic procedures basically that were not plant specific, and in Unit 2 they supplied plant specific procedures.

Q Were there any other differences between

those procedures supplied for Unit 1 than supplied for Unit 2?

MS. WAGNER: Same objection; no foundation.

A Not that I can think of.

Q Let me refer you to page 32 of your President's Commission deposition which took place on August 1, 1979, pages 32 and 33, beginning on line 18 on page 32, which reads as follows:

"Q In September 1975, you came to the position of supervisor of operations for Unit 2, correct?

"A Yes, ma'am.

"Q And at that point, were you involved with drafting of procedures for Unit 2?

"A Yes, ma'am.

"Q Could you explain that process?

"A Well, there we pretty much relied heavily on Unit 1's procedures."

The answer continues on to the following page. My question is, do you recall the extent, if any, to which you relied on Unit 1's procedures in formulating the procedures for Unit 2?

MS. WAGNER: AGain, you are not referring --

MR. KIRSCHBAUM: Present recollection.

MS. WAGNER: Present recollection of what he did rather than the recollection of his testimony, is that correct?

MR. KIRSCHBAUM: That is the question.

A In the case where the systems were similar between Unit 1 and Unit 2, such as intermediate cooling system, we would merely have had to change valve numbers to make it applicable because we knew we had a working procedure.

On the systems that were different, which is the main turbine, you had to write an entirely new procedure. Where they were in the B&W scope of supply, I don't know if B&W relied on Unit 1 procedures or not, but we relied on what was given to us by B&W.

Q What was given to you by B&W for Unit 2?

A Yes.

Q Referring now to page 20 of that same Kemeny Commission deposition, you testified as follows, starting with line 7:

"Q And who drafted the initial operating and emergency procedures for Unit 1?

"A Those that were in the B&W scope of supply would have had the first draft written by B&W and then massaged rather severely by our staff. Those

outside the B&W scope of supply would have been drafted by our people initially."

Is it your testimony your staff massaged the B&W procedures rather severely?

MS. WAGNER: Are you asking Mr. Floyd if he gave false testimony previously?

MR. KIRSCHBAUM: No, I am asking if it is true to the best of his knowledge.

MS. WAGNER: Since I asked Mr. Floyd about this same issue and he couldn't recall, it would be interesting to hear what he had to say.

MR. KIRSCHBAUM: Do you care to refer to the part of his testimony that you are referring to?

MS. WAGNER: If you would like me to, I will try to find it.

MR. KIRSCHBAUM: Off the record.

(Discussion off the record.)

MS. WAGNER: On page 211 of Mr. Floyd's testimony on February 19, 1982, the following questions and answers appear:

"MS. WAGNER: I would like to read in, in response to your comment, a previous question and answer. The question is, 'Who drafted the

initial operating and emergency procedure for Unit 1?'

"A Those that were in B&W's scope of supply would have had the first draft written by B&W and then massaged rather severely by our staff. Those outside the B&W scope of supply would have been drafted by our people initially.

"MS. WAGNER: Do you recall being asked that question and giving that answer?

"A No, I do not.

"Q The testimony would indicate that B&W provided draft procedures and then they were massaged severely. Do you recall that happening?

"A No, I do not."

BY MR. KIRSCHBAUM:

Q I will go back to my previous question.

(Record read.)

A In taking them in the form in which we received them and putting them into our format and making them plant specific, there was a lot of work involved. However, the substance of the procedure was maintained, so the substance of the procedure was

not massaged, merely a lot of work to make them usable.

Q At page 166 and page 167 of your direct examination, you testified that you understood that boiling outside the pressurizer would lead to net steam formation and that as the size of the steam bubble increased, pressurizer level would incirease.

What led you to that understanding?

A Primarily an experiment which was run in the United States Navy while I was an operator at A1W, in which the object of the epxeriment was to get a higher steam pressure by raising T-AV. In the process of raising T-AV, you reduce your thermal margin, and that experimental procedure cautioned the operator to be alert for a pressurizer level rise which would be indicative of steam formation in the reactor coolant system other than in the pressurizer in the even that the calculations which the experiment was based on were non-conservative.

Q What did you mean in your last answer by the term experimental procedure?

A It was unusual in the Navy to have anything new and different. It was a way of life that had been well established, and so experiments were unusual. I think at that time the Navy had a strategic need to be

able to launch heavier aircraft from their steam catapults, and the only way to get the higher steam pressure was to raise the T-AV of the reactor plant, so we were talking the reactor into an area where it had never been before and in doing so, we were reducing its thermal margin, and if those calculations which predicted it was safe to do that were non-conservative, then we had the possibility of forming steam which would then terminate the test that was underway so that we didn't move the plant into a danger zone.

Q So the procedure that you were referring to in your answer applied specifically to this experiment?

A Yes.

Q Were you ever trained in the Navy to expect a rise in pressurizer level in case of a loss of coolant accident?

A No.

Q You testified at page 173 of your direct examination that the thoughts you had in the Navy concerning boiling outside the pressurizer and the possible rise in pressurizer level never entered your conscious mind while you were working at Three Mile Island.

My question is, what did you mean by that

testimony?

MS. WAGNER: I object to the characterization. I don't believe that testimony on page 172 refers to the Navy.

Q The testimony refers to the witness' previous direct testimony about pressurizer level activity which he has now today explained came to his mind as a result of the experiment conducted in the Navy.

MS. WAGNER: I don't know whether I agree with that.

Q The question is referring to your testimony on page 173, what did you mean by the answer you gave about information not being in your conscious mind while you were at TMI?

MS. WAGNER: I object to the question.

A Since I was not involved in any experiments at Three Mile Island which involved reducing the thermal margin, and since such experiments were neither taught nor run, I had no tie-back to this previous piece of information. You misht say I forgot the information.

Q Do you mean to say that in 1978 and 1979, for example, you did not then know about the rise in pressurizer level?

MS. WAGNER: I object to the question.

A No. I don't mean to imply that. I mean it was in the memory bank but it wasn't in the forefront of the memory bank. It wasn't right behind my eyeballs.

MS. WAGNER: I think it is highly proper to get the witness to contradict precisely the term and the testimony he gave earlier in his transcript. I think Mr. McBride might be interested in taking some action in that regard.

MR. KIRSCHBAUM: I think you on that very page or the next page claimed you weren't able to understand the witness' answers and claimed that you felt there was some lack of clarity in that testimony. I am seeking to clarify that now.

MS. WAGNER: I don't think I suggested that his testimony is directly opposite to what he believes to be the truth in this matter.

MR. KIRSCHBAUM: I think you did suggest on page 173 that you felt there was an inconsistency in what the witness testified to.

MR. McBRIDE: I would also say I haven't heard anything that contradicted any prior testimony, and if you think there is such a

contradiction, you can ask it on redirect.

I think it is improper for you to refer to my presence as his counsel and indicate some action be taken.

MS. WAGNER: I don't believe that I said that Mr. Floyd has testified to anything improper. I am suggesting that Mr. Kirschbaum is suggesting that.

MR. KIRSCHBAUM: Are you suggesting that I was instructing the witness or trying to have the witness give false testimony?

MS. WAGNER: I certainly am not attributing that to you, but when he has testified about what he knew and then you are suggesting "Are you suggesting that you didn't know," I think that is an inappropriate way to proceed.

(Continued on Page 501)

MR. McBRIDE: His testimony at page 173 on line 10 in response to your question was -- your question was:

"You didn't have a thought as to whether that was an important thing to tell the operators or not?

"Answer: No, just I didn't have the thought enter my conscious mind while I was working at Three Mile Island."

He was just asked a question about that testimony as I understand. What I thought I heard was testimony that was consistent with that answer.

MS. WAGNER: I heard it as well.

MR. McBRIDE: Was it your position that his testimony just now was consistent or inconsistent?

MS. WAGNER: Consistent.

Q Prior to the accident, did you ever associate your naval experimental training on the effects of boiling in the reactor vessel with a LOCA?

MS. WAGNER: Objection.

A No.

Q Was it ever your understanding prior to

the accident that boiling in the reactor coolant system would result in the pressurizer going solid with water?

A No.

Q Did you ever conceive prior to the accident that it was possible to have a solid pressurizer while a LOCA was in progress?

A No.

MS. WAGNER: Objection.

Q Was that your understanding regardless of whether there was boiling in the reactor vessel?

A Yes.

Q Did you ever conceive at any time prior to the accident that it was possible to have a water level in the pressurizer and at the same time to have the core uncovered?

MS. WAGNER: Objection.

A No.

Q Was that your understanding regardless of whether or not there was boiling in the reactor vessel?

A Yes.

MS. WAGNER: Objection.

Q Did B&W ever demonstrate on the simulator or suggest in the classroom that it was possible to

have a water level in the pressurizer at the same time that the core was uncovered?

MS. WAGNER: Objection. Leading.

A Are you referring to the time before the accident?

Q Yes.

A Then my answer is no, they did not.

Q Did you receive any training from B&W prior to the accident on the simulator or otherwise concerning the effects of boiling or saturation in the reactor vessel during or as a consequence of a small break loss of coolant accident?

A No.

Q You testified at pages 151 and 152 of your direct examination that it is possible in an overcooling event to "suck the bottom out of the pressurizer and cause the bubble to shift."

What did you mean by that testimony?

A If you cool the reactor coolant system far enough, the water in the reactor coolant system shrinks as it gets colder, and if you shrink it far enough, you will end up without any water in the pressurizer, merely the steam that you left behind, and if you continue to shrink it even further, the steam bubble

will grow out of the reactor coolant system.

Q Do you recall if you ever saw that happen at the simulator prior to the accident?

A No, I never saw that happen at the simulator.

Q Do you know of any overcooling events at TMI-1 or TMI-2 in which the bubble extended from the pressurizer to elsewhere in the reactor coolant system?

MS. WAGNER: I take it you mean in the way in which Mr. Floyd just testified to as opposed to any other way?

MR. KIRSCHBAUM: Yes.

A I believe the April 23rd transient led the plant staff to conclude that there was a bubble in the system, in the plant that was larger than the pressurizer, although I believe B&W's analysis of that same transient led to the opposite conclusion.

Q Do you know of any overcooling event at TMI-1 or TMI-2 in which pressurizer level rose as a result of boiling or saturation outside the pressurizer?

MS. WAGNER: Objection.

A Only the morning of the accident.

Q At some point during the April 23, 1978

transient, was there an actuation of high pressure injection?

A Yes.

Q During that event on April 23, 1978, did the TMI-2 operators throttle HPI at some point?

A Much later in the transient when pressurizer level was regained, they throttled HPI to hold pressurizer level constant.

Q At the time when they throttled HPI as you just described, was system pressure below the HPI actuation point?

A Yes.

Q To your knowledge, was B&W made aware by Met Ed following the April 23, 1978 transient that the operators had throttled HPI while pressure remained below the HPI actuation point?

A I believe their analysis of that transient included that knowledge.

Q Did B&W ever inform Met Ed that operator action on April 23, 1978 in connection with throttling high pressure injection was improper?

MS. WAGNER: Objection.

A Not to my knowledge.

Q Did B&W provide you or any of your operators

with training as a result of the April 23, 1978 event concerning the possibility of a rise in pressurizer level in response to boiling or saturation outside the pressurizer?

MS. WAGNER: Objection.

A It would have been hard to train on a phenomenon that I wouldn't have expected to occur. Without a hole at the top of the pressurizer, I don't think the level comes back up in the pressurizer due to boiling, and as such, it would have been counterproductive for our accident if we had trained on that.

Q I take it then you were not trained on it?

A We were not trained on it.

Q You referred to the fact that there would not have been any point in training on the possibility of a rise in pressurizer level as a response to the April 23, 1978 event. Was that due to the fact that on April 23, 1978 there was no water level in the pressurizer?

MS. WAGNER: Objection.

A That is true. In other words, I didn't mean to imply that we shouldn't have trained on a rise in pressurizer level in relation to that event

which is what I thought your original question was referencing.

Q Did B&W in fact provide any training concerning a rise in pressurizer level in connection with that event?

MS. WAGNER: Objection to the question. It has been asked and answered.

A No.

Q Let me turn to Emergency Procedure 2202-1.3 entitled "Loss of Reactor Coolant/Reactor Coolant System Pressure" which has been previously marked as B&W Exhibit 272.

Was the situation which confronted the TMI-2 operators on the morning of March 28, 1979 covered by that procedure based on your understanding before the accident?

MS. WAGNER: Objection. This witness was not in the control room on that day.

MR. KIRSCHBAUM: The witness has testified to having done a good bit of study concerning the events which did take place in the control room that day.

MS. WAGNER: I didn't hear that testimony. No foundation for the question and it is leading.

A I feel this procedure would not have been entered by the operators because pressurizer level and pressure were not tracking in the same direction.

MS. WAGNER: I move to strike the witness' answer.

A And that has always been our fundamental training in recognizing the LOCA.

Q Was it your understanding of that Procedure 2202-1.3 that that understanding is borne out in the procedure?

A Yes.

Q Where in that procedure is that understanding borne out?

A In the symptoms.

Q What about the symptoms?

MS. WAGNER: What is the question now? I don't understand what the understanding is and what your last question is.

MR. KIRSCHBAUM: You want to read back the previous three questions.

MS. WAGNER: Is it possible for you to restate it?

MR. KIRSCHBAUM: I don't think it is necessary.

A Symptom 1.1, initial loss of reactor coolant pressure and decrease in pressurizer level becoming stable after short period of time.

If you go back to section B on page 6, 1.1, rapid continuing decrease of reactor coolant pressure; 1.2, rapid continuing decrease of pressurizer level.

Q Based on your understanding prior to the accident of those symptoms, what did they require in terms of recognition of a LOCA?

MS. WAGNER: Objection. I am not sure what you are asking, but I think therehas been prior testimony on exactly this point.

Q What I am asking you is what those symptoms, to your pre-accident understanding, told the operator in terms of recognition of a LOCA.

MS. WAGNER: Objection.

A That the pressure and level meters would be moving down scale together.

Q Let me refer you to Unit 2 Emergency Procedure 2202-1.5 entitled "Pressurizer System Failure," previously marked as B&W Exhibit 305.

Prior to the accident, did Emergency Procedure 2202-1.5 require that the PORV block valve be closed based on the fact that the discharge line

temperature for the PORV had been in excess of 130 degrees for some time?

A No, it did not.

MS. WAGNER: Objection.

Q Why not?

A This procedure required the closing of the PORV block valve if the PORV was leaking. If the PORV leaked, it would be reasonable to see a high temperature downstream of it. However, prior to the accident, the elevated temperature downstream of the PORV was stemming from a leak in a code safety valve, and because of the commonality of the discharge lines, all three valves showed an elevated temperature based on one valve leaking and the valve with the highest temperature is the valve that would have been leaking.

Q Which is the valve with the highest temperature?

A One of the two code safety, A or B. I don't remember which.

Q But not the PORV line?

A Not the PORV.

MS. WAGNER: Objection.

Q Let me refer you now to your testimony before the Kemeny Commission itself which took place

on May 31, 1979, page 213, line 5, continuing through line 19 which reads as follows:

"Commissioner Lewis: What I am leading to is we had this key pressurizer relief valve that everybody knew was leaking. One reason why there was confusion when you had the accident was that you knew it was leaking and therefore you didn't pursue the information that you were getting. You may say that is not a major safety feature of the plant and yet when it came to this crucial moment, the failure to maintain that particular valve was instrumental in your having the accident.

"Mr. Floyd: I think I would agree with the end of your statement there about it being important to the course of the transient. We responded to that situation responsibly in that a decision to live with the leaking valve and to schedule it for maintenance when the parts were available was done legally as a legal corporate citizen that we are. It was done within the technical specification which is imposed on our plant."

Do you recall being asked that question and giving that answer.

A Yes.

Q Looking at that testimony today, is it correct, to the best of your present knowledge?

A Yes, from my standpoint where I was thinking of the code safety being the leaking valve, but when she, Commissioner Lewis, refers to a key pressurizer relief valve that was leaking, I am not sure that she wasn't thinking of the PORV. If she was asking a question about the PORV, and I responded to a code safety valve, then my answer was not responsive, although it is technically correct.

Q You testified on page 275 of your direct examination that you believed prior to the accident, that the TMI-2 operators, quote, were fully able to identify a failed open PORV prior to the accident?

Do you now believe that the TMI-2 operators were able to identify a failed open PORV prior to the accident?

MS. WAGNER: Objection. I don't understand the meaning of the term "fully."

MR. KIRSCHBAUM: I will take out the word "fully."

A Yes, a PORV failing open by itself as a single incident in the plant would be readily recognized by the TMI operators. However, if it is

obscured because you are in the middle of a reactor trip and it has been called on to operate and then it fails to close, that is a very different situation than I referred to initially where it was happening in isolation, and the more things you have going on in the control room at one time, the better is the likelihood that something will be overlooked.

Q Does the existence or nonexistence of a command position indicator light in the control room have any bearing on your understanding of the ability of the operators to detect the stuck open PORV?

MS. WAGNER: Objection.

A It was added to aid the operator in knowing whether the valve was open or closed. In the course of our accident at Three Mile Island where it, in fact, indicated the opposites than what the valve was actually doing, it could be thought of as false intelligence and, hence, a detriment to the diagnosis of what was wrong with the plant.

Q Were you ever told by B&W prior to the accident that this command signal light could serve as a detriment to the proper diagnosis of what was happening in the plant?

MS. WAGNER: Objection to the question.

A No.

Q Were you ever told by B&W prior to the accident that this kind of position, command position indicator, had misled the operators at Davis-Besse on September 24, 1977?

MS. WAGNER: Objection to the question.

A No.

Q Were you ever told by B&W that Davis-Besse had asked for a better indication of valve position than the one they had in their control room?

MS. WAGNER: Objection.

A No.

Q Before the accident, what, if anything, was your understanding of what would happen with respect to tail pipe temperatures and reactor coolant drain tank temperature and pressure after the closure in due course of a PORV which had previously opened?

A Temperatures and pressure in the drain tank would remain elevated for some period of time.

Q Why is that?

A The lines are thermally insulated and the tank is large and contains a large quantity of water. Hence, a lot of mass, and it takes time for the heat to dissipate to the ambient.

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

BY MR. KIRSCHBAUM:

Q Referring to your Kemeny Commission deposition, page 197, lines 14 through 23, which read as follows:

"Question: Are the auxiliary operators ever able to affect the power level?"

"Answer: Yes. For instance, I think the whole thing that precipitated this transient at 4:00 o'clock in the morning was an auxiliary operator, down in the basement of the Turbine Building with the vessel, who made a mistake that lost both feed pumps and the reactor tripped, and everything worked fine for a little bit, but them promptly turned to hell. He wasn't supposed to do that, but he did."

Do you recall being asked that question and giving that answer?

A Yes.

Q Based on what you now now concerning the accident, is that testimony as to what occurred on the morning of the accident correct to the best of your knowledge?

MS. WAGNER: Objection on a number of grounds including outside the scope of the cross.

A The testimony as given there is not accurate now. At the time, I thought that the most likely source of the cause of loss of feedwater was an operator error. However, to this day, that has not been proved or disproved, because the initiating event that led to the loss of feedwater has not been isolated, and even had the operator been in error and caused a loss of feedwater, that is a transient for which the nuclear steam supply system is designed and can handle without failing fuel, so that testimony was much too harsh on that operator, and it is certainly not a pure causative event for what followed.

Q I refer you now to your November 15, 1979 interview with the United States Senate Subcommittee, page 3, line 7, which states as follows:

"Question: From that period -- say '75 through the eventual startup of Unit 2 -- were you aware of any major changes in the Unit 2 control room design?"

"Answer: I have no idea what you have in mind by, quote, major changes, close quote. We

added the panel, 8-A, which has come under criticism, the one which has the reactor coolant drain tank instrumentation on it, to get the indication into the control room; that was the only spot that was available, so it was added at a back panel and, hence, out of line of sight of the operator. Some people may consider that a major change. It was an addition and not added in the proper location."

Do you recall being asked that question and giving that answer?

A Yes.

Q What did you mean when you said that the RCDT instrumention panel was an addition and not added in the proper location?

A By that point in time, the control room was fairly well constructed, and certainly the design had long since passed, and the need for this instrumentattion in the control room became apparent, so the panel was designed and constructed and added, and in that sense it was an addition into the control room. It was added at an inconvenient location in that the operator did not have it in his line of sight, but it was not inaccessible. It was merely

inconvenient.

Q Referring now to your appearance before the NRC Special Inquiry on September 13, 1979, page 138, beginning on line 4, which reads:

"Question: In your view, would the differences in the design of the two control rooms have had any impact on the ability of the operators to respond to the transient that began on March 28th?"

"Answer: The one significant difference is the location of the instrumentation for the reactor coolant drain tank. In Unit 1, it is advisable from the console and it is not hard to take a couple of steps toward it to read it or at least see the area of the meter the needle is in if you can't read it from the console.

"In Unit 2, you are forced to completely desert the console and go back around the corner and isolate yourself from the rest of the plant in order to see those meters. So had the same transient taken place in Unit 1, they may have come to the conclusion that the drain tank was in duress earlier, and from that may have drawn the proper inference on

on the electromatic relief valve. There are 18 other things that go into that tank, but they might have jumped on the right one."

Do you recall being asked that question and giving that answer?

A Yes.

Q Based on everything you now know concerning the accident on March 28, 1979, do you believe that the difference between the Unit 1 and Unit 2 control rooms in terms of the location of the reactor coolant drain tank instrumentation was a significant factor in the accident at TMI-2?

MS. WAGNER: Objection.

A It might have been.

Q Do you know whether or not it was?

MS. WAGNER: Objection.

A It is speculation on my part to say whether it was or wasn't.

Q I refer you to the November 15, 1979 interview with the Senate Subcommittee staff, page 49, line 9 through page 50.

"Mr. Simpson: Do you recall after that transient any discussions that you had with the operators somewhat reeducating them on the

previous concept they may have had about the use of the alarm system or the importance of the alarm system?"

"Mr. Floyd: I would not have been surprised to find myself using the word, quote, ignore, close quote, in talking to them, because in the context that I would be talking to our control room operator, he would automatically say, 'But what about this one exception where I get a piece of information?' That wouldn't even enter his mind, because he knew if he had that piece of information, he would act on it in good faith. So I might have used the word, quote, ignore, in the conversation with control room operators, and it might have been after this transient that you called 4/23/78 transient; yes."

The answer continues on to page 50.

Do you recall ever telling your operators to ignore the control room alarms during the transient?

MS. WAGNER: I object to the question. It is beyond the scope.

A No, I do not recall ever having told control room operators to ignor his alarms. What I was

more likely to have phrased it, rather than ignore, which I speculate in here I might have used, was that if there are too many alarms going off to comprehend at one time, you have to bury your head in the console to pay attention to the meters and the recorders to determine the course the transient is taking, but that if during that time you happen to receive some intelligence from an alarm, you certainly don't ignore it. You act on it if it is useful. You get around to responding to all the alarms once the plant is stabilized, as soon as you can.

(continued on next page)

Q In that answer, you just mentioned speculation in here. What were you referring to by that?

A I said, "I would not have been surprised to find myself using the word ignore." I think that is speculation on my part.

Q You are now referring to your answer in that interview?

A Yes.

Q On the morning of the accident when you were in Lynchburg, did you arrive at any estimate as to the amount of core cladding which had failed, if any, at TMI-2?

A Yes.

MS. WAGNER: Objection.

Q What was your estimate?

A In the area of one-eighth of the cladding had failed.

Q How did you arrive at that estimate?

A Based on the radiation monitor reading from HPR 227 and gaseous channel and using a similar instruement sensitivity, I was able to calculate the number of curies in the reactor building atmosphere. Having made a similar calculation in Unit 2 for

maximum hypothetical accident, and knowing that that number of curies gave me a radiation reading, I was able to equate the two and arrive at the conclusion that approximately one-eighth of the cladding had failed.

Q Did you tell anyone at Three Mile Island about your estimate on that day?

A No.

Q Did you tell anyone at Lynchburg?

A Yes.

Q Whom did you tell?

A The people that were in the simulator control room at the time I made the calculation, and I mentioned it in the board room in the afternoon when I was called up there at 2 or 3 o'clock.

Q Who were the people at the simulator in the morning that you just referred to?

MS. WAGNER: Objection on the grounds it is outside cross.

A The Met Ed crew of operators that were there with me for the annual requalification training were present in the control room as were several B&W instructors,and several other people that I didn't recognize were probably B&W employees.

Q Who are the people in the board room?

Strike that.

What board room did you refer to in your previous answer?

A A large conference room on the second floor of the old Forest Road building, B&W's office building in Lynchburg, Virginia.

Q Who was in the board room at the time you discussed your estimate?

A There were many B&W people in the board room. I cannot begin to name them. I didn't recognize many of them.

Q What was the reaction of the B&W people in the board room when you gave them your estimate?

MS. WAGNER: Objection.

A Surprise.

Q Did you give anyone from B&W the other information which you had received from the control room on that day?

A In the morning, in the area of 9 o'clock, Grant Ward, ten or fifteen people came down to the simulator to find out what I knew of what was going on at TMI-2, so I took them into the classroom and explained to them all the information I had gathered

in the 7:30 phone call.

Q Do you include when you say the information that you had gathered from the control room, are you including your failed cladding estimate?

A No, that calculation was made after I came out of that meeting.

Q Did any of the B&W people with whom you spoke on the day of the accident tell you that day that they believed there had been core uncovery, failed cladding or failed fuel at TMI-2?

A No.

MS. WAGNER: Objection. Leading. No foundation.

Q Let me refer you to page 189 of your testimony before the President's Commission on May 31, 1978, in which you testified as follows:

"Professor Taylor: Well, this in my mind is very important. Is this correct: that as far as you know, some quantitative reasoning was telling people at the plant that a substantial fraction of the cladding had failed?

"Mr. Floyd: Yes, sir.

"Professor Taylor: By early Thursday morning? By early, I mean very early in the morning.

"Mr. Floyd: I think that information was available early Wednesday morning. In fact, that is how I got to my conclusion, was from information early Wednesday morning. Anyone else that was at the Island was free to arrive at a similar conclusion if they remembered a source term like I remembered, all right."

Do you remember being asked those questions and giving those answers?

A Yes.

Q Based on your present knowledge, do you believe that anyone else at the Island was free to arrive at the same conclusion you had arrived at that morning?

MS. WAGNER: Objection.

A Only if they had had the similar experience that I had with the source term for the maximum hypothetical accident, but to the best of my knowledge, no one else had made that calculation besides myself.

Q What is the calculation you are referring to now?

A When you release one hundred percent of the gap activity, fifty percent of the radioactive iodine inventory in the core and one percent of the particulates, you arrive at about one hundred million

curies in the reactor building.

Q I am just trying to clarify that you are referring to not the calculation you made on the day of the accident, but some prior calculation.

A Yes.

Q At the time you gave this tstimony that I just read to you, were you conscious of the fact that no one else at the Island had been involved in that previous calculation?

MS. WAGNER: Objection.

A I believe it was dawning on me as I was answering this question, because I realized they had to have the source term and I included that in this answer to Professor Taylor, and in fact, the very next sentence says, "But unfortunately, I was privileged to have made the calculation."

I think at that point in time I recognized I was probably the only person so privileged and uniquely positioned to make that calculation.

Q Referring now to page 184 of your President's Commission testimony, you testified as follows:

"Professcr Taylor: Well, let me explain. There is a reason I am following this line of questioning

and that is: I would like to have your reaction to this statement,and that is it would seem to me that under conditions where everybody is focusing, I am trying to maintain 'solid water' in the whole primary system except the upper part of the pressurizer,that any indication that there is steam or some other gas in the primary system -- not up at the top of the pressurizer -- would be cause for very serious immediate concern.

"Mr. Floyd: Yes, I agree with you."

Do you recall being asked that question and giving that answer?

A Yes.

Q Can you explain what you meant by that testimony at the time you gave it?

A If the operators were aware of steam or gas in some part of the reactor coolant system other than the pressurizer, they should be very concerned about it, but that does not mean that they are going to have an easy time recognizing steam or gas somewhere in the reactor coolant system besides the top of the pressurizer, and in fact there is no procedure instructing them to insure subcooled margin exists on any periodic frequency.

Q Mr. Dunn had recommended in an internal B&W

memorandum which I showed to you before that customers be advised to insure 50 degree subcooling in the reactor coolant system before terminating high pressure injection. When was the first time that Met Ed ever received such an instruction from B&W?

MS. WAGNER: Objection.

A Several days after the accident.

Q Have you ever compared the effectiveness of the 50 degree subcooling rule with the operator guidance previously supplied by B&W concerning the termination of high pressure injection?

MS. WAGNER: Objection.

A Yes. That comparison is rather stark. Before this memo, we had identified the source of the break, that is, where in the reactor coolant system things had broken before you really knew what to do and had to make some estimates about the size of the break before you knew exactly what to do.

This rule that was then promulgated to us after our accident is clear, simple, concise, and unequivocal.

Q Do you have any reason to believe that the operators at TMI-2 either would or would not have followed the 50 degree subcooling rule if it had been

provided by B&W prior to the accident?

MS. WAGNER: Objection.

A It is my belief that they were trainable in a rule this simple and straightforward and had they had time to be trained, they would have followed the rule.

Q I refer you now to the transcript of your appearance before the NRC special inquiry on September 13, 1979 at pages 96 and 97, in which you testified as follows, concerning certain transients at TMI-2 which purportedly occurred in 1978:

"The Witness: The April transient with the main steam safety valves is accurately portrayed on the record. The loss of power to the electromatic relief valve I am reminded occurred in March, not November, in which I think the plant went dry, the pressurizer,was prompted by the loss of power to the outlet valves in the condensate polishing system. which resulted in a total loss of feedwater and, hence, was fairly similar to the transient on March 28.

"By M[illegible]. Dinielt:

"Q Of 1979?

"A 1979."

Do you recall being asked those questions

and giving those answers?

A Yes.

Q Is that testimony or is that statement accurate, to the best of your present knowledge?

A No, it is not. My reference -- in here I called it a November transient. There was no such transients on the plant at any time, and I think I was mentally confused and the testimony is plumb wrong.

(Continued on following page)

Q Do you know of any transient at Three Mile Island Unit 2 which was fairly similar to the one which occurred on March 28, 1979?

A No.

Q Do you know of any transient at any other nuclear power plant, do you know of any transient at another nuclear power plant which was fairly similar to the March 28, 1979 transient at TMI-2?

A Davis-Besse in September 1977.

Q Did Met Ed ever receive from B&W any recommendations as to procedure changes based on experiences at other B&W-supplied units?

A Yes.

Q What did Met Ed do in such cases?

A Modified our procedures to take advantage of that experience.

Q Do you recall any such instances?

A There was one on frequency and duration of testing of main steam turbine governor valves. There was another one on operating letdown coolers in parallel rather than singly. There may have been some more in the area of CRD venting, in-core venting, RPS set points, out-of-core detector tilt calculations.

Q To what extent, if any, did Met Ed depend

on B&W to warn it about generic problems that had arisen at other B&W plants?

MS. WAGNER: Objection.

A They had built up a credible history of supplying us such information. They were uniquely positioned to gather that information quickly and transmit it to us through their site representative, and so I would say we relied heavily on them.

Q At page 189, beginning on page 188 and continuing on 189 of your direct examination in this action, you referred to certain guidelines for small break LOCA which were provided by B&W.

What type of break were you referring to in that testimony?

A Break in the high pressure injection line.

Q Did B&W provide Met Ed with any warning concerning the need to change procedures to deal with such a break?

A Yes.

Q Did Met Ed change its procedures after B&W warned of the need for such a change?

A Yes.

Q On page 280 of your direct examination, you testified or were asked questions concerning B&W

Exhibit 272 which is the Emergency Procedure 2202-1.3 and you referred specifically to 7.0, section 2.2.2 of that procedure entitled "Small Break Loca Response."

Prior to the accident, what was your understanding as to the small break being referred to in that section?

MS. WAGNER: I think the witness has testified to that.

A The reference was to the break in the HPI line.

Q What was the small break LOCA response that is referenced in the procedure?

A If a high pressure injection pump fails to start when there are symptoms of a LOCA, then within two minutes the operator must carry out a cross-connect, the opening of a cross-connect, so that if the break happens to be in one of the high pressure injection lines, the core will still be covered and remain safe.

Q You testified on page 280 that that section required recognition of a small break LOCA within two minutes. What did you mean by that?

A I meant he must recognize that a makeup pump failed to start which means looking at the lights on the console.

Q Was it your understanding before the accident that that section of the procedure required that a control room operator be able to locate and diagnose a small break LOCA within two minutes?

A No.

(Recess taken.)

MR. KIRSCHBAUM: No further questions.

MR. SELTZER: We concluded the cross-examination of Mr. Floyd before 5:00 p.m. today and are willing to proceed with any redirect examination.

Mr. Floyd has indicated that he is willing to run later today. Mr. Wise and Ms. Wagner had asked me earlier whether in the interests of completing Mr. Floyd's deposition expeditiously he would be available to continue until 7 o'clock on an evening, and I am indicating now that he is available to continue today.

MS. WAGNER: I asked if Mr. Floyd was available last evening which was the evening Mr. Wise and I had requested, and I was told he was not. I have been available for this deposition since 9 o'clock this morning. Nobody informed me the deposition was going to start at

noon which is when it did start, and I am requesting that the deposition start at noon tomorrow.

MR. SELTZER: We are distressed that the reason for adjourning the deposition until noon tomorrow is that another litigation is taking precedence over this. I can't believe with the large stable of lawyers working on this case and the number of people devoting their time to Mr. Floyd's deposition that we are all going to be sitting around cooling our heels until noon tomorrow while some other case takes place, particularly since we reserved Wednesday, Thursday and Friday for the conclusion of Mr. Floyd's deposition.

MS. WAGNER: I object to cooling my heels without warning this morning while waiting for this deposition to continue, and you told me that you and Mr. Floyd were not available tomorrow. The first time you informed me that Mr. Floyd was available tomorrow was about ten minutes ago.

MR. SELTZER: You are 100 percent wrong. I have been and Mr. Floyd has been available.

It was your office that wanted to take Scott's deposition tomorrow, Mr. Scott being a B&W employee, so it is not any problem of availability of Kaye, Scholer that has not permitted Mr. Floyd going on.

MS. WAGNER: Is Mr. Floyd going to be available at Kaye, Scholer tomorrow morning?

MR. SELTZER: Yes.

MS. WAGNER: I take it if I call earlier, you will be available?

MR. SELTZER: Yes.

MS. WAGNER: I will do my best to start as early as possible and to finish tomorrow.

(Time noted: 5:00 p.m.)

James R. Floyd

Subscribed and sworn to before me
this day of 1982.

CERTIFICATE

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

I, JOSEPH R. DANYO, a Notary Public of the State of New York, do hereby certify that the continued deposition of JAMES R. FLOYD was taken before me on Thursday, April 29, 1982 consisting of pages 433 through 537;

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 _____ day of April, 1982.

JOSEPH R. DANYO