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C O N T E N T S

<u>WITNESSES</u>	<u>DIRECT</u>	<u>CROSS</u>	<u>REDIRECT</u>	<u>RECROSS</u>
William C. Hoch, Jr.			926	
By Mr. Calvert	914			--
By Mr. Wersan		916		
By Ms. Ferkin		921		
Louis A. Guth				
By Mr. Calvert	927		--	
By Mr. Werson		930		--
By Mr. Kleppinger		936		
Thomas P. Hill, Jr.				
By Ms. Chestnut		938		
Roger J. Mattson				
By Mr. Hall	942		981	
By Ms. Chestnut		951		--
By Mr. Wersan		957		
Vincent S. Boyer				
By Mr. Hall	983		1074	
By Mr. Delaney		985		
By Ms. Weston		1028		
By Mr. Wersan		1033		1075
By Mr. Ettner		1060		
By Ms. Ferkin		1064		
By Mr. Widoff		1067		
By Mr. Kleppinger		1071		

E X H I B I T S

<u>NUMBER</u>	<u>FOR IDENTIFICATION IN EVIDENCE</u>		
<u>Philadelphia Electric Company</u>			
✓✓ Statement No. 13 (Hoch)	914		916
✓✓ Statement No. 12 (Guth)	927		929
✓✓ Statement No. 9 (Mattson)	943		944
✓✓ Statement No. 1 (Boyer)	985		985

E X H I B I T S (Continued)

	<u>NUMBER</u>	<u>FOR IDENTIFICATION IN EVIDENCE</u>
3	<u>PUC Trial Staff</u>	
4	✓✓ Exhibit No. 9 (Company response to DR-STAFF-LIM-8)	994 1027
5	✓✓ Exhibit No. 10 (Company response to DR-STAFF-LIM-23)	999 1027
6	✓✓ Exhibit No. 11 (Company response to IR-STAFF-LIM-3)	1002 1027
8	✓✓ Exhibit No. 12 (Company response to DR-STAFF-LIM-11)	1018 1027
10	<u>UCC/UP</u>	
11	✓✓ Exhibit No. 3 (Excerpts Mr. Boyer's testimony, 8-14-81)	1067 1071
12	✓✓ Exhibit No. 4 (Excerpts from Mr. Boyer's testimony 10-7-81)	1068 1071
15	<u>Office of Consumer Advocate</u>	
16	✓✓ Exhibit No. 50 (PaPUC Electric Utility Forecast Accuracy Comparison, 1972-1983)	917 920
17	✓✓ Exhibit No. 51 (Company response to IR-OCA-2-67)	932 936
18	✓✓ Exhibit No. 52 (Excerpt from testimony of Stutz and Rosen, May, 1978)	935 936
19	✓✓ Exhibit No. 53 (Company response to IR-OCA-15-15)	1028 1033
20		
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Tl:jl

P R O C E E D I N G S

1
2 ADMINISTRATIVE LAW JUDGE JOSEPH MATUSCHAK: This
3 is the time and place for further hearing in the matter of
4 Pennsylvania Public Utility Commission versus Philadelphia
5 Electric Company, Docket No. R-850152.

6 Are there any preliminary matters before we proceed?

7 (No response.)

8 JUDGE MATUSCHAK: If not, you may proceed.

9 MR. CALVERT: Your Honor, we have previously dis-
10 tributed to Your Honor, the court reporter and all counsel
11 copies of the direct testimony of William C. Hoch, Jr., and
12 we would ask at this time that it be marked for identifica-
13 tion as PECO Statement No. 13.

14 JUDGE MATUSCHAK: Very well.

15 (Whereupon, the document was marked
16 as PECO Statement No. 13 for
identification.)

17 Whereupon,

18 WILLIAM C. HOCH, JR.

19 having been duly sworn, testified as follows:

20 JUDGE MATUSCHAK: You may proceed.

DIRECT EXAMINATION

21 BY MR. CALVERT:

22 Q Would you state your name for the record,
23 please?
24

25 A. William C. Hoch.

j2

1 Q Could you state your business position and
2 business address?

3 A Manager of the Marketing Department, Philadel-
4 phia Electric Company, 2301 Market Street in Philadelphia.

5 Q Do you have before you a document of some 24
6 pages entitled "Direct Testimony of William C. Hoch, Jr.,
7 PECO Statement No. 13"?

8 A Yes.

9 Q Is that your direct testimony in this
10 proceeding?

11 A Yes, it is.

12 Q Was it prepared by you or under your direction?

13 A Yes.

14 Q Do you have any errata or corrections which you
15 wish to make to your testimony at this time?

16 A No.

17 Q If I were to ask you the questions set forth in
18 your direct testimony, would your answers be as they appear
19 therein, and would they be true and correct at this time?

20 A Yes.

21 Q As part of your direct testimony, did you pre-
22 pare and submit any exhibits?

23 A Only the appendices attached to the testimony.

24 Q All right. Referring to those appendices, I
25 take it your exhibits then are Appendices A through D?

j3

1 A. Yes.

2 Q. Were those prepared by you or under your
3 direction?

4 A. Yes.

5 MR. CALVERT: Your Honor, at this time I move that
6 the direct testimony of Mr. Hoch be admitted as part of
7 the record of this proceeding and be identified as PECO
8 Statement No. 13, and that the exhibits be admitted as part
9 of the record and identified as Appendices A through D,
10 subject to any timely motion to strike.

11 JUDGE MATUSCHAK: Subject to those conditions, the
12 motion is granted.

13 (Whereupon, the document marked as
14 PECO Statement No. 13, with
15 attached Appendices A through D,
was received in evidence.)

16 MR. CALVERT: Your Honor, Mr. Hoch is available for
17 cross-examination.

18 MS. SMITH: Staff has no cross, Your Honor.

19 JUDGE MATUSCHAK: Consumer Advocate.

20 MR. WERSAN: Thank you, Your Honor.

21 CROSS-EXAMINATION

22 BY MR. WERSAN:

23 Q. Good morning, Mr. Hoch. My name is David
24 Wersan. I am with the Office of Consumer Advocate.

25 A. Good morning.

j4

1 Q If I could refer you to page 3 of your testi-
2 mony -- can you hear me okay?

3 A Yes.

4 Q At line 18, in your answer there, you state
5 that the purpose of your testimony is to describe the com-
6 pany's energy forecasts which were issued during the 1970s
7 and early 1980s; is that correct?

8 A Yes.

9 Q Am I correct that in your testimony you present
10 a discussion of the company's forecasts through that period
11 and other forecasts being presented in that same time
12 frame?

13 A Yes; that is basically so, yes.

14 MR. WERSAN: Your Honor, at this time I would like
15 to mark for identification OCA Exhibit No. 50, which is a
16 copy of what was marked as OCA Exhibit No. 67 in Docket
17 I-840381, the Limerick 2 investigation. It consists of a
18 document developed by the Bureau of Conservation, Economics
19 and Energy Planning of the Public Utility Commission,
20 dated November 1984.

21 JUDGE MATUSCHAK: So marked.

22 (Whereupon, the document was marked
23 as OCA Exhibit No. 50 for
24 identification.)

25 BY MR. WERSAN:

Q Are you familiar with this document, Mr. Hoch?

j5

1 A. Yes.

2 Q. And you remember me asking you questions about
3 it in the Limerick 2 investigation?

4 A. I don't remember the precise questions, but I
5 know we talked about it.

6 Q. Am I correct that if we refer to the Preface of
7 the report, which follows the Table of Contents, in the
8 fourth paragraph it states: "This report explains the
9 accuracy of electric utilities' capacity and energy fore-
10 casts from 1972 through 1983"?

11 A. Yes.

12 Q. And it presents that in a number of ways; and
13 we can see, for example, on page 4 and 5, what the Bureau
14 of CEEP calls a peak load forecast accuracy comparison; is
15 that correct?

16 A. Yes.

17 Q. If we look at the discussion of the peak load
18 forecast accuracy comparison being made, am I correct that
19 at the end of the third paragraph the Bureau of CEEP cited
20 Philadelphia Electric as an example and stated, in refer-
21 encing the table on the next page, that "the point 'X' on
22 the line marked 'PECo' indicates that the average deviation
23 of Philadelphia Electric Company's 5-year forecasts is
24 about 31 percent of the actual peak loads"? Is that correct?

25 A. Yes.

j6

1 Q And we can see, if we look at that table, that
2 Philadelphia Electric is the line, the solid line to the
3 left, which is, at least for the first nine years of that
4 chart, the highest absolute average deviation from actual
5 for any of the Pennsylvania electric utilities.

6 A Yes, it is.

7 Q If we could turn to pages 6 and 7, the Bureau
8 report there discusses the energy demand forecast accuracy
9 as compared to the peak load forecast accuracy, and again
10 cites Philadelphia Electric as an example at the end of the
11 third paragraph, stating once again, "the point 'X' on the
12 line marked 'PECo,'" on the chart on page 7, "indicates that
13 the average deviation of Philadelphia Electric Company's
14 5-year forecasts is about 23 percent of the actual energy
15 demands;" is that correct?

16 A Yes.

17 Q And, of course, they are referring to the 5-year
18 accuracy. If we went out to the 9 and 10-year accuracy,
19 the absolute average deviation from the actual forecast
20 would be much higher for all of the companies, and for
21 Philadelphia Electric?

22 A Yes.

23 Q Once again, after year five through year ten on
24 page 7, Philadelphia Electric had the highest absolute
25 average deviation from actual of all the Pennsylvania

j7

1 electric utilities; is that correct?

2 A. That's right; yes.

3 Q. If I could refer you to page 27 of this docu-
4 ment, am I correct that this table on page 27 for Philadel-
5 phia Electric Company shows the history of the projected
6 versus actual peak load by forecast year from 1972 through
7 1983?

8 A. Yes.

9 Q. And the solid line is the actual peak load, and
10 the dotted lines are the Philadelphia Electric peak load
11 forecasts for each of those years and the progression over
12 time of how the forecasts changed?

13 A. That's correct.

14 MR. WERSAN: That's all the questions I have for
15 Mr. Hoch, Your Honor.

16 I would like to move into evidence OCA Exhibit No. 50.

17 MR. CALVERT: We have no objection, Your Honor.

18 JUDGE MATUSCHAK: OCA Exhibit No. 50 is admitted
19 into evidence.

20 (Whereupon, the document marked as
21 OCA Exhibit No. 50 was received in
22 evidence.)

23 JUDGE MATUSCHAK: Who wants to proceed?

24 MR. ETTNER: GSA has no questions for this witness,
25 Your Honor.

JUDGE MATUSCHAK: GEC?

j8

1 MS. FERKIN: Thank you, Your Honor.

2 CROSS-EXAMINATION

3 BY MS. FERKIN:

4 Q Mr. Hoch, good morning.

5 A Good morning.

6 Q Mr. Hoch, on page 7 of your testimony you state
7 that in the current period the PECO energy forecast has
8 centered around a one percent growth rate in line with
9 recent experience.

10 A Yes, it has.

11 Q And you mention that that growth rate appears to
12 be conservative.

13 A Yes.

14 Q Would you agree, Mr. Hoch, that conservation by
15 PECO customers would have an effect on that growth rate?

16 A Yes, it will. That's in the forecast; yes.

17 Q Mr. Hoch, am I correct that PECO has a number of
18 conservation programs targeted to residential customers?

19 A Yes.

20 Q Can you tell me, Mr. Hoch, whether PECO has any
21 conservation programs directed towards industrial or
22 commercial customers?

23 MR. CALVERT: Your Honor, I would object to this
24 line of questioning at this point. Mr. Hoch's testimony
25 relates to describing the way that the historic forecasts

j9

1 were developed from the '70s up through the early-'80s. I
2 believe Ms. Ferkin's line of cross-examination is getting
3 into the present forecast, as I understand it, and what is
4 projected for the future, which is not the import of
5 Mr. Hoch's testimony. So I believe the cross-examination
6 is outside the scope of his direct.

7 MS. FERKIN: I have focused specifically on the
8 reference that I made to his testimony, because he ex-
9 presses there an opinion about the forecast in the current
10 period, that it appears to be conservative; and I am
11 simply trying to explore the basis for the conservatism
12 expressed at page 7 in his testimony.

13 JUDGE MATUSCHAK: What is it you want to know,
14 Ms. Ferkin?

15 MS. FERKIN: The question I had, sir, related to
16 conservation as it impacts upon their projections for the
17 one percent growth rate and the conservatism of that growth
18 rate; and I asked Mr. Hoch specifically about conservation
19 in the industrial and commercial sector, whether PECO has
20 any programs directed toward those customer classes.

21 JUDGE MATUSCHAK: We will overrule the objection.

22 MS. FERKIN: Thank you, Your Honor.

23 BY MS. FERKIN:

24 Q Do you recall the question, Mr. Hoch?

25 A Yes; I have an answer to that. Depending, I

j10

1 guess, on what you mean by "programs" -- stop me if my in-
2 terpretation is different than yours, or my definition --
3 we have what I think are a fair number of programs directed
4 to industrial/commercial customers. Now, they are, of
5 course, listed in the annual report that we file with the
6 Public Utility Commission every year, and we did file them
7 for '84, covering '84 and '85 projections.

8 Some of the things that I would define as programs:
9 we have a series of meetings with these customers, we call
10 them TEAM meetings -- the TEAM being an acronym for The
11 Energy Awareness Managers -- where we bring energy managers,
12 plan engineers and so forth together at breakfast meetings
13 to discuss case histories and interchange ideas on conser-
14 vation. That is a regular thing in each of our divisions.

15 We have an annual seminar which we invite customers
16 to, and we usually get about 300, or perhaps a few more than
17 that, industrial customers who come to that. We have
18 exhibits there of energy conservation equipment, things of
19 that nature. I would call that a program. I don't know,
20 whether that suits your idea of a program or not.

21 We have a lot of mailings to those customers. We
22 provide free subscriptions to "Energy User News" to numbers
23 of them.

24 The main thing we do, of course, we have a trained
25 staff of field representatives, each of whom has taken the

j11

1 Energy Management Action course for training, and they, of
 2 course, in their rounds meeting with each of these customers
 3 individually, go into any problems they have in conserva-
 4 tion, and recommend higher efficiency lighting systems and
 5 things of that nature on a direct basis.

6 Now, as far as a formal audit is concerned, that,
 7 of course, is just getting underway with the CACS, the
 8 Commercial and Apartment Conservation Service. The PUC
 9 has, I understand, approved our format for that incentive
 10 plan, so that will be starting shortly.

11 We have been doing a lot of these kinds of audits
 12 informally for these kinds of customers too.

13 So, basically, that is the guts of the program we
 14 have for commercial and industrial customers.

15 Q Do I understand, Mr. Hoch, that Philadelphia
 16 Electric does not have a rebate program designed for
 17 commercial and industrial customers who engage in
 18 conservation?

19 A That's right; we do not have a rebate program.

20 Q Are you aware, Mr. Hoch, that other utilities
 21 have such a rebate program?

22 A Some do; some don't.

23 Q Am I also correct, Mr. Hoch, that Philadelphia
 24 Electric does not have specific data on end uses of elec-
 25 tricity of its commercial and industrial customers?

1 A. We have some data like that, particularly of
2 commercial customers. We would have it individually on
3 industrial customers, because a person is assigned to each
4 one of those customers. But we have not added it all to-
5 gether so we could tell you how much is exactly lighting
6 and that sort of thing.

7 Q. Is it fair to say that to date Philadelphia
8 Electric has not made any estimates of market penetration
9 of conservation opportunities for commercial or industrial
10 customers?

11 A. No, I don't think that is fair to say. We, in
12 our forecast, have attempted to determine what conserva-
13 tion effort has been performed by particularly commercial
14 customers, where we have said about 15 percent has happened.
15 We have talked to a lot of customers to find out what they
16 have done; and our conclusion is that about a 15 percent
17 reduction has been accomplished by commercial customers.

18 We don't have a hard number for industrial customers,
19 but working with particularly the larger ones, we know that
20 most of them have done at least all the quick-fix kinds of
21 things and are now looking at the capital-intensive things.

22 MS. FERKIN: Thank you, Mr. Hoch. I have no further
23 questions.

24 MR. MORRIS: No questions from SEPTA and AMTRAK.

25 MR. KLEPPINGER: No questions.

j13

1 JUDGE MATUSCHAK: Is there other cross-examination
2 of this witness?

3 (No response.)

4 JUDGE MATUSCHAK: Any redirect?

5 MR. CALVERT: Yes, Your Honor.

6 REDIRECT EXAMINATION

7 BY MR. CALVERT:

8 Q Mr. Hoch, would you pick up OCA Exhibit 50 for
9 a second, please, and turn to the page that is hand-written
10 there at the top, marked "1."

11 A I have it.

12 Q With respect to the last paragraph, could you
13 read that, please?

14 A Should I read it aloud?

15 Q Please.

16 A "Unpredicted changes to several of these factors
17 can cause forecasts to deviate significantly from eventual
18 sales experience. For example, the recent recession, the
19 stagnation of population growth in Pennsylvania, and wide-
20 spread conservation practices spurred by the Arab Oil Em-
21 bargo could not have been foreseen when current utility
22 construction projects were in the planning stage. These
23 compound fluctuations in the principal factors are primarily
24 responsible for the significant forecasting errors pre-
25 sented in this analysis."

j14

1 Q Does that statement comport with the view that
2 you have expressed in your testimony?

3 A I believe it does.

4 MR. CALVERT: That's all I have, Your Honor.

5 JUDGE MATUSCHAK: Is there anything further?

6 (No response.)

7 JUDGE MATUSCHAK: Thank you.

8 (Witness excused.)

9 MR. CALVERT: We have previously distributed to
10 Your Honor, the court reporter and all parties the direct
11 testimony of Louis A. Guth.

12 We would ask at this time that it be marked as PECO
13 Statement No. 12 for identification.

14 JUDGE MATUSCHAK: It may be so marked.

15 (Whereupon, the document was marked
16 as PECO Statement No. 12 for
identification.)

17 Whereupon,

18 LOUIS A. GUTH

19 having been duly sworn, testified as follows:

20 DIRECT EXAMINATION

21 BY MR. CALVERT:

22 Q Please state your name for the record.

23 A My name is Louis A. Guth.

24 Q Could you give us your business position and
25 business address, please?

j15

1 A. I am Senior Vice-President with National
2 Economic Research Associates, and my business address is
3 123 Main Street, White Plains, New York.

4 Q. Mr. Guth, do you have before you a document of
5 some 20 pages entitled "Direct Testimony of Louis A. Guth,
6 PECO Statement No. 12"?

7 A. Yes, I do.

8 Q. Is this document your direct testimony in this
9 case?

10 A. Yes, it is.

11 Q. Was it prepared by you or under your direction?

12 A. Yes, it was.

13 Q. Are there any corrections that you wish to make
14 to your testimony at this time?

15 A. I believe there is a prepared sheet of errata.

16 MR. CALVERT: Which we have passed out this morning,
17 Your Honor. I believe Your Honor has a copy.

18 BY MR. CALVERT:

19 Q. Other than that errata, do you have any other
20 changes?

21 A. No, I do not, except that the cover page to the
22 prepared testimony incorrectly identifies the topic matter
23 covered in the testimony.

24 Q. Where in your testimony would the proper
25 description of the topic be found?

j16

1 A. On page 3, at line 22.

2 Q. If I were to ask you the questions set forth in
3 your direct testimony, would your answers be as they
4 appear therein, subject to the corrections you have listed,
5 and would those answers be true and correct at this time?

6 A. Yes, they would.

7 Q. As part of your direct testimony, did you submit
8 any exhibits?

9 A. Yes, I have.

10 Q. Attached to the back of your testimony there are
11 Exhibits LAG-1 through LAG-14; are those your exhibits?

12 A. That is correct.

13 Q. Were those prepared by you or under your
14 direction?

15 A. Yes, they were.

16 MR. CALVERT: Your Honor, at this time I would move
17 that the direct testimony of Mr. Guth, as corrected, be ad-
18 mitted as part of the record of this proceeding identified
19 as PECO Statement No. 12, and that the exhibits be admitted
20 as part of the record and identified as LAG-1 through
21 LAG-14, subject to any timely motion to strike.

22 JUDGE MATUSCHAK: Subject to those conditions the
23 motion is granted.

24 (Whereupon, the document marked as
25 PECO Statement No. 12, with
attached Exhibits LAG-1 through
LAG-14, was received in evidence.)

j17

1 MR. CALVERT: Mr. Guth is available for cross-
2 examination.

3 JUDGE MATUSCHAK: Staff?

4 MS. SMITH: Staff has no cross of Mr. Guth.

5 JUDGE MATUSCHAK: Consumer Advocate?

6 MR. WERSAN: Thank you, Your Honor.

7 CROSS-EXAMINATION

8 BY MR. WERSAN:

9 Q Mr. Guth, my name is David Wersan. I am with
10 the Office of Consumer Advocate.

11 I would like to start off by referring you to page
12 3, line 22, of your testimony where you state the purpose.

13 I take it that your purpose is that the company has
14 asked you to review and comment on the reasonableness of
15 the company's forecasts from 1973 to date?

16 A The forecasts and methodologies; yes.

17 Q In doing that, I would note, on page 4, lines 17
18 to 19, that you state, in order to evaluate the reasonable-
19 ness of the forecasts, you compared what PECO was saying
20 to what other generally available forecasts were saying in
21 the time frame that we're covering.

22 A That was one of the matters which I considered,
23 yes, one of several.

24 Q On page 5, lines 9 to 11, you state, "the com-
25 pany's forecasts of the late 1970s have been at least as

j18

1 accurate as the rest of the industry." Is that your
2 statement?

3 A. That's my statement; yes.

4 Q. Then at the bottom of page 5, around lines 25
5 to 26, you state that even though PECO's forecasts may have
6 been wrong, they were wrong for the right reasons; is that
7 what you say there?

8 A. In particular, I guess the last phrase is a
9 quote; yes. That, of course, in the context of that state-
10 ment, is not expressed as a conclusion, but rather a way
11 of phrasing what I think is the proper question to be
12 addressed.

13 Q. If we go to page 10, at lines 5 to 10, you were
14 discussing some of the forecasts that you looked at in
15 that time period, and you state, "These forecasts by no
16 means indicate that there were no other forecasts at much
17 lower growth rates. They do mean, however, that the judg-
18 ments on load growth expressed by PECO during this time
19 period were consistent with the judgments of most other
20 informed companies and agencies, given the information then
21 available;" is that correct?

22 A. That's correct.

23 MR. WERSAN: Your Honor, at this time I would like
24 to mark for identification OCA Exhibit 51, which is
25 Mr. Guth's response to Interrogatory IR-OCA-2-67.

j19

1 JUDGE MATUSCHAK: Very well; it will be so marked.

2 (Whereupon, the document was marked
3 as OCA Exhibit No. 51 for
4 identification.)

5 BY MR. WERSAN:

6 Q Are you familiar with this answer, Mr. Guth?

7 A Yes, I am.

8 Q This interrogatory goes to the -- at least was
9 developed from the sentences I just read to you, and you
10 provide three examples of forecasts that while you didn't
11 refer to them specifically in your testimony, you were
12 aware of that predicted annual growth rates of less than
13 5 percent; is that right?

14 A That's correct. I think one of them is a speci-
15 fic reference to a Philadelphia Electric Company System
16 Forecast, so the orders of magnitude are different, but
17 generally that's right.

18 Q If we could refer you to the third bullet, I
19 guess, listed there, it states, "Philadelphia Electric
20 Company System Forecast, Volume I: The State Base Case
21 Forecast," and "This study forecasted average annual growth
22 rates for the PECO Service area from 1977 to 2000 of 1.1
23 percent for the base case, 1.7 percent for the high case,
24 and 0.4 percent for the low case;" is that correct?

25 A Yes.

Q Do you know when this forecast that you cite

j20

1 here was prepared?

2 A. My understanding is that it was prepared in the
3 late-'70s. I can't give you a precise date.

4 Q. Do you know whether in fact the forecast you are
5 referring to here was presented in a Philadelphia Electric
6 rate case by the Office of Consumer Advocate?

7 A. I know that a forecast prepared by one or
8 several of these authors was introduced in a Philadelphia
9 Electric Company case before this Commission. I don't
10 know whether it was particularly this one, but it would
11 have been something very similar.

12 Q. Let me put it this way: would you accept sub-
13 ject to check -- and I'm sure that the records are publicly
14 available -- that the OCA presented load forecasts in both
15 the company's base rate case at R.I.D. 438 and again in its
16 base rate case at R-79060865, which would have been the
17 1979-1980 period in the last case? Would you accept that?

18 A. I believe that is right. I became aware of them
19 roughly at that time.

20 Q. Would you also agree that the forecast you are
21 referring to specifically in the third bullet on OCA
22 Exhibit 51 was forecasting a peak load base case for Phila-
23 delphia Electric in 1985 of 6,120 megawatts?

24 A. I don't know that.

25 Q. Would you accept that subject to check?

j21

1 A. It would be difficult for me to accept it or not
2 accept it. I simply have no basis for --

3 Q. You cited the forecast, Mr. Guth; I assumed you
4 had it.

5 A. I understand. I do have it. I don't recall
6 what the number is, so I have no basis for accepting it or
7 not accepting it.

8 It doesn't strike me as unreasonable, but I really
9 have no basis one way or the other.

10 Q. Assuming that that number is correct, for the
11 moment, of 6,120, are you familiar with what Philadelphia
12 Electric's actual peak load was in 1985?

13 A. The number that comes to mind is their estimate
14 of a weather-normalized peak, and it was 6,139, I believe.

15 Q. Correct. And their actual peak, would you
16 accept, was 6,000-and --

17 MR. CALVERT: 6,034.

18 BY MR. WERSAN:

19 Q. 6,034?

20 A. I'll accept that.

21 Q. If I could refer you to Table LAG-2, page 3,
22 does that show what Philadelphia Electric was forecasting
23 in 1978 for 1985, in the left-hand column?

24 (Witness perusing documents.)

25 A. Yes, it does.

j22

1 Q Am I correct that in Philadelphia Electric's
2 1978 forecast for the year 1985, the peak load forecast
3 was for 6,600 megawatts?

4 A That's right; for the forecast dated December
5 1978.

6 Q Now, I mentioned that there were two load fore-
7 casts presented to the Commission by the Office of Consumer
8 Advocate.

9 MR. WERSAN: Your Honor, at this time I would like
10 to mark for identification OCA Exhibit 52, which is an
11 excerpt from supplementary testimony presented by the
12 Consumer Advocate's Office in May of 1978.

13 This exhibit consists of a cover page, the first
14 page and a table presenting the forecast for peak demand
15 as developed by the Consumer Advocate in that case.

16 JUDGE MATUSCHAK: It can be so marked.

17 (Whereupon, the document was marked
18 as OCA Exhibit No. 52 for
identification.)

19 BY MR. WERSAN:

20 Q If I could refer you to the table attached to
21 that exhibit, Mr. Guth, and to the line for the year 1985,
22 am I correct that that shows that in that case PECO's
23 initial forecast was 8,400 megawatts, and then it was re-
24 vised in the base case to 7,150, and in the same time
25 period the OCA was presenting, under the "Base" column, a

j23

1 forecast for 1985 of 6,462 megawatts?

2 A. Yes; that's what it shows.

3 MR. WERSAN: That's all the cross I have for
4 Mr. Guth.

5 I would like to move into evidence OCA Exhibits 51
6 and 52.

7 MR. CALVERT: No objection.

8 JUDGE MATUSCHAK: OCA Exhibits 51 and 52 are
9 admitted.

10 (Whereupon, the documents marked as
11 OCA Exhibits Nos. 51 and 52 were
12 received in evidence.)

13 JUDGE MATUSCHAK: Is there any further cross-
14 examination of this witness?

15 MR. ETTNER: No questions, Your Honor.

16 MS. FERKIN: No questions.

17 MR. MORRIS: No questions.

18 MR. KLEPPINGER: Just briefly, Your Honor.

19 CROSS-EXAMINATION

20 BY MR. KLEPPINGER:

21 Q. Good morning, Mr. Guth. My name is David
22 Kleppinger. I represent the Philadelphia Area Industrial
23 Energy Users Group.

24 Quickly, at page 3 of your testimony, at lines 22
25 through 25, you indicate that you "review and comment on
the reasonableness of PECO's sales and peak load forecasting

j24

1 methodologies and resulting forecasts."

2 Would it be safe to say that the major thrust of
3 your testimony as you have presented it relates to the re-
4 sults of those forecasts, as opposed to any detailed review
5 within your testimony of the methodologies themselves?

6 A. I think that is fair to say as a general
7 description; and I have acquainted myself with the method-
8 ologies. The material that is presented in terms of the
9 exhibits, of course, is quantitative material showing the
10 results.

11 Q. Did you specifically examine PECO's weatheriza-
12 tion techniques in calculating their peak load forecast?

13 A. Yes, I have.

14 Q. Did you specifically review their use of the
15 standard demand factor and how they applied that to their
16 peak forecast?

17 A. Yes, I have reviewed that.

18 Q. But you do not comment on either of those
19 factors specifically in this testimony; is that true?

20 A. That's correct.

21 MR. KLEPPINGER: Thank you.

22 I have no further questions, Your Honor.

23 JUDGE MATUSCHAK: Any redirect?

24 MR. CALVERT: One moment, Your Honor.

25 (Pause.)

j25

1 MR. CALVERT: No, Your Honor, no redirect.

2 JUDGE MATUSCHAK: Thank you; you are excused.

3 (Witness excused.)

4 MR. CALVERT: Your Honor, at this time if we could
5 take a very brief recess, the other witnesses are back at
6 the office, thinking that this examination would take some-
7 what longer than it did, and, therefore, we will have them
8 come over; but it might take five or ten minutes, if that
9 would be all right.

10 JUDGE MATUSCHAK: We'll take a --

11 MS. CHESTNUT: Your Honor, I have a few questions
12 for Mr. Hill in connection with an interrogatory response
13 we received Monday. Perhaps we could do that while we are
14 waiting for these witnesses to arrive.

15 JUDGE MATUSCHAK: Very well.

16 The witness has been previously sworn. You may
17 proceed.

18 Whereupon,

19 THOMAS P. HILL, JR.

20 having previously been duly sworn, testified further as
21 follows:

22 CROSS-EXAMINATION

23 BY MS. CHESTNUT:

24 Q Good morning, Mr. Hill.

25 A Good morning, Ms. Chestnut.

j26

1 Q Mr. Hill, do you have with you the company's
2 response to IR-STAFF-LIM-11?

3 A Yes, I do.

4 Q Mr. Hill, is it correct that this interrogatory
5 response goes to a credit that was received from Bechtel
6 Corporation in the amount of approximately \$924,000; is
7 that correct?

8 A Yes; that's correct.

9 Q And this credit was generated by charges that
10 were improperly incurred throughout 1982; is that correct?

11 A Yes. These are the overcharges by Bechtel that
12 were discovered through the certification audit of Cooper
13 & Lybrand.

14 Q These costs were incurred in 1982, and the
15 credit was not received until August of 1983; is that
16 correct?

17 A Yes. Cooper's audit went to 1982 activities.

18 Q Was AFUDC accrued on these charges?

19 A Yes, it was.

20 Q And AFUDC was not accrued after August of 1983;
21 is that correct?

22 A I believe the accounting entries were -- a
23 credit was posted in June of 1983. I think if you refer
24 to the Bechtel invoice, you will see that the postings
25 occurred as of June, I believe June 17, 1983.

j27

1 Q So AFUDC was accrued throughout 1982, through
2 June of 1983, when the correction was made.

3 A That is correct. The \$924,201 represents direct
4 charges from Bechtel. They were posted as direct costs at
5 the time -- throughout 1982, various months; and AFUDC was
6 accrued from that point in time until June of 1983, when
7 the accounting entries were reversed, at which point AFUDC
8 would cease.

9 Q Was this AFUDC removed from the appropriate
10 account?

11 A No, it was not; I don't believe it would be
12 proper, since the company actually paid the invoices from
13 1982 until such time as the credit was received in 1983;
14 and, therefore, we had to carry that investment as our
15 cost, our capital cost, until the reversal actually
16 occurred.

17 MS. CHESTNUT: Your Honor, I move to strike the last
18 part of Mr. Hill's answer. I simply asked if AFUDC had
19 been removed from the account. I wasn't interested in
20 Mr. Hill's reasoning.

21 MR. CALVERT: Your Honor, I think it was a perfectly
22 proper response to the question, and I see no reason that
23 it should be stricken, because it was directly responsive
24 to what was asked.

25 JUDGE MATUSCHAK: I think he was entitled to express

1 the reason for his answer. We will overrule the motion.

2 MS. CHESTNUT: Your Honor, I would like to make an
3 on-the-record data request at this point.

4 JUDGE MATUSCHAK: Very well.

5 MS. CHESTNUT: I would like the company to supply
6 us with the amount of AFUDC that was accrued in relation
7 to these charges and its compounded value to date.

8 JUDGE MATUSCHAK: Can the company furnish that
9 information?

10 THE WITNESS: Yes, we will.

11 MR. CALVERT: We will, Your Honor, pursuant to the
12 procedures we have established.

13 MS. CHESTNUT: That's all the questions I have of
14 this witness.

15 JUDGE MATUSCHAK: We'll take a ten-minute recess.

16 (Recess.)

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1 JUDGE MATUSCHAK: Are you ready to proceed, Mr. Hall?

2 MR. HALL: Yes. Thank you, Your Honor. I appreciate
3 Your Honor's indulgence in waiting.

4 Your Honor, we have to present here today Mr. Roger
5 Mattson. Mr. Mattson has not previously been sworn.
6 Whereupon,

7 ROGER J. MATTSON
8 having been duly sworn, testified as follows:

9 JUDGE MATUSCHAK: You may proceed.

10 DIRECT EXAMINATION

11 BY MR. HALL:

12 Q Dr. Mattson, do you have before you a document
13 entitled in the right-hand corner "PECo Statement No. 9,
14 Direct Testimony of Roger J. Mattson"?

15 A I do.

16 Q Is this document, in fact, your prepared direct
17 testimony for use in this proceeding?

18 A Yes, it is.

19 Q Dr. Mattson, do you have any revisions to make
20 to this document at this time?

21 A I would make one revision in two places. Since
22 filing this testimony, my title at the company at which I
23 am employed has changed slightly. So on page 1 in answer
24 to the second question, it should read "I am Vice President
25 of Technical Services for IEAL.

1 A similar change could be made in the resume that is
2 attached, but I would think for the purpose of the record
3 this is sufficient to indicate that such a change needs to
4 be made.

5 That is the only correction.

6 Q. Dr. Mattson, was the prepared direct testimony and
7 tables attached thereto prepared by you or under your
8 direction and supervision?

9 A. Yes. The testimony and the attachments were so
10 prepared.

11 Q. Is the material contained in that direct
12 testimony and the attached tables true and correct to the
13 best of your knowledge and belief?

14 A. It is.

15 MR. HALL: Your Honor, I would ask that Dr. Mattson's
16 direct testimony be identified for use in this record as
17 PECO Statement No. 9.

18 JUDGE MATUSCHAK: The motion is granted.

19 (Whereupon, the document was
20 marked as PECO Statement No.
21 9 for identification.)

22 MR. HALL: Thank you, Your Honor.

23 May we go off the record?

24 JUDGE MATUSCHAK: Yes.

25 (Discussion off the record.)

1 JUDGE MATUSCHAK: On the record.

2 MR. HALL: Your Honor, at this time I would move that
3 PECO Statement No. 9 be accepted into the record.

4 JUDGE MATUSCHAK: Subject to any timely motion to
5 strike or any other timely motions that may be made that
6 would affect the statement, the motion is granted.

7 (Whereupon, the document marked
8 as PECO Statement No. 9 was
9 received in evidence.)

10 MS. CHESTNUT: Your Honor, at this time, I would like
11 to move to strike portions of Dr. Mattson's prepared direct
12 testimony.

13 Specifically, Staff moves to strike the two questions
14 and answers on pages 52 and 53.

15 JUDGE MATUSCHAK: What is the basis for your motion?

16 MS. CHESTNUT: Your Honor, I also have another two
17 sections I would like to strike for the same reason.

18 JUDGE MATUSCHAK: Let us take them in order. You
19 want to strike what now?

20 MS. CHESTNUT: Beginning on line 27 on page 52, the
21 question, "Have you reviewed Sections II and III of PECO
22 Exhibit 2," and continuing through the next page, line 9,
23 and then on page 53, the question on that page and the
24 responsive answer which continues through to page 55, line
25 19.

And then on page 59, Your Honor, I move to strike

1 lines 1 through 5, that first sentence where he gives his
2 conclusion that PECO was reasonable and prudent.

3 JUDGE MATUSCHAK: What is the basis?

4 MS. CHESTNUT: Your Honor, the basis for the motion
5 to strike is that the witness is testifying to an issue
6 not properly testified to by any witness. He is testifying
7 to the ultimate issue to be decided by this Commission in
8 this proceeding. He is giving his opinion as to the weight
9 and relevance of exhibits which is the function of the fact-
10 finder in this proceeding, and he is giving an explicit
11 opinion as to the reasonableness and prudence of PECO's
12 conduct.

13 I would like to direct Your Honor to a case which
14 Staff feels is directly on point, which is the investigation
15 into the Beaver Valley No. 1 generating station. In its
16 order entered June 10, 1983, the Commission discussed this
17 very fact. The company in that proceeding had presented a
18 witness who had been a former NRC official and was now
19 testifying as to the prudence of Duquesne's actions in
20 connection with an extended shutdown at the Beaver Valley
21 nuclear generating station.

22 In a response, the Commission at page 383 stated,
23 and I quote, "We would further point out that the cited
24 opinion testimony is not within any recognized field of
25 expertise and, therefore, is not proper opinion testimony,

1 and it also invades the province of the finder of fact by
2 addressing the ultimate issue to be decided. We, therefore,
3 concluded that the testimony had no probative value."

4 JUDGE MATUSCHAK: May I see that?

5 MS. CHESTNUT: Certainly, Your Honor.

6 (Document handed to Judge Matuschak by Counsel
7 Chestnut.)

8 (Judge Matuschak perusing document.)

9 JUDGE MATUSCHAK: Do you have anything further?

10 MS. CHESTNUT: No, Your Honor.

11 JUDGE MATUSCHAK: Is it your opinion or your
12 argument that a witness cannot testify as to the ultimate
13 issues in a matter?

14 MS. CHESTNUT: Yes, Your Honor, and it is especially
15 improper for a witness to testify to the probative weight
16 to be given an exhibit he, himself, did not prepare.

17 Dr. Mattson's testimony is very clear that he did
18 not prepare PECO Exhibit 2, but he has given his testimony
19 as to the weight it should be accorded by the Commission.

20 JUDGE MATUSCHAK: We had rendered a decision -- I
21 don't recall the case -- in which we held that as a matter
22 of fact, opinion testimony is admissible on the ultimate
23 issues. For example, on matters of rate of return, that
24 is an ultimate issue that is to be decided by the Commission,
25 but yet we do permit opinion evidence as to the proper rate

1 of return, which is an ultimate issue.

2 Do you have any response to that, Mr. Hall?

3 MR. HALL: Yes, Your Honor, I have a rather extensive
4 response.

5 Your Honor, the motion has gone to two particular
6 parts of Dr. Mattson's testimony. The first part deals
7 with the description in his testimony of his role in the
8 preparation and development of the company's Exhibit 2 and
9 the conclusions that he has drawn from that.

10 In presenting that testimony--if Your Honor will take
11 a minute to read pages 52 and 53 of the testimony--you will
12 see, Your Honor, that that testimony does not go to any
13 ultimate issue. All that Dr. Mattson is saying is that,
14 "I, as a former NRC regulator, a man who is very, very
15 familiar with NRC regulations and the matters being developed
16 by the company in PECO Exhibit 2, assisted them in the
17 process of rendering judgments and preparing that exhibit
18 material for the Commission."

19 He does not address how the matter should be used by
20 the Commission or its ultimate effect on this case.

21 So to the extent of that portion of Staff's motion,
22 it is simply factually incorrect.

23 Secondly, and as to the rest of the motion, as Your
24 Honor well knows, the ultimate fact objection is largely
25 used in jury trials in a situation where there is a concern

1 with regard to a particular expert overcoming the indepen-
2 dent judgment of a jury. It certainly has no application
3 in an administrative proceeding before a trained Administra-
4 tive Law Judge such as yourself and an expert Commission.

5 Further, again, Dr. Mattson's testimony does not
6 go to ultimate issues. He simply presents his opinion as
7 to the level and nature of the company's interaction with
8 the NRC staff and his view as the NRC's regulator who was,
9 in part, as to certain matters responsible for dealing with
10 the company as to what his view was during the period in
11 question on the facts at issue.

12 As Your Honor has pointed out, we allow opinion
13 testimony in many, many contexts similar and identical to
14 that. Rate of return testimony is only the first. Another
15 example that I would provide to Your Honor is with regard
16 to the question of the reasonableness and prudence of a
17 company's conduct with respect to, for example, generating
18 plant outages.

19 Staff, themselves, in the ECR-8 proceeding presented
20 a management consultant firm who reviewed and advised the
21 Commission of that firm's opinion as to whether the Phila-
22 delphia Electric Company's activities with respect to
23 various generating plant outages were reasonable and prudent.

24 It is a common technique. Dr. Mattson's testimony
25 is no different. Your Honor and the Commission are certainly

1 in a position to evaluate that and all other evidence as
2 to the matter.

3 Finally, I would note that absent testimony such as
4 Dr. Mattson's, I don't know how this Commission would make
5 this kind of a determination. While the Commission certainly
6 is an expert body, we are dealing here with matters involving
7 the Nuclear Regulatory Commission, Nuclear Regulatory
8 Commission proceedings. While the Commission does see that
9 in a number of contexts, it is not as expert as it is, for
10 example, in developing the cost of money where opinion
11 evidence is certainly accepted.

12 Thank you, Your Honor.

13 MS. CHESTNUT: Your Honor, if I might respond
14 briefly to Mr. Hall's points?

15 JUDGE MATUSCHAK: Yes.

16 MS. CHESTNUT: First, it is clear that Dr. Mattson
17 is reaching a legal conclusion. He explicitly uses the
18 term "reasonable and prudent." That is the exact decision
19 to be reached by the Commission in this proceeding.

20 He is not only saying that "I have looked at what
21 PECO did in that time period, and based on my experience
22 and what other utilities were required to do, it was
23 appropriate at that time," he is reaching the bottom-line
24 determination, and he says it; that PECO was reasonable and
25 prudent.

1 The fact that there is no jury here makes it even less
2 imperative for this type of testimony. We have the finder of
3 fact and the Commission both experienced in these areas.
4 They don't need a witness to tell them what the ultimate
5 conclusion is to be reached in this case. I think there is
6 sufficient expertise for Your Honor and for the Commission
7 to develop that themselves.

8 With respect to the point about this type of testimony
9 being permitted in other areas of the case, in rate of
10 return, Your Honor, the only way that testimony can be
11 presented is to use a number. There is no other way to
12 effectively discuss rate of return than to give a number.
13 That is why it is allowed.

14 Mr. Hall brought up the ECR No. 8 investigation, and
15 I would like to point out to Your Honor that almost identical
16 testimony presented by consultants brought in by PECO was
17 stricken for this reason in Phase 1 of that case.

18 MR. HALL: I would not agree with that as a factual
19 matter, Your Honor. That is not the case.

20 JUDGE MATUSCHAK: As we see it, opinion testimony is,
21 of course, not the strongest testimony, and we have held
22 previously -- and I can't remember the case -- but we have
23 held that opinion testimony even on ultimate issues is
24 permitted; as we stated, rate of return, and I believe there
25 is some other aspect of that case. I don't remember what it

1 was. But in our opinion, we believe it is a matter for the
2 Commission to determine what weight to give that opinion.

3 We will overrule the objection and deny the motion
4 to strike.

5 MR. HALL: Your Honor, Dr. Mattson is available for
6 cross-examination.

7 JUDGE MATUSCHAK: Commission Staff.

8 MS. CHESTNUT: Thank you, Your Honor.

9 CROSS-EXAMINATION

10 BY MS. CHESTNUT:

11 Q. Good morning, Dr. Mattson.

12 A. Good morning.

13 Q. My name Marcie Chestnut, and I represent the
14 Commission Trial Staff in this proceeding.

15 Now, Dr. Mattson you make a statement in your
16 prepared direct testimony at page 6 that "The main consider-
17 ation in the NRC licensing process is the assurance that the
18 operation of a nuclear power plant does not endanger the
19 public health and safety;" is that correct?

20 A. Page 6, you said?

21 Q. Yes. That is lines 12 through 17.

22 A. Yes.

23 Q. Would you agree that the primary focus of the
24 NRC is on matters related to safe operation of nuclear
25 power plants; that public safety is its prime consideration?

1 A. Yes.

2 Q. You make the statement further at page 53 that
3 the NRC is not interested in cost considerations.

4 A. At what page?

5 Q. Page 53.

6 A. Would you point to the line?

7 Q. That is line 43.

8 A. Yes.

9 Q. It is correct, Dr. Mattson, is it not, that when
10 the NRC issues requirements, it does not evaluate the impact
11 of those requirements on the rates to be charged by the
12 affected utility; is that correct?

13 A. No, I wouldn't quite say it that way. When NRC
14 issues new requirements, they do take into account the costs
15 of those new requirements, and they must know that those
16 costs are borne by someone.

17 Q. So is a cost/benefit analysis performed for each
18 regulatory requirement issued?

19 A. Today, yes. In the beginning, no. In between,
20 there was a transition from no to yes.

21 Q. How about in the period from '74 to '80?

22 A. That would have been in the transition. In
23 the period 1976, 1977 up through the present time, cost/
24 benefit analyses have been employed by NRC for new require-
25 ments.

1 Q So the NRC, when it does a cost/benefit analysis,
2 looks at the cost of compliance but does not make any
3 determination as to the justness and reasonableness of the
4 rates that would have to be charged to encompass that cost;
5 is that correct?

6 A They make a judgment about the reasonableness of
7 the costs; that is, whether the costs are justified in light
8 of the public health and safety improvement to be made.

9 They don't go to whether the costs are to be paid
10 by ratepayers or put into the setting of rates.

11 Q And that determination is not, of course,
12 binding on any state regulatory commission; is that correct?

13 A I'm not sure what determination you're talking
14 about.

15 Q The determination that a cost is associated with
16 any particular regulatory requirement.

17 A Of course, NRC does not do this cost/benefit
18 analysis -- usually does not do it on a plant-specific
19 basis. It does the cost/benefit balancing on a generic
20 basis trying to estimate the costs of a typical plant, not
21 a particular plant. That cost estimating is done to
22 satisfy NRC's legal requirements to regulate in the public
23 interest.

24 So the costs really aren't binding on NRC or anyone
25 else. They are a way to estimate effects.

1 Q And that is a factor that would go into the
2 NRC's decision, whether and how to implement the various
3 requirements?

4 A The costs are a factor?

5 Q Yes.

6 A Yes.

7 Q Now, Dr. Mattson, you reviewed portions of
8 PECO Exhibit 2 to determine that "The effects attributed by
9 PECO to NRC requirements in fact stem from NRC requirements."
10 Is that a correct summary of your review?

11 A Yes.

12 Q Did you examine the costs associated with each
13 change requirement?

14 A Do you mean those presented by PECO?

15 Q Yes.

16 A Yes.

17 Q Could you tell us how you did this analysis,
18 what study you did of these particular costs?

19 A Well, it's fairly well explained in the testimony,
20 but let me see if I can paraphrase it.

21 Q Perhaps you can direct us to where in your
22 testimony you are referring.

23 A It starts at page 52. The quotation that you
24 had in your question two questions ago begins at the bottom
25 of page 52 and continues on with the question at line 13.

1 We started with what I would call an interactive
2 process among other consultants for PECO that were helping
3 categorize the changes in cost and the drivers for those
4 changes in cost; that is, the source of the change. Then
5 we had a give and take on where the costs were actually
6 incurred, whether they were in design or whether they were
7 in analysis, whether they were in commodities, hardware,
8 procedure, training, staffing.

9 I don't mean to say that I was involved in all of
10 the details of resurrecting the cost information, but I was
11 involved with PECO and Theodore Barry people iterating on
12 what categories to put them, how to attribute them, what
13 was the proper place to describe some of these costs. Some
14 could be ascribed to several areas, some to changes that
15 were required to improve the operability of the plant, some
16 that were for regulatory purposes, and judgment was involved
17 in reaching those decisions, and I participated with the
18 company in making those judgments.

19 Q So, Dr. Mattson, I seem to get the impression
20 from your answer that you were primarily involved in
21 allocating portions of the cost overruns to the appropriate
22 categories; is that correct?

23 A I was involved in that, but I was not the prime
24 mover of those assignments. People more familiar with the
25 costs and with the backup documents did that.

1 Q And you did not develop these costs yourself?

2 A No, I did not.

3 Q In your testimony, you refer to the cost savings
4 achieved by PECO in implementing new NRC requirements, and
5 that is at page 57 of your prepared direct testimony.

6 Did you quantify these cost savings, Dr. Mattson?

7 A In a qualitative yes sense, yes, I quantified
8 them. Let me explain what I mean by that. I have some
9 familiarity to the cost to utilities of changing things later
10 rather than sooner. In this particular question and answer,
11 we're talking about intergranular stress corrosion cracking.

12 So I have some general knowledge of what it costs to
13 fix that problem once the plant has been in operation as
14 compared to what Philadelphia Electric was able to show in
15 Exhibit 2 that it actually cost them to fix this problem
16 before Limerick 1 went into operation.

17 I didn't sit down and subtract one set of numbers
18 from another set of numbers, but I was able to tell that the
19 number attributed by PECO for their solution for the problem
20 on Limerick 1 was lower than what it would have been doing
21 it the way some other utilities have done it.

22 Q So you did no independent analysis for cost
23 savings?

24 A No, I did not.

25 Q You simply took PECO's number and compared it

1 to what you know through your general knowledge of the
2 industry?

3 A. That's right. My testimony is not an independent
4 cost analysis. The cost analysis was done by others in the
5 proceeding, and you should speak to them about where the
6 cost data comes from.

7 MS. CHESTNUT: Thank you, Dr. Mattson.

8 Your Honor, that's all the questions I have.

9 JUDGE MATUSCHAK: Consumer Advocate?

10 MR. WERSAN: Yes, Your Honor.

11 CROSS-EXAMINATION

12 BY MR. WERSAN:

13 Q. Good morning, Dr. Mattson. My name is David
14 Wersan, and I am with the Office of Consumer Advocate.

15 A. Good morning.

16 Q. Am I correct, Dr. Mattson, that your testimony
17 after the initial introduction starts on page 4 with a
18 general discussion of the NRC licensing process?

19 A. Yes, it does.

20 Q. And in this section of your testimony, you
21 generally discuss how the NRC licensing process works and
22 indicated that there are two stages, the construction permit
23 stage and the operating license stage; is that correct?

24 A. Yes.

25 Q. And that discussion of the licensing process

1 goes through to page 8 of your testimony; is that correct?

2 A. Yes. That general introductory discussion ends
3 at page 8. There are further detailed explanations about
4 that process that flow throughout the rest of the testimony,
5 but the introductory ends at page 8.

6 Q. And then from page 8 of your testimony through
7 page 25, you generally discuss the official sources of NRC
8 licensing requirements; is that correct?

9 A. Yes.

10 Q. And the sources you cite, for example, are the
11 Code of Federal Regulations, the Standard Review Plan and
12 Regulatory Guides, as you have termed them on page 9; is
13 that correct?

14 A. Yes. Those are the official sources that we
15 talk about on page 9 as contrasted to some unofficial
16 sources of requirements which are explained in the later
17 pages.

18 Q. That's right. I will be getting to them. You
19 don't have to keep referring forward.

20 The unofficial sources you cite include -- also, I
21 guess, on page 9 around line 40, there are the Generic
22 Letters, there are Branch Technical Positions, there are The
23 Office of Inspection and Enforcement Bulletins and Circulars,
24 there are Industry Standards, and there is something that
25 you also call NUREG Reports; is that correct?

1 A. Yes.

2 Q. And then from page 8 or 9 through page 25, you
3 generally discuss the differences between official and
4 unofficial sources of licensing requirements and their
5 various uses in the licensing process.

6 A. That is correct.

7 Q. I take it that these types of official and
8 unofficial licensing requirements that you discuss were
9 generally being used by the NRC staff in its review of all
10 nuclear plants being built throughout the 1970s and 1980s?

11 A. Well, that misses the point slightly. The
12 primary reason for distinguishing between official and
13 unofficial -- and I had hoped that this had come through
14 in this testimony -- was that the unofficial sources were
15 subject to some manipulation plant by plant depending upon
16 the nature of the plant and the nature of the reviewer, and
17 that there was some deficiency in the regulatory process
18 because of their susceptibility to that manipulation.

19 Q. I understand; but that manipulation that you
20 discuss was possible and could have taken place and, in fact,
21 I assume did take place throughout the review process by the
22 NRC of most, if not all, nuclear plants being constructed?

23 A. No. We make the point later in the testimony
24 that depending upon the amount of intervention, the nature
25 of the design, the uniqueness of the design, and other factors,

1 these unofficial, let me call them, more malleable require-
2 ments are applied differently to some plants.

3 Q Yes, I understand that; but you are still, I
4 guess, speaking in the plural. A number of plants around
5 the country, I assume, had unofficial sources of requirements
6 applied to them by the NRC staff in a stricter fashion as
7 compared to others that I guess you are contending may have
8 been in a less rigid fashion.

9 A I would say the number is not large. You can
10 probably list the familiar examples rather quickly. Plants
11 like Limerick or Diablo Canyon that have a high degree of
12 intervention had a very high degree of specificity -- that's
13 the best word I can think of -- or rigidity in the applica-
14 tion of these unofficial requirements, because NRC staff
15 witnesses in those proceedings would be preparing themselves
16 or girding themselves to do the best defense they could of
17 the review they had performed. So they would stick as close
18 as possible to the written-down requirements allowing as
19 little flexibility or room for alternatives as they could
20 get away with in the licensing process.

21 Q Moving in your testimony from the discussion
22 of official and unofficial sources of requirements, then on
23 pages 31 to 43 you discuss the timing of the imposition of
24 NRC licensing requirements; is that correct?

25 A Yes. You skipped the section from 25 to 31 on

1 methods of imposition, and then 31 on begins with the timing;
2 that's correct.

3 Q You're right. I skipped on my pages here. Let
4 me move back. From 25 to 31, you discuss the methods by
5 which these requirements were imposed by the NRC?

6 A Yes.

7 Q And then you go on to the timing of the imposi-
8 tion on pages 31 to 43; is that correct?

9 A Yes.

10 Q Would it be fair to say that if the NRC adopted
11 a new rule or issued a new regulation, that that regulation
12 would apply to all nuclear plants or all similar plants,
13 such as to all BWRs or all PWRs then under construction?

14 A As a general matter, that is true. There are
15 instances that one can point to where specific plants were
16 grandfathered under new rules, but that's not the ordinary
17 way of doing business.

18 Q Am I correct that much of your testimony from
19 pages 31 to 43 tries to explain why new rules were adopted
20 by the NRC and then discusses attempts to control such rule
21 changes by the NRC throughout the construction period of
22 1974 to 1984?

23 A There is a problem I have with your question.
24 You've begun to use the word "rule," and I use the word
25 "rule" to mean the regulations of NRC, 10 CFR; whereas, the

1 thrust of this testimony is more to the less formal or the
2 informal requirements of NRC which are not rules.

3 Q Okay; that's fine.

4 A I'm not sure that answers your question in that
5 context. Do you want to rephrase your question?

6 Q I think you led into the answer, answered it,
7 and then your additional explanation made clear what you
8 wanted to say.

9 Am I correct that it is only starting at page 43
10 where you more specifically discuss the effect of new
11 and revised licensing requirements on Limerick, more
12 specifically, and actually ask the question to yourself,
13 "What effect did the changes in licensing requirements
14 have specifically on Limerick," and you start that question
15 on page 46; is that correct?

16 A I don't think that's a fair way to characterize
17 it. At page 43 we start to get very specific about the
18 effects on Limerick, but the implication should have been
19 through the earlier part of the testimony that that was a
20 licensing process to which Limerick was being subjected; and
21 all of the things good, bad or indifferent about that
22 licensing process were affecting the Limerick CP, construction
23 and OL programs.

24 Q I understand that; but prior to pages 43 to 46,
25 you are talking about how the NRC does things, how it goes

1 through the licensing process, and finally in the latter
2 portion of your testimony -- in effect, the last 13 pages --
3 you say, "Now, let's talk about Limerick more specifically
4 than what I have talked about in the previous 43 pages, and
5 we'll see how it affects that"?

6 A. Yes.

7 Q. And actually, even in that latter portion of
8 your testimony -- I guess, for example, at page 47 -- you
9 discuss the Regulatory Guide 1.97, which was first issued
10 in 1975, and you talk about that on page 47 through 49.

11 Would I be correct that that Regulatory Guide you
12 discuss even in this section would apply to other plants
13 being constructed in that time frame?

14 A. Not really. Regulatory Guide 1.97 turns out to
15 be a little bit special in the case of Limerick. You
16 mentioned that it was approved first in 1975. That was true,
17 but it was not implemented anywhere for about four years.
18 Then along came the accident at Three Mile Island and a lot
19 of people said, "Whatever happened to Reg Guide 1.97? Why
20 hasn't it be implemented?"

21 There was a flurry of activity. It was backfit as
22 a requirement to plants in operation and under construction.
23 And I think you will find that Limerick is one of the few
24 plants that has gone into operation essentially in compliance
25 with Reg Guide 1.97. It is a good example of the kind of

1 thing I was saying earlier about the people without contested
2 cases not in high population areas without a PRA not having
3 to go as far to satisfy technical reviewers for the timing
4 and the detailed conformance to regulatory guidance.

5 Q So you're not saying that Reg Guide 1.97 wasn't
6 applicable to other plants; you're just saying that at
7 Limerick it was followed a little more closely in the
8 licensing process in terms of having it resolved prior to
9 the issuance of a lower power operating license?

10 A I wouldn't say a little more; I would say more.
11 But I agree with your statement.

12 Q Am I correct that in conjunction with a
13 discussion in your testimony, you have attached a Schedule
14 10 which lists a chronology of regulatory issuances affecting
15 Limerick, and that starts on page 83?

16 A Yes.

17 Q Would it be fair to state that the regulatory
18 requirements listed on Schedule 10 are generic NRC criteria?

19 A That's true.

20 Q And so, while you qualified how you think the
21 NRC may have applied criteria to Limerick, the fact that
22 they are generic criteria means that they were applicable
23 to other plants under construction at the same time frame
24 that we're talking about?

25 A Yes, but --

1 Q Dr. Mattson, I have already qualified the
2 question based on your previous discussion.

3 MR. HALL: Mr. Wersan, I think he is entitled to
4 explain and expand on his answer. Your efforts to get a
5 specific answer is stopping him, and I think it is quite
6 inappropriate.

7 THE WITNESS: The answer to your question is yes,
8 these are generic requirements. We responded to an
9 interrogatory on this same table earlier and added the
10 qualifier that there were some unique requirements of
11 Limerick that aren't shown on this schedule, one of which
12 was the PRA, another of which was higher seismic design
13 requirements than would ordinarily flow from NRC's regula-
14 tions. There are some others.

15 This was an attempt in Schedule 10 to show the
16 iteration and reiteration of original issuances, revised
17 issuances, revisions to revisions to illustrate the point
18 of having the rework of equipment already installed in the
19 plant. It was not meant to be a definitive list of all
20 requirements imposed upon Limerick. That would be many
21 pages and much different than this Schedule 10.

22 BY MR. WERSAN:

23 Q So your answer is that what you've listed in
24 Schedule 10 were generic, but there were additional things
25 that you believe were also applied to Limerick that you

haven't listed?

1 A. And that were unique to Limerick.

2 Q. Now, on page 49 of your testimony, you discuss
3 the circumstances surrounding the Limerick 1 licensing,
4 and you cite the contested nature of the operating license
5 proceeding; is that correct?

6 A. Yes.

7 Q. Am I correct that NRC operating license proceed-
8 ings are often bifurcated for decision -- let me put it this
9 way: contentions raised by intervenors are decided in
10 stages?

11 A. Do you mean like the bifurcation between the
12 environmental hearing and the safety hearing?

13 Q. Let me put it to you this way: am I correct
14 that in resolving contentions during the operating license
15 proceedings, the NRC Licensing Board Judges issue sometimes
16 a number of what are called partial initial decisions?

17 A. Yes, that is true.

18 Q. And those partial initial decisions will
19 resolve contentions that have been litigated and that the
20 Board believes are ready for resolution?

21 A. I believe that is their intent, yes.

22 Q. Would you agree with me that off-site emergency
23 planning issues were litigated on a separate schedule from
24 other on-site safety and environmental qualification issues
25

1 in the Limerick operating license proceeding?

2 A. I think it was more complicated than that. It
3 may very well be that the Hearing Board subdivided its
4 work along the lines you describe. I haven't gone back and
5 refreshed my memory. I can't verify that here.

6 I do know that on Limerick there were some special
7 circumstances, and mainly they were occasioned by the
8 probablistic risk assessment.

9 The Nuclear Regulatory Commission was very careful
10 to expose this first PRA performed in the licensing process,
11 the operating license, to contentions or cross-examination
12 or discussions in the environmental portion of the hearing,
13 not in the safety portion of the hearing; and it was done
14 there in the context of evaluating the risk of Limerick at
15 Limerick, as people came to say.

16 But the knowledge gained in the PRA fed back into
17 other areas of the review by the staff and perhaps into
18 the thinking by the Board. Not having reviewed the record
19 recently or thought about it in this context that you raise
20 emergency preparedness is associated with risk. Risk at
21 Limerick is best described by the PRA at Limerick. To what
22 extent that affected the portion of the Board's considera-
23 tions on emergency planning, I can't say without reviewing.
24 What extent it affected safety, I can't say without reviewing;
25 but it did affect those things. So there must have been some

1 linkages among those partial initial decisions and those
2 subdivided elements of the Board's consideration.

3 Q Dr. Mattson, let me show you a copy of what
4 is called "The Atomic Safety and Licensing Board Second
5 Partial Initial Decision in the Limerick Docket," and it
6 can be found in Volume 20, Book 1 of 2, starting at page 1,
7 Opinion and Decisions, July 1, 1984 to August 1, 1984.

8 (Document handed to witness.)

9 Q Would you be familiar with this kind of a
10 decision by an Atomic Safety and Licensing Board?

11 (Witness perusing document.)

12 A Yes.

13 Q And that Second Partial Initial Decision is
14 dated August 29, 1984; is that correct?

15 A Yes, it is.

16 Q And in the Second Partial Initial Decision, the
17 Atomic Safety and Licensing Board for Limerick resolved
18 in favor of the applicant all controverted issues which
19 were prerequisite to authorizing a low power operating
20 license; is that correct?

21 MR. HALL: Your Honor, I am going to object to that
22 at this time unless Dr. Mattson has the opportunity to
23 review this decision and perhaps to review any other material
24 or matters that he thinks needs to be reviewed to properly
25 understand it.

1 Dr. Mattson is not a lawyer. I don't know whether
2 or not he was a part of this particular proceeding or has
3 had occasion to review this previously.

4 What that decision says or does not within the terms
5 of the NRC's process is really a legal question and may
6 require a researched answer which I don't have.

7 MR. WERSAN: Your Honor, I believe that Dr. Mattson's
8 testimony addresses the question of whether or not the
9 operating license proceeding had some effect on Limerick
10 construction or potentially had an effect on the Limerick
11 construction time frame.

12 I would note that the first paragraph of the order
13 states exactly what I just said; that it resolves in favor
14 of the applicant all issues prerequisite to issuance of
15 a low power license.

16 THE WITNESS: No, that's not what it says.

17 JUDGE MATUSCHAK: We will give the Doctor a few
18 minutes to review that.

19 MR. WERSAN: He is giving you time to look at the
20 whole thing.

21 THE WITNESS: Let me try. The first sentence of
22 this partial initial decision reads as follows: "The
23 Licensing Board issues a second partial initial decision
24 finding in favor of the applicant on all controverted issues
25 prerequisite to authorizing a low power operating license."

1 Now, I take the word "controverted" to mean the
2 issues that were contested before the Board. This doesn't
3 say anything about whether it is ready for a low power
4 license. I can't tell from this sentence if the plant is
5 finished.

6 BY MR. WERSAN:

7 Q I understand that. I was going to get to that.
8 First I wanted to resolve, as I understood it, the issue
9 of contentions. I understand the word "contention" is a
10 word of art before the NRC involving specific issues raised
11 by intervenors before the Atomic Safety and Licensing Board.

12 MR. HALL: Your Honor, I am going to object unless
13 Mr. Wersan makes an offer of proof here as to where he is
14 going with this line of cross-examination.

15 We have presented Dr. Mattson to explain the NRC
16 technical safety regulatory process, the NRC technical
17 regulations and plants being required to comply with those.
18 We have not presented Dr. Mattson as a legal expert on the
19 NRC's hearing process and how that process is pursued and
20 when it has gotten to a point where a low power license
21 can be provided.

22 I don't know what he knows or does not know about
23 that. It is a legal question, not a technical matter.
24 Dr. Mattson at the NRC was the head of a technical bureau,
25 not in the legal staff of that Commission.

1 MR. WERSAN: Your Honor, if I may just respond a
2 little bit further. In Dr. Mattson's testimony at pages
3 49 and 50, he states that "The Limerick OL proceeding was
4 highly contested. In my experience with licensing, I have
5 observed that an OL case like Limerick with many intervening
6 parties and many contentions, each alleging that Limerick
7 fails to comply with NRC requirements, combined with the
8 likelihood of many weeks of hearings extending over several
9 years will cause the licensing process to become quite
10 prescriptive."

11 I would like to at least establish through Dr. Mattson,
12 since he is discussing NRC licensing, when the second partial
13 initial decision was resolved which, therefore, allowed --
14 and I believe he will be able to verify this -- that the
15 Director of Nuclear Reactor Regulation was able to then
16 proceed and determine when to issue permission to go to
17 fuel load and permission to go to low power.

18 MR. HALL: Your Honor, I believe that the question
19 of when the Director of NRR would be permitted to issue
20 such a ruling would be a legal question under the laws
21 applicable to the Nuclear Regulatory Commission and its
22 standards. It would not be a technical issue which would
23 be in Dr. Mattson's responsibilities for the NRC.

24 I also must confess that I do not see the connection
25 between the passage in Dr. Mattson's testimony which

1 Mr. Wersan has quoted and the argument he is now trying
2 to make.

3 Dr. Mattson's testimony simply says that, "I, as
4 a staff man, know that when I go through a regulatory
5 proceeding where I am going to be faced with strong
6 intervention and detailed and prescriptive hearing processes,
7 that I am much more careful and I am much more prescriptive
8 on the utility." That says nothing with regard to the
9 legal ramifications of that hearing process which Mr. Wersan
10 is now seeking to pursue.

11 MR. WERSAN: Your Honor, I don't believe Mr. Hall
12 can have it both ways. If Dr. Mattson is going to be
13 permitted to discuss and describe the NRC licensing process,
14 then he must be able to answer, as the only witness presented
15 on this topic, at least the stages that are required to get
16 to an operating license.

17 JUDGE MATUSCHAK: We will overrule the objection.

18 BY MR. WERSAN:

19 Q Let me try to phrase this within your area of
20 expertise, Dr. Mattson. Are you familiar with what must
21 be issued in order for a reactor to receive its operating
22 license for low power and to go to fuel load?

23 A I am familiar with the substantive, technical
24 findings that must be reached, yes.

25 Q And who must reach those findings?

1 A. The Director of NRR.

2 Q. And then what does the Director of NRR do?

3 A. On his own authority, he may issue the operating
4 license for the facility restricted to low power operation.

5 Q. Within your knowledge of NRC practice, must
6 there first be a resolution of certain safety contentions
7 that are raised before the Safety and Licensing Board before
8 the Director of NRR can issue that directive?

9 A. Yes. In a contested proceeding, one of the
10 prerequisites -- and there are others -- is that the
11 contentions before the Board be satisfied to the Board's
12 satisfaction before the Director can issue a low power
13 license.

14 Q. Do you recall Philadelphia Electric's projected
15 fuel load date for the Limerick 1 station since the
16 period of --

17 A. I'm sorry. I'm not listening to your question,
18 because my last answer must not be right.

19 There is the possibility that a Board's decision
20 could be appealed by the staff to an Appeal Board or to
21 the Commission and be overturned by a body other than the
22 Board. So the Board's agreement is not a prerequisite. It
23 is customary, but not a prerequisite.

24 MR. HALL: Your Honor, I would ask that all of that
25 testimony be stricken. I don't see the connection of that

to Dr. Mattson's testimony.

1
2 Mr. Wersan appears now to have tried to establish
3 a fact which is simply outside the testimony and moving on
4 to another area. I don't see this as a prerequisite to some
5 line of cross-examination directed at the testimony.

6 MR. WERSAN: Your Honor, maybe I read Dr. Mattson's
7 testimony wrong, but I thought he was discussing the effect
8 of the NRC licensing process on the Limerick station on its
9 costs and presumably or implicitly on the stages that must
10 be gone through and the length of time that takes to happen.

11 If he is not testifying to those issues, then I will
12 change my subject.

13 JUDGE MATUSCHAK: We will deny the motion.

14 MR. WERSAN: Thank you, Your Honor.

15 BY MR. WERSAN:

16 Q Dr. Mattson, do you recall the schedule for
17 fuel loads that Philadelphia Electric was projecting for
18 the Limerick 1 station since at least the period 1981?

19 A I remember several dates, and if I said I
20 remember one, I will probably remember the wrong one; so no,
21 I do not.

22 Q Would you accept, subject to check, that the
23 company -- and I guess I can refer to Mr. Boyer later to
24 verify this -- the company was using an October, 1984
25 construction completion and fuel load date since at least

1981? Just accept that or I can refer you to his testimony.

1 MR. HALL: Why don't we accept it as a hypothetical.

2 THE WITNESS: I would have to do that. I don't
3 remember that date.

4 BY MR. WERSAN:

5 Q That's fine. We can establish that with
6 Mr. Boyer.

7 Do you know when the Director of Nuclear Reactor
8 Regulation issued the operating license with low power
9 restrictions for the Limerick 1 facility?

10 A I don't recall.

11 Q Would you accept that it was either in October
12 or November of 1984?

13 MR. HALL: Your Honor, I am going to object again
14 unless Mr. Wersan for this line of cross-examination can
15 provide us a specific spot in Dr. Mattson's testimony where
16 he is cross-examining. What specific concept or idea,
17 specific position that Dr. Mattson has taken is he cross-
18 examining on?

19 MR. WERSAN: I am cross-examining on the issue of
20 whether or not NRC licensing contentions or staff concerns
21 on safety impeded or delayed construction completion and
22 fuel loading at the Limerick 1 station.

23 MR. HALL: And could I ask, Mr. Wersan: how do
24 the specific questions that you are dealing with here
25

1 relative to issuance of the construction permit, the
2 second initial decision apply to all of that?

3 I think that is where the relevancy objection goes.

4 MR. WERSAN: I don't believe I was referring to
5 the construction permit. I was referring to the operating
6 license, and I was trying to develop the chronology of
7 events in 1984 through the Second Partial Initial Decision
8 to the operating license authorization from the Director
9 of Nuclear Reactor Regulation and then the date on which
10 Limerick was allowed to proceed and load fuel and compare
11 that with the schedule announced by the company in that
12 same time period.

13 MR. HALL: Your Honor, Dr. Mattson's testimony does
14 not address the scheduling of the NRC hearing process or
15 any matter of that nature. It deals only with NRC regula-
16 tions, NRC safety requirements, and how those requirements
17 are enhanced or not enhanced as the result of active involve-
18 ment by intervenors in the proceeding.

19 It doesn't deal with the specifics of how licensing
20 was done or when it was done. I don't know what his knowledge
21 level is with regard to those specifics. I think the
22 testimony is beyond --

23 MR. WERSAN: The Doctor presents a chronology of
24 regulatory issuance affecting Limerick through the operating
25 license. And if he is not --

1 JUDGE MATUSCHAK: I think his testimony goes beyond
2 what Mr. Hall has indicated. We will overrule the objection.

3 THE WITNESS: May I have the question repeated?

4 BY MR. WERSAN:

5 Q. Do you know when -- let me put it this way:
6 in Schedule 10, page 85, the last page of your testimony,
7 you have "NRC Action: Operating License Issued; Percent
8 Complete and then End of Year," and for that you have
9 "Mid-1984."

10 Do you have a better date than what you have included
11 in Schedule 10 for the operating license issuance?

12 A. At my hands, no.

13 Q. Would you accept that it was -- and I don't
14 have the specific date, but we can establish that with
15 Mr. Boyer -- that it was in October or November of 1984?

16 MR. HALL: We will accept that.

17 BY MR. WERSAN:

18 Q. If I could refer you to Schedule 8, which is
19 at page 80 of your testimony.

20 A. Yes.

21 Q. Am I correct that you are presenting some kind
22 of information or comparison regarding NRC staffing level
23 and licenses issued verus time?

24 A. Yes, I am.

25 Q. In the far right-hand column, you have "OLs",

1 operating licenses issued, and we can see by year the year
2 they were issued; is that correct?

3 A. Yes.

4 Q. And from 1981 to 1984, am I correct that 23
5 operating licenses were issued by the NRC, if you total those
6 numbers?

7 A. Yes.

8 Q. And I note that you are showing the staffing
9 level in the left-hand column. Would you agree that the
10 NRC had to allocate and schedule its staff in some fashion
11 in order to review the operating license applications that
12 were submitted to it by utilities?

13 A. Yes.

14 Q. And am I correct that in allocating staff to
15 operating license reviews, the NRC took into consideration
16 the company's schedule for completion of a plant?

17 A. It took the schedule into consideration, but
18 did not rely totally upon it.

19 Q. But it was certainly aware of the schedule?

20 A. Yes.

21 Q. Let me ask you this: in the time frame that
22 you were in -- you were at the NRC January 1, 1981 --
23 if there is one plant that would be ready for fuel load
24 based on construction completed and based on the company's
25 projected schedule, it will be ready by January 1, 1982,

1 and there is another one that the company's schedule says
2 it won't be ready for fuel load with complete construction
3 until December, 1984, might the earlier plant receive some
4 priority in NRC's staffing, scheduling, allocation and review?

5 A. No, not necessarily. The NRC would do its
6 own -- I'm sorry. In that time frame, the NRC performed its
7 own independent on-site assessment of the status of
8 construction and made its own estimate of readiness for
9 a low power operation.

10 There were cases where plants that were as far apart
11 as those you described in your hypothetical situation were
12 found by NRC to not be that far apart, and the priority
13 for resources could have been opposite what the companies
14 would have indicated was necessary for resources.

15 Q Okay; let me ask it this way: if the NRC
16 staff's internally projected schedule showed a split of a
17 number of years, would resources be devoted to the earlier
18 one in order to resolve it before the latter one?

19 A Yes. Where there was a contest for resources,
20 the earlier plant would take priority over the later plant.

21 Q And you said "in that time frame" in answer to
22 an earlier question. I guess you meant in the time frame
23 of 1981.

24 Was there a later time frame where the company's
25 projected schedule became the schedule that the NRC looked at?

1 A. Within the last year or two, that has become
2 the case. The NRC no longer estimates schedules independent-
3 ly.

4 Q. I assume you would agree from an administrative
5 sense that an agency has to decide how to allocate its
6 resources and prioritize where manpower will go?

7 A. Yes.

8 MR. WERSAN: That's all the cross-examination I have,
9 Your Honor. Thank you, Dr. Mattson.

10 JUDGE MATUSCHAK: Is there any further cross-
11 examination of this witness?

12 MS. FERKIN: No.

13 MR. ETTNER: No.

14 MR. MORRIS: I have no questions.

15 MR. KLEPPINGER: No questions, Your Honor.

16 JUDGE MATUSCHAK: Is there any redirect?

17 MR. HALL: May I have just a moment, Your Honor?

18 JUDGE MATUSCHAK: Yes.

19 (Recess.)

20 JUDGE MATUSCHAK: Back on the record.

21 MR. HALL: Your Honor, I do have one question on
22 redirect.

REDIRECT EXAMINATION

1
2 BY MR. HALL:

3 Q. Dr. Mattson, Mr. Wersan asked you a number of
4 questions with regard to NRC allocation of resources between
5 plants.

6 Could you state for me, Dr. Mattson, why the NRC
7 found itself in the position in the early 1980s and the mid-
8 1980s where it needed to make such an allocation?

9 A. Yes. The needs were especially acute to pay
10 attention to what resources were applied to what plant in
11 the first few years after the accident at Three Mile Island.
12 It was a case that for a period of approaching a year, there
13 weren't resources to review any plants. There was essentially
14 a moratorium on the issuance of new operating licenses.

15 There were other factors that slowed down the
16 issuances of those licenses, but there was also a shortage
17 of resources.

18 That didn't turn off over night. There was a transi-
19 tion period where resources began to become available, and
20 there were plants like Sequoya that had been sitting waiting
21 for a license which had first priority to resources.

22 Still at that time there were other plants that had
23 docketed OL applications that had few or no reviewers
24 assigned to them. And as time moved on, the reviewers
25 could be assigned but with a time to do their work that was

1 abnormally short, and so special review procedures were used;
2 a number of special people were brought in, reassigned from
3 other offices. We get into that in my direct testimony
4 somewhat.

5 MR. HALL: Your Honor, that is all that I have.

6 JUDGE MATUSCHAK: Is there anything further of
7 this witness?

8 (No response.)

9 JUDGE MATUSCHAK: If not, the witness may be
10 excused.

11 (Witness excused.)

12 MR. HALL: Your Honor, we have available at this
13 time Mr. Boyer. I was wondering: when did Your Honor
14 intend to break for lunch?

15 JUDGE MATUSCHAK: It is almost 12:00. Rather than
16 break his cross-examination, I think this might be an
17 appropriate time to recess for lunch so we have some
18 continuity in his testimony and the cross-examination.

19 We will recess until 1:00.

20 (Whereupon, at 11:57 a.m., the hearing was adjourned,
21 to be reconvened at 1:00 p.m., this same day.)
22
23
24
25

AFTERNOON SESSION

(1:00 p.m.)

1
2
3 JUDGE MATUSCHAK: We may proceed.

4 MR. HALL: Your Honor, we have available for
5 cross-examination by the parties at this time Mr. Vincent
6 S. Boyer. Mr. Boyer has not been sworn.

7 Whereupon,

8 VINCENT S. BOYER

9 having been duly sworn, testified as follows:

10 JUDGE MATUSCHAK: You may be seated.

11 DIRECT EXAMINATION

12 BY MR. HALL:

13 Q Mr. Boyer, would you state your full name and
14 your position with the Philadelphia Electric Company for the
15 record, please?

16 A Yes. I am Vincent S. Boyer. My position is
17 senior vice-president for nuclear power of the Philadelphia
18 Electric Company.

19 Q Mr. Boyer, do you have before you a document
20 entitled in the right hand corner, "PECo Statement No. 1,
21 Direct Testimony of Vincent S. Boyer"?

22 A I do.

23 Q Was this document prepared by you or under your
24 direction and supervision?

25 A It was.

1 Q Mr. Boyer, do you have any corrections to make
2 to this document at this time?

3 A Yes. I have one update to the testimony, which
4 would be on page 6. At line 30 and 31, it is referring to
5 a request made to the Delaware River Basin Commission
6 relating to water from the Beechwood pool and it says, "This
7 request has not yet been acted upon by the DRBC."

8 That request was withdrawn on October 30, 1985. The
9 next sentence says that we filed an application to be able
10 to withdraw water down to 415cfs and follows with the
11 sentence, "This request has also not yet been acted upon."
12 That request was approved by the executive director of DRBC
13 on October 2, and was confirmed by the full Board of
14 Commissioners of the DRBC on October 30.

15 Q Mr. Boyer, do you have any further corrections to
16 make to your statement at this time?

17 A No, I do not.

18 Q Mr. Boyer, with the correction and supplementation
19 that you have provided, is the data contained in your PECO
20 Statement No. 1 true and correct to the best of your
21 knowledge and belief?

22 A It is.

23 MR. HALL: Your Honor, I would ask that Mr. Boyer's
24 direct testimony be identified for use in this record as
25 PECO Statement No. 1.

1 JUDGE MATUSCHAK: Granted.

2 (Whereupon, the document was
3 marked PECO Statement No. 1
4 for identification.)

5 MR. HALL: I would also ask that it be admitted into
6 the record.

7 JUDGE MATUSCHAK: Subject to a timely motion to
8 strike or any other motions, it may be admitted.

9 (Whereupon, the document marked
10 PECO Statement No. 1 was
11 received in evidence.)

12 MR. HALL: Mr. Boyer is available for cross-
13 examination.

14 JUDGE MATUSCHAK: Trial Staff?

15 CROSS-EXAMINATION

16 BY MR. DELANEY:

17 Q Good afternoon, Mr. Boyer. My name is Dan
18 Delaney. I represent the Trial Staff in this matter. I
19 have some questions on your direct testimony.

20 Let me direct your attention initially, Mr. Boyer, to
21 page 5 of your testimony. On that page, you describe the
22 water supply situation which will be used at the Limerick
23 Station. Do you see the reference I am making on that page?

24 A Yes.

25 Q You indicate there that the company will take
some water out of the Schuylkill River, and also use a
supplemental supply drawn from the Delaware River which will

1 be drawn to the site through the Perkiomen Pumphouse and
2 Pipeline, is that correct?

3 A. Yes.

4 Q. Now, as I understand it, it is the responsibility
5 of Bucks County and the Neshaminy Water Authority to
6 actually construct these facilities?

7 A. The Neshaminy Water Authority, yes.

8 Q. On pages 5 and 6, you describe litigation which
9 has taken place concerning this project. Would you tell us,
10 what is the current status of this case?

11 A. Yes. I guess maybe I might have updated the last
12 sentence of line 43 where it says, "The county and other
13 defendants have filed appeals to the appellate court."

14 A decision was rendered by the appellate court on
15 October 10 and confirmed that NWRA should continue the
16 construction of the facilities.

17 This decision was appealed by NWRA to the
18 Pennsylvania Supreme Court on November 10, 1985.

19 Q. The modification or the addition that you just
20 made referred to a statement on line 44, page 5 of your
21 testimony, is that correct?

22 A. Yes. It would be an additional sentence, really,
23 that the decision was handed down by the Commonwealth Court
24 on October 10, 1985 confirming that NWRA should complete the
25 construction of the facilities. This decision was appealed

1 to the Pennsylvania Supreme Court by Neshaminy Water
2 Resources Authority on November 10.

3 MR. HALL: Mr. Delaney, if you would permit me
4 one technical clarification, Mr. Boyer, I believe it was a
5 petition for allowance of appeal that was filed, was it
6 not? The appeal has not yet been granted.

7 THE WITNESS: That would be more legally correct,
8 yes, thank you. We have heard no response to that and are
9 awaiting a decision.

10 BY MR. DELANEY:

11 Q It is a discretionary appeal to the Supreme
12 Court on which they have not acted, would that be correct?

13 A I would defer to my lawyer.

14 MR. HALL: That is correct.

15 BY MR. DELANEY:

16 Q What is the current status of the facilities that
17 are the subject of this litigation?

18 A The Point Pleasant project, as it is known,
19 consists of the intake structure in the river, the pipeline
20 from that point to the shore, a transition section between
21 the multiple pipelines coming from the river to one large
22 pipe then which runs under the canal to a pumphouse.

23 All of the river work is complete. The transition
24 section is complete except for the installation of a couple
25 of the slide gate valves. Some of the piping between the

1 transition section and the pumphouse has been completed,
2 namely the section under the canal.

3 And there remains to be completed about 50 feet of
4 six foot diameter pipe. The pumphouse foundations have
5 been poured, and part of the first vertical section of
6 walls of the intake structure.

7 The rest of the pumphouse work has not been carried
8 out. There is a pipeline from the pumphouse structure up
9 the hill. This has been excavated, backfilled, but no
10 pipe has been installed there.

11 Q Mr. Boyer, would you be in a position to give us
12 a percentage completion figure on the project?

13 A I would say the percentage completion of the
14 project is something like 30 percent, 30 or 40 percent.

15 Q Is any work on the project currently being done?

16 A No. Work was stopped in February, 1984 and
17 really nothing has been accomplished on the project since
18 that time other than litigation.

19 Q Do you currently have any estimate on when the
20 work may be started again?

21 A Immediately following a favorable decision of the
22 Pennsylvania Supreme Court, assuming that they take it or
23 make a decision.

24 Q Do you have any estimate as to the amount of time
25 after that decision was made it would take to complete the

1 project?

2 A. The best part of a year.

3 Q. A year from the date that construction is
4 begun again?

5 A. Right.

6 Q. The Unit 1 is currently operating under a low
7 power license, is that correct?

8 A. No. It is operating under a full power license.

9 Q. Do you know what percentage of power it is
10 operating at currently?

11 A. It is operating presently at about 75 percent
12 power. It has operated up to 100 percent power. We found
13 a hot spot on the electrical bus run from the generator out
14 to the high voltage transformers, and reduced load to 75
15 percent a reduction in temperature.

16 This problem has been examined. Heavier replacement
17 sections which will conduct the current, induce currents
18 more readily and reduce the resistance, which is creating
19 the hot spot, are being fabricated and will be delivered to
20 the plant this Thursday.

21 We expect to take the plant down for approximately a
22 three, four day outage to make this replacement and then
23 come back up to 100 percent load.

24 Q. Is there any prospect at this point that the
25 commercial operation date of the plant, which I understand

1 to be set for February of 1986, might be delayed?

2 A. No, sir. We expect it to be placed in
3 commercial operation on or before February 15.

4 Q. Has the testing or power ascension of Limerick
5 ever been limited by the unavailability of cooling water?

6 A. The testing has not really been restricted. We
7 could have operated the plant at higher power levels, say
8 40 percent power level instead of 25 percent power level,
9 during the early part of the test program.

10 The test program is conducted out in various
11 sections, and each section has a range of power that is
12 permissible for the conduct of the tests.

13 It was necessary for us to restrict the power level
14 to the water available, which was only from Titus and Cromby,
15 which enabled us to get to about 22, 25 percent power,
16 instead of running at the higher power levels of the
17 envelope, which would have been in the neighborhood of 40
18 percent power.

19 Q. What time period were these --

20 A. This was in August of this year.

21 Q. If you have further, you may continue.

22 A. Other than that, we have not been restricted.

23 The various requests that were submitted for modifications
24 in the water requirements to the Delaware River Basin
25 Commission, namely the last one which was approved on

1 October 30 which enabled us to take water from the river
2 when the oxygen was satisfactory and the flow above 415
3 cubic feet per second in the river, has enabled us to run
4 at whatever power level we wanted to.

5 There was about eight days that the flow was less
6 than 530 cfs between that and the 415 cfs, so that if we
7 had not received that last approval, we would have been
8 restricted during that eight day period.

9 Q. Okay, Mr. Boyer. I note on page 6 of your
10 testimony you describe the company's actions to get
11 temporary supplies of water. The middle of the page
12 describes the company's actions at the time your testimony
13 was prepared, and you have just given us more information
14 about the applications described in the middle paragraph of
15 that page.

16 I think you indicated at the beginning of your direct
17 testimony that the company has withdrawn the Beechwood Pit
18 application?

19 A. Yes. The Beechwood Pit application was withdrawn
20 immediately following the Commission's approval of the
21 allowance to withdraw water down to a flow of 415 cfs, since
22 in our analysis that reduction in flow gave us just about as
23 much operability of the plant as the approval of Beechwood
24 Water would have.

25 By that I mean, Beechwood Water at low river flows

1 would probably have been restricted due to total dissolved
2 solids content.

3 And it was our estimation that in the range of 415
4 cfs river flow, we would not have been able to use
5 Beechwood Water anyway.

6 Q. You also indicated that the application concern-
7 ing the cfs and river flow was approved in October?

8 A. That was approved by executive order on October 2
9 and confirmed by the full Commission on October 30.

10 Q. I note in the last sentence of that paragraph
11 that you just provided the update on, you indicate that the
12 various approvals described above are presently limited to
13 1985 operations?

14 A. That is correct.

15 Q. And that would include the approved application
16 concerning river flow you just described?

17 A. Correct.

18 Q. So, would it be true then that the permission
19 granted by executive order terminates by its own terms on
20 December 31 of this year?

21 A. That is correct. We are submitting today -- I
22 signed the applications yesterday -- for the 1986, for
23 request for renewal or a continuation of the present
24 approvals for the measurement of dissolved oxygen in lieu of
25 temperature, and for the use of the Titus and Cromby waters.

1 Q Does the company expect action on those
2 applications by the end of the year?

3 A I would expect them to be in January. In the
4 meantime, we would be back to the old requirements of
5 temperature and river flow, and I expect no curtailment of
6 operation in January or February due to operating under
7 those limits.

8 Q Mr. Boyer, we asked you a series of questions
9 on discovery which I would like to take you through now. I
10 provide a copy for yourself and the other parties.

11 MR. DELANEY: Initially, Your Honor, I introduced an
12 exhibit yesterday at the conclusion of Dr. Perl's testimony
13 that I am informed I misnumbered. I will just note on the
14 record before I begin with these that yesterday I introduced
15 as Staff Exhibit No. 7 and we moved into the record
16 IR-Staff-Limerick-7.

17 I am informed that the number 7 had already been
18 used in our exhibit numbers, so at this point I would like
19 to have that prior exhibit renumbered as Staff Exhibit No. 8.
20 Again, it would be the company's response to IR-Staff-
21 Limerick-7.

22 JUDGE MATUSCHAK: Very well.

23 (Whereupon, the document pre-
24 viously marked Staff Exhibit
25 No. 7 was renumbered as Staff
Exhibit No. 8.)

1 MR. DELANEY: The series I will begin with Mr. Boyer
2 begins with 9.

3 At this point, Your Honor, I would like to have
4 marked for identification the company's response to data
5 request of the Staff, Limerick No. 8, marked for purposes
6 of identification as Staff Exhibit No. 9.

7 JUDGE MATUSCHAK: So marked.

8 (Whereupon, the document was
9 marked Staff Exhibit No. 9
for identification.)

10 BY MR. DELANEY:

11 Q. Mr. Boyer, do you have that document in front of
12 you?

13 A. I do.

14 Q. You are indicated to be the responsible witness
15 for this document. Was this prepared by yourself or under
16 your direction?

17 A. Yes.

18 Q. Now, on this data request, we asked you to list
19 additional sources of interim water supply for the Limerick
20 plant, and you list a number there in your response.

21 The first numbered one is temporary use of reservoir
22 water. Am I correct that this would require the Delaware
23 River Basin Authority Commission's approval prior to any
24 such use by the company of reservoir waters?

25 A. Yes.

1 Q Does the company currently have any applications
2 to use any reservoir waters?

3 A Not submitted.

4 Q I assume by your response the company is
5 contemplating such application?

6 A Yes, we are.

7 Q Could you tell us where they might be, concerning
8 which reservoirs?

9 A One of them involves a reservoir at Still Creek,
10 which is the upper end of the Little Schuylkill River, and
11 is owned by the city of Tamaqua.

12 The city of Tamaqua has -- the design allocation of
13 that reservoir is 12 million gallons a day. They are
14 presently using 6.2 million gallons a day.

15 They have excess water available. We have been
16 talking with their engineers, Gannett and Fleming, and with
17 the borough manager, and they are making an evaluation of
18 the amount of water that might be available to us.

19 The borough manager has talked with the Water
20 Committee, and they are receptive to working out an agreement
21 with us.

22 Q Do you have any other reservoirs you are
23 examining at this time, Mr. Boyer?

24 A We are looking at some others, but since they are
25 in a preliminary stage, it is not really pertinent to

1 discuss them.

2 Q. Would I be correct that what is contemplated by
3 use of reservoir water is having the water released into the
4 Schuylkill River to make up for water that the company would
5 take at a different location on the river?

6 A. That is correct.

7 Q. Would it be true that the company's ability to
8 use reservoir water would depend in some respect on the
9 water supply situation in the Delaware River Basin?

10 A. That is correct.

11 Q. That would be that if there was a drought
12 condition, it may affect the company's ability to use
13 reservoirs?

14 A. Any entity that would enter into a contract with
15 us to sell water to us, particularly a municipality, would
16 have to look at being able to maintain a supply of water
17 for their own needs under drought conditions.

18 And the engineers, Gannett and Fleming, have made
19 such an evaluation. The preliminary indications are that
20 there is on the order of a billion gallons of water that
21 might be made available to us.

22 Q. By way of reservoirs?

23 A. By way of their reservoir system.

24 Q. Now, the second entry on the discovery response
25 concerns mines, and I think you previously addressed one of

1 the mining applications referenced in your direct
2 testimony that you said the company had withdrawn.

3 A. Yes. That one was the Beechwood Pit of the
4 Reading Anthracite Mine Company located near Pottsville,
5 Pennsylvania.

6 The Beechwood Pit is an unused strip mine or a
7 previous area that was stripmined. It is approximately
8 350 feet deep, half a mile across, and about -- about a
9 quarter of a mile across and a half a mile long.

10 It contains about 2.5 billion gallons of water.

11 Q. Would the company's use of these types of mine-related
12 water supplies also require the Delaware River Basin
13 Commission's approval?

14 A. Yes.

15 Q. Again, these water supplies would be used to
16 introduce into the Schuylkill River to make up for volumes
17 the company had withdrawn at another site?

18 A. Yes.

19 Q. Would a potential environmental impact result
20 from introducing these waters into the Schuylkill River? I
21 am thinking of dissolved solids.

22 A. Anything that is introduced into a river, you
23 have an environmental impact. It may be negligible. It may
24 be advantageous, but there will be some, quote, environmental
25 impact, and that has to be examined.

1 Q Would a condition of the approval by the
2 Delaware River Basin Commission be that the company might
3 have to treat these waters before releasing them into the
4 Schuylkill?

5 A If necessary, yes, that could be a condition.
6 However, certainly the Tamaqua water, we have had that
7 analyzed and that is pure water. There will be no treatment.

8 Q When you say Tamaqua, you're referring to
9 reservoir water?

10 A Right.

11 Q Is the company now contemplating the use of any
12 other mines as a source of cooling water in the interim
13 period?

14 A Well, there are other mines which could potentially
15 offer a source of supply, but the Beechwood Pit is in our
16 estimation the most appropriate one.

17 Q Does the potential exist that the company may
18 reactive its application to use those waters at a future
19 date?

20 A Yes.

21 Q On the discovery response, which is Staff Exhibit
22 No. 9, you then describe as the third paragraph the on-site
23 storage.

24 A Yes. In the cooling tower basin and in the
25 spray for No. 2 unit as well as excess water in the cooling

1 tower basin at No. 1, we have about 7 million gallons of
2 water stored, which could provide a half a full power day
3 of operation.

4 So that, it is very limited, but could tide us over
5 for shutting down the plant or starting up the plant or
6 running for a short period of time.

7 Q. Currently, that basin has 7 million gallons of
8 water?

9 A. Between the various locations, including a
10 million gallons in a storage tank, we have 7 million gallons
11 on site.

12 MR. DELANEY: Your Honor, at this point I would like
13 to have marked for purposes of identification Staff Exhibit
14 No. 10, which is the response of the company to DR-Staff-
15 LIM-23.

16 BY MR. DELANEY:

17 Q. Do you have that document in front of you, Mr.
18 Boyer?

19 A. Yes.

20 JUDGE MATUSCHAK: So marked.

21 (Whereupon, the document was
22 marked Staff Exhibit No. 10
for identification.)

23 BY MR. DELANEY:

24 Q. Now, we asked you a series of questions again
25 about the water supply. The first sub-part says, "How much

1 water is available to the operation of Limerick I from the
2 approved existing sources?"

3 And before you respond, let me ask you, you are
4 indicated to be the responsible witness for this response?

5 A. Yes.

6 Q. Was this prepared by you or under your
7 supervision?

8 A. Yes.

9 Q. And the information contained therein is true
10 and correct to the best of your knowledge?

11 A. Yes.

12 Q. I note that in your answer to sub-part (a), you
13 list a number of existing sources of water, and you state
14 there the Schuylkill River, the Perkiomen Creek and the
15 Delaware River.

16 You go on further to state that these sources are
17 capable of meeting 100 percent of the water needs of
18 Limerick I.

19 Now, as I understand the remainder of that sentence,
20 it is conditioned upon the completion of the Point Pleasant
21 project and the Merrill Creek reservoir?

22 A. Yes.

23 Q. Now, going to sub-part (c) of that interrogatory
24 response, the question asked there was, based upon approved
25 existing sources, what yearly capacity factor could be

1 detained -- I guess we mean obtained.

2 A. Yes.

3 Q. There's a typo on there -- for the operation of
4 Limerick 1. And you indicate in your response that PECO
5 expects to obtain a yearly capacity factor for Limerick 1
6 of at least 65 percent of the life of the plant's operation
7 based on approved existing sources of water.

8 And you state further there that PECO does not
9 anticipate that the availability of water would significantly
10 affect its ability to achieve this capacity factor.

11 Now, the last response that I have just read, would
12 that be true even for interim water supply period here?

13 A. Basically yes.

14 Q. So it would be correct then that the company
15 anticipates maintaining 65 percent capacity factor in the
16 period prior to the completion of the Point Pleasant
17 facilities?

18 A. I would expect that we will achieve that, yes.

19 Q. And it would be true that to achieve that through
20 that period, the company would have to be obtaining
21 additional approvals from the Delaware Valley River Basin
22 Commission to obtain additional supplies of water?

23 A. Depending on the rainfall. If we have above
24 average rainfall, we probably wouldn't need anything.
25 There have been years when no supplemental water would have

1 been required. So, it really depends partially on the
2 amount of rainfall. What we are making up for is the lack
3 of rainfall.

4 MR. DELANEY: Your Honor, at this point I would like
5 to have marked for identification the company's response to
6 IR-Staff-Limerick-3. I'd like to have it marked for
7 identification as Staff Exhibit No. 11.

8 (Whereupon, the document was
9 marked Staff Exhibit No. 11
for identification.)

10 BY MR. DELANEY:

11 Q Do you have that document in front of you, Mr.
12 Boyer?

13 A Yes.

14 Q There we ask you to provide a schedule and graph
15 showing when during the average flow year Limerick 1 will be
16 able to operate with the water supply as it presently exists.

17 A Yes.

18 Q In response, you supplied us with the graph on
19 the second page, and the written response is that the graph
20 does not reflect any planned maintenance outages that may
21 occur during the times of water unavailability, nor does it
22 take into account any modification of the current standards,
23 nor does it have any additional sources other than those
24 set forth in Limerick No. 8 that we just introduced as
25 Exhibit No. 9.

1 Could you turn to the graph that you gave us in
2 response to that interrogatory?

3 A. Right. That graph shows the water availability
4 each month. We went back through the records from 1972 I
5 believe through 1985 or 1984 and averaged the flows or
6 averaged the conditions that would have existed under our
7 present mode of operation for the months to get a percentage
8 availability based on that past record.

9 If you integrate the deficiencies through the summer
10 period, you would come up with somewhere between 25 and 28
11 percent, which would be the amount of water shortage.

12 Now, we could have done this another way, and
13 subsequent to presenting this, we took 1968, which was an
14 average water flow year, and looked at that year specifically.
15 And that was about 20 percent deficient.

16 So, somewhere in the range of 20 to 25 percent
17 deficiency is what you would expect on an average water
18 availability year, which would be average rainfall.

19 If you take 25 percent, to be conservative, times
20 365 days a year, times 15 million gallons a day as an
21 average figure for full load use, you would come up with
22 somewhere around 1.5 billion gallons. I don't have the
23 exact figure, but it's in that vicinity.

24 So, 1.5 billion gallons would be the shortage that
25 we would want to plan for to take care of us under average

1 rainfall conditions.

2 Q Can I stop you for a second, Mr. Boyer? Looking
3 at the graph now, the months that I can identify as being
4 significantly less, the shortest columns here in the graph
5 are April, May, June, July, August and September. And your
6 comments are now addressed to those months?

7 A Yes, primarily May, June, July and August,
8 because September, your April and September are in the
9 range of 60 to 70 percent.

10 So, the main shortage is from May through August. And
11 that is because on low precipitation years, low rainfall
12 years, the river flow is generally down during those months
13 and would restrict the amount of water available for the
14 plant.

15 Q In those months then you would have to look to
16 the supplemental sources of supply that you have just
17 discussed in the first part of my cross-examination?

18 A Right. In those months, we were looking to
19 supplement the flow from these additional sources.

20 Q Let me see if I understand your response here,
21 Mr. Boyer. Looking at the graph itself, I don't know if it
22 is the way it is drawn or whether it's the data. I don't
23 see any of the columns actually touching the 100 percent
24 mark on any of the 12 monthly columns.

25 A Well, it could be the way they are drawn. I

1 wouldn't impart any significance to the difference, and I
2 don't think you would either, between 99 percent and 100
3 percent.

4 Q. Right. Now, in your explanation of the data,
5 would it be correct -- did you say, is it your testimony
6 that for the monthly water figures, that you used averages
7 of prior precipitation levels, is that correct?

8 A. That was started from the years 1972 to
9 something like 1984. We took the amount of water available
10 or the restrictions in each month for each one of those
11 years and averaged it out to see what the average value
12 would be.

13 Q. The amount that Limerick would require, against
14 which the water supply is measured contemplates a 65 percent
15 capacity factor, that the plant would be running monthly at
16 that capacity?

17 A. What we are saying is that we would expect the
18 plant with outages -- that is, forced outages, planned
19 outages, and refueling -- to achieve on a lifetime basis at
20 least a 65 percent capacity factor.

21 Some years will be higher than that, some years will
22 be lower, depending on whether you have the refueling
23 outage or not.

24 I would say that I expect in 1986 the capacity factor
25 to be over 65 percent, based on the availability of

1 supplemental water which we fully expect to be able to
2 achieve and to obtain, and the fact that we will probably
3 have some outage which will be needed to do some corrective
4 work after the completion of the test program.

5 We are not planning on taking that outage at the
6 completion of the test program, but extending it perhaps
7 into May, so that we would run from commercial operation
8 right through to an appropriate time to take an outage to
9 do a list of things that we have that we want to do.

10 Q When would you estimate the first outage to be?

11 A Probably May, May 15.

12 Q Of 1986?

13 A 1986. If we would run into a water restriction,
14 we could start it sooner. There a number of things that we
15 have to do periodically, that is such as leak rate tests on
16 valves and other systems as part of the NRC requirements.

17 And because of the way the plant program has developed,
18 we will be coming up against those time periods in which
19 these repetitive tests are required, so we will need an
20 outage to accomplish a group of these.

21 Q Mr. Boyer, I would like to move to another part
22 of your testimony, where you talk about the company's
23 construction of the Limerick unit.

24 A Just before leaving this unit, I should address
25 that this graph is based on no maintenance outages in that

1 time frame, so when I said 1.5 billion gallons of water were
2 needed, any maintenance outage would subtract from that
3 amount of water if it occurred during a time when water
4 would otherwise have been needed.

5 Q I think you indicate that in the text of the last
6 interrogatory response.

7 A Okay. It's just an important consideration,
8 that's all.

9 Q Could we move to your discussion of the
10 construction of the Limerick unit? I think that begins on
11 page 8.

12 I note initially that you respond to a series of
13 questions which address the company's decisions in 1976 and
14 1978 to delay construction.

15 A Yes.

16 Q Not specifically on those pages, but just
17 generally.

18 A Right.

19 Q Would it be the purpose of this part of your
20 direct testimony to respond to criticisms in prior
21 Commission orders concerning the prudence of the company's
22 actions in delaying Limerick construction in 1976 and 1978?

23 A I wouldn't say they were criticisms. They were
24 comments, and they really weren't addressed in any depth in
25 that particular rate investigation.

1 Q What I am referring to is the Limerick 1
2 investigation.

3 A That is what I am referring to.

4 Q And would it be correct that the purpose of your
5 testimony on this issue is to respond to those prior
6 criticisms?

7 A I said, I wouldn't necessarily say they were
8 criticisms. Our purpose, since it was mentioned and
9 discussed in the previous rate order, we felt it was appro-
10 priate to provide supplemental information.

11 In my view, the question of the delays in 1974, 1976
12 and 1978 were not thoroughly investigated in the original
13 Limerick rate case in which this came up.

14 Q I note that you are using the term "rate case,"
15 but what you are referring to is the Limerick 1 investigation,
16 the I-80 document, is that correct?

17 A Thank you for correcting me, yes.

18 Q Let me direct you to page 10 of your testimony
19 here. On that page, you state that the corporate management
20 in January, 1971 authorized Limerick's construction and a
21 construction permit was issued in June of 1974.

22 A Correct.

23 Q What construction work was performed between
24 1971 and 1974?

25 A Well, there was preliminary site work accomplished.

1 At that time, under NRC regulations, you could do
2 site work as long as it did not involve the concrete or
3 other work for the nuclear portion of the plant.

4 So we could do the excavation and the preparation of
5 the site, and do even some work such as drain piping in the
6 turbine building section of the plant and whatnot.

7 Q Your testimony is that that kind of work was
8 done in the period of 1971 to 1974 at the site?

9 A Yes. We actually had to stop because of the
10 delay in obtaining the construction permit. The construc-
11 tion permit required more time because of the intervention
12 which we had in that hearing.

13 And even though the plant design was not changed by
14 the intervention, it did take some time. The total time as
15 I recall for the hearings extended over something like two
16 years.

17 Q You are talking about the hearings on the issu-
18 ance of the construction permit?

19 A Issuance of the construction permit, yes.

20 Q At that time, would it be true, Mr. Boyer, that
21 the delays associated with the issuance of construction
22 permits also applied to other utilities seeking them in that
23 period?

24 A Not to the same extent. There is an interroga-
25 tory which gives the number of days of hearings for

1 Limerick and other plants in the northeast area versus
2 other plants. I think you will see that we probably led
3 the parade on that. We probably had a longer time period
4 certainly than most others, and may have even been the
5 highest one on that list.

6 Q. But this was a problem facing other utilities
7 in the time period, is that correct?

8 A. Only certain of the utilities where they could be
9 metropolitan or had a lot of intervention. Other utilities
10 were getting by with a few days, or a very short time
11 period, a few months.

12 Q. Let me direct your attention to page 12 of your
13 testimony. At lines 14 through 38 of that page, which is 12,
14 you state that the company continuously examined the
15 economics of nuclear generation against other types of
16 capacity, and that between 1974 and 1978, the cost of coal
17 and oil-fired generation exceeded nuclear generation by 36
18 and 46 percent respectively.

19 You further state that these analyses did not reflect
20 the substantial advantage of continuing the Limerick project
21 in light of the substantial investment already made in the
22 project at the time of the analysis.

23 Is it not true that during these same periods, the
24 company reduced its Limerick project construction and
25 announced delays in meeting service dates?

1 A Yes, but that would not have affected the result
2 of an economic evaluation, and economic evaluations were
3 prepared or were done at the time of these delays.

4 Q I'll ask you about that in a minute.

5 On page 16, you discuss the company's plan to
6 maintain two fuel load dates, one which was announced to the
7 public and the other which was the company's target date,
8 is that correct?

9 A Yes.

10 Q Could you explain why the company maintained
11 parallel dates or different dates, differing from the
12 public announcements?

13 A Well, anytime that you would make an analysis of
14 the revenue requirements for the completed plant, you will
15 find that the earlier the plant gets completed, the lower
16 the revenue requirements will be.

17 Thus, from the engineering standpoint alone, it is
18 prudent to get the plant completed as rapidly as possible.
19 We kept an earlier construction date because the primary
20 cause of the delay announcements was associated with
21 limitation on cash availability.

22 And it was our hope that we would be able to obtain
23 a greater amount of cash in future years, and bring the
24 plant in on the earlier construction time schedule.

25 For the immediate years following these delays, we

1 spent the money on the critical path items so that if in
2 our view at the time the decision was made, based on the
3 scope of the plant we knew at that time, if money became
4 available in the future, we would have been able to bring
5 the plant in at the construction schedule date.

6 Q. I note on pages 22 and 23 of your testimony where
7 you talk about NRC-imposed changes. Would you turn to those
8 pages, please?

9 A. Yes.

10 Q. Now, assuming that the project could have been
11 substantially completed by 1981, is it not true that some
12 of these major items could have been delayed until the next
13 refueling period?

14 A. That's a hypothetical question, and in the view
15 of Limerick at the Limerick and the NRC's approach to
16 Limerick which they persisted in throughout the entire
17 licensing period, I would doubt that we would have been able
18 to bring the plant in any earlier than we finally did.

19 Q. I am asking you to --

20 A. For example, in 1980, we were asked to, we were
21 directed to prepare a probablistic risk analysis. We were
22 the first plant that had to complete a probablistic risk
23 analysis by the time we submitted the final safety analysis
24 report.

25 The NRC review of the licensing stage does not begin

1 until the final safety analysis report is submitted and
2 docketed.

3 We were told subsequent to the time that we were
4 told that we would have to develop a probablistic risk
5 analysis, we were told that our final safety analysis
6 report would not be docketed until the probablistic risk
7 analysis was submitted, and it should be submitted as part
8 of the final safety analysis report.

9 This therefore set the schedule for the overall
10 initiation of review of licensing items by the NRC. That
11 occurred back in 1980.

12 So, certainly the total review, and with Three
13 Mile Island having come in, and with all the other major
14 additional requirements and definition of requirements that
15 subsequently came forth from the NRC and affected all power
16 plants, I question whether we would have been able to
17 complete the plant at any earlier date.

18 Q I understand your position as explained in your
19 testimony, Mr. Boyer, but my question really was to assume
20 a 1980 completion date.

21 And further, I asked you whether some of these NRC-
22 required items could have been installed at the subsequent
23 refueling date.

24 A You started out by assuming a 1981 completion date?

25 Q Correct, and whether some of the modifications on

1 pages 22 and 23 of your testimony could have been installed
2 at a subsequent refueling outage of the unit, assuming a
3 1981 completion date.

4 A. Well, the last time we had a 1981 targeted
5 construction completion date, as shown in my table 2, was
6 May of 1976.

7 Q. Prior to the company's second delay of
8 construction, correct?

9 A. Yes. Some of these items such as the Three Mile
10 Island items were not known at that time, because that
11 didn't occur until 1979, and there was really a hiatus on
12 licensing for a couple of years after that.

13 So, it is really impossible for me to say what would
14 have occurred, and I can't really answer your question. The
15 only thing I can say is, from retrospect, from an overall
16 review, with Limerick at Limerick and the requirements
17 imposed on us by the NRC, that I doubt that we could have
18 completed the plant any sooner than we did.

19 Q. So, your answer is, you can't answer it?

20 A. I really can't.

21 MR. DELANEY: I'd like to make a data request of the
22 company at this point. Assuming a 1981 completion date,
23 could you indicate to us in the form of an on-the-record
24 data request response what funds would have to have been
25 expended annually during the 1974 to 1980 period. I will

1 give you that in writing.

2 MR. HALL: That's fine. We will undertake to do that.

3 THE WITNESS: But you are qualifying that to say that
4 it should include all the items that had to be included in
5 the plant?

6 BY MR. DELANEY:

7 Q I'll write it out, and you can respond to it at
8 that time.

9 Mr. Boyer, do you participate in the review and
10 preparation of the PJM planning period document?

11 A. No.

12 Q. I understand from your testimony -- are you
13 familiar with those planning documents?

14 A. To a certain extent.

15 Q. You are familiar with those planning period
16 documents?

17 A. You identify a document and show it to me, and I
18 will tell you whether I am familiar with it.

19 Q. Previously admitted into evidence in this
20 proceeding is a document that is marked for identification
21 as PAIEUG Exhibit No. 1, which is the response to DR-Staff-
22 LIM-10. You are indicated to be the responsible witness on
23 that. Do you have that document in front of you, DR-Staff-
24 LIM-10?

25 A. Yes.

1 Q. Now, as I understand from this document, PECO
2 and one other PJM company have a 25 percent reserve margin
3 requirement?

4 A. That is our planning reserve, yes.

5 Q. It is my understanding that the PJM current
6 requirement is 22 percent?

7 A. I believe that is correct.

8 Q. Is it true that PECO is assessed a 25 percent
9 requirement due to its forced outage rate?

10 A. That is a factor in that.

11 Q. That PAIEUG Exhibit No. 1 I just referenced to
12 you, I believe that page 2 of that, which is on the second
13 page, has a calculation of an a forced outage rate adjustment.
14 It is number 8 on that second table on that page. Under
15 PE, it lists a forced outage rate adjustment percentage of
16 3.21.

17 A. Yes.

18 Q. Now, would you agree that next to GPU, that is the
19 highest forced outage adjustment rate on that table?

20 A. Yes.

21 Q. Now, if I understand correctly, isn't it true that
22 PJM has never required the pool to maintain and install
23 reserve for 25 percent, and assess penalties on that basis,
24 is that correct?

25 A. I believe so.

1 Q And the figure that we just examined in that
2 table, that number reflects the above-average forced outage
3 rate that PECO has in comparison to the other PJM --

4 A Right, for the units that we had during that
5 experience period that was used to calculate that value.

6 Q Let me direct your attention to page of your
7 testimony, Mr. Boyer.

8 A I might note that one of our corporate objectives
9 is to reduce or to improve the forced outage rate of our
10 fossil units and other units. And in recent time frames,
11 there has been expenditures made at Eddystone and Cromby and
12 some of the other stations to replace equipment which was
13 creating some of those forced outages.

14 Q On page 18, you describe two analyses performed
15 in 1977 by the company on meeting the October, 1981 fuel load
16 date. Do you see where I am referring to?

17 Actually, I think your discussion of that begins on
18 page 17 and goes to the top of page 18.

19 A Yes.

20 Q Now, based on that analysis, ratepayers would
21 have achieved savings of \$159 million in the spring of 1977
22 or \$123 million in the fall of 1977 over the life of the
23 facility had you met the proposed schedule, is that correct?

24 A Correct.

25 Q Now, we asked you for a copy in our discovery of

1 that study, which was DR-Staff-LIM-11. Do you have that
2 document in front of you? It's in the packet I gave you.

3 A. Yes.

4 MR. DELANEY: Your Honor, at this time, for
5 purposes of identification, I would like to have marked as
6 Staff Exhibit No. 12 DR-Staff-LIM-11.

7 JUDGE MATUSCHAK: Very well.

(Whereupon, the document was
8 marked Staff Exhibit No. 12
9 for identification.)

10 BY MR. DELANEY:

11 Q I note that you are the responsible witness for
12 this exhibit.

13 A. Yes.

14 Q Was this data request response actually prepared
15 by you or under your supervision?

16 A. Well, the original data in 1977 was prepared by
17 the system planning division under my direction, and this
18 response was put together by Cary Rush, who is presently the
19 chief engineer of the planning division.

20 Q To the best of your knowledge or information and
21 belief, the information in this is true and correct?

22 A. Yes.

23 MR. HALL: Mr. Delaney, in terms of all interroga-
24 tory responses, we will stipulate that they are true and
25 correct to the best of our knowledge and belief.

1 MR. DELANEY: Thank you, Mr. Hill.

2 BY MR. DELANEY:

3 Q Mr. Boyer, you indicated initially in your
4 testimony that you are senior vice-president of nuclear
5 power for the company?

6 A Yes.

7 Q Are you familiar with all the nuclear power plants
8 the company currently operates or participates in the
9 ownership of?

10 A Yes.

11 Q Could you list those plants for us, please?

12 A Well, Peach Bottom Units Nos. 2 and 3 and
13 Salem Units Nos. 1 and 2.

14 Q Can you tell us when the Peach Bottom plants
15 were constructed?

16 A The Peach Bottom Units Nos. 2 and 3, I assume
17 you're talking about, rather than Peach Bottom No. 1, which
18 has been retired --

19 Q Correct.

20 A Peach Bottom Units 2 and 3 both went into
21 commercial operation in 1974. Their construction period
22 extended from something like 1970,-- I think their
23 construction permit was received in 1970, as I recall, but
24 I would have to verify that.

25 Q Could you indicate when they came into commercial

1 operation?

2 A. 1974, both units, one in the summer and one in
3 December.

4 Q. Could you give us similar statistics for Salem
5 Units Nos. 1 and 2, please?

6 A. Salem units, I don't remember them as well as I
7 do Peach Bottom. I know that Salem 1 went into service in
8 1977. I don't remember Salem 2.

9 Q. Would you accept that Salem Unit No. 1 became
10 commercial in June of 1977?

11 A. Yes.

12 Q. Is it correct that the company owns 42.59 percent
13 of that unit?

14 A. Yes.

15 Q. Now, at the same time, is it correct that the
16 company owns 42.59 percent of Salem Unit 2?

17 A. Yes.

18 Q. And that Salem Unit 2 became commercial in
19 October of 1981, is that correct?

20 A. Yes.

21 MR. DELANEY: I have a data request, Mr. Hill, at
22 this point. Could the company provide us the construction
23 dollars expended for the Salem project for the period 1974
24 through 1980? And I will give it to you in writing.

25 MR. HALL: Thank you.

1 BY MR. DELANEY:

2 Q Mr. Boyer, would it be true that the Salem
3 costs, in particular the Salem Unit No. 2 costs, escalated
4 during the period 1976 to 1980?

5 A Yes, because all construction projects
6 escalated during that time frame.

7 Q The reasons for escalation would be similar to
8 those contained in your testimony concerning Limerick Unit
9 No. 1?

10 A Yes.

11 Q The result of this escalation led to
12 construction expenditures being much greater than the
13 company anticipated?

14 A Yes.

15 Q And this escalation was occurring at the time
16 that Limerick Unit No. 1 was under construction, is that
17 correct?

18 A Yes.

19 Q What process was used to determine where the
20 capital dollars the company had should go, whether into
21 Limerick Unit No. 1 or Salem Unit No. 2? Would you describe
22 for us how those decisions were made?

23 A Well, representatives on the owners' committee
24 would get budgets from Salem plants. We would generate our
25 own budgets for Peach Bottom 2 and 3, and for Limerick.

1 These budgets would be reviewed. The expenditures
2 contemplated for Salem would be reviewed with them and
3 discussed with them, and a determination made as to the
4 appropriateness of the expenditures and the extent to which
5 they could be met.

6 Salem--Public Service was basically responsible for
7 the overall construction and operation of Salem. Philadel-
8 phia Electric was responsible for the overall construction
9 and operation of Peach Bottom 2 and 3..

10 So that while we had input to the budgetary effort of
11 Salem, the -- and if we were unable to meet the obligation
12 which we had there, we could have gone to higher levels in
13 Public Service to effect changes.

14 We generally at the operating levels of the budget
15 review were able to achieve satisfactory budgets.

16 Q In the period from 1974 to 1980, to your
17 knowledge, were there any delays in the construction of the
18 Salem units?

19 A. Yes. I am not -- I can't recount them right
20 here, though. I mean, I am sure there were, but I would
21 have to go back and look into those things.

22 MR. DELANEY: Mr. Hall, we might make a data request
23 on the company for a listing of any delays in construction
24 on the Salem units from the period of 1974 through 1981.

25 MR. HALL: Yes.

1 BY MR. DELANEY:

2 Q On page 23 of your testimony, Mr. Boyer, you
3 talk about the applications to the NRC. You indicate there
4 that the company applied for an operating license in March
5 of 1981.

6 A Right.

7 Q Do you know what the percentage of the completion
8 of this plant was at that point?

9 A At the end of 1981, the construction of the
10 plant was estimated to be 68 percent complete.

11 Q Do you know what the actual figure was?

12 A I would expect it would be about that value,
13 since I think those -- 1981 -- since that estimate included
14 the basic scope of the work. It may have been a few
15 percent less in retrospect, looking back.

16 Q Does the company currently consider the Limerick
17 unit to be actually 100 percent completed?

18 A Well, essentially so. I'd have to get your
19 definition of 100 percent complete. If you say, is
20 everything absolutely completed that has to be done, then I
21 would have to answer no, because we have one or two minor
22 items, relatively minor items that have been deferred such
23 as the installation of two valves in the hydrogen
24 recombiner, such as the completion of some ventilation on
25 the refueling floor and a couple of items like this which

1 have to be done at later dates, such as the installation of
2 a stairway up in the roof level in connection with a
3 second fire exit from that place.

4 So, if you say, is it absolutely done, I say no. Is
5 it essentially done, yes.

6 Q. Let me restate the question. For purposes of
7 receiving a commercial operating license --

8 A. It's done.

9 Q. When was the plant completed for those purposes?

10 A. It's completed now.

11 Q. Can you tell me the date though when it achieved
12 that threshold?

13 A. Well, basically when we got our operating license.

14 Q. Why don't you tell me the date of that?

15 A. Well, that was August, 1984.

16 Q. So you are equating completion of the plant
17 with --

18 A. October 26, 1984, pardon me, was the fuel load
19 license, and that basically was when the plant was completed.

20 Q. At the time of the fuel load licensing?

21 A. Right.

22 Q. Mr. Boyer, you discuss the common plant claim for
23 the company in the conclusion of your testimony.

24 A. Yes.

25 Q. Is it correct that in the current proceeding, the

1 company is making a claim for 100 percent of their common
2 plant?

3 A. Yes.

4 Q. You indicate in your testimony that there were
5 certain economies in the construction of your plant realized
6 by having a common unit to serve both reactors, or at least
7 a common facility to serve both reactors.

8 A. Yes.

9 Q. And you indicate further, however, that not all
10 of that completed unit is used for the operation of Limerick
11 1, is that correct?

12 A. Not 100 percent of it, no.

13 Q. Not 100 percent of it.

14 And the construction of this unit, I think on page 29
15 of your testimony, you indicate that there were some
16 modifications in the construction of this common facilities
17 due to the fact that it would serve two units.

18 A. Yes.

19 Q. And there you indicate that 2 percent of the
20 common plant is used solely for the operation of Unit 1?

21 A. Operation of Unit 2.

22 Q. Two, I'm sorry, you're correct, it's Unit 2.

23 And that approximately 6 percent of the common
24 plant cost is attributable to larger sizing due to
25 construction of the second unit, is that correct?

1 A. Yes.

2 MR. DELANEY: That is all the questions I have for
3 this witness at this time. Thank you, Mr. Boyer.

4 JUDGE MATUSCHAK: We will take a recess.

5 (Recess.)
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1 JUDGE MATUSCHAK: Whenever you are ready.

2 MR. DELANEY: Your Honor, at this point I would like
3 move into the record the exhibits that we introduced during
4 Mr. Boyer's cross-examination, which I believe are Staff
5 Exhibits 9 through 12. I would move their admission into
6 evidence.

7 JUDGE MATUSCHAK: Is there any objection?

8 MR. HALL: No, Your Honor.

9 JUDGE MATUSCHAK: Staff Exhibits 9 through 12 are
10 admitted.

11 (Whereupon, the documents marked
12 as Trial Staff Exhibits Nos. 9
13 through 12 were received in
evidence.)

14 MR. DELANAY: Your Honor, also at this point, based
15 on the responses Mr. Boyer made, I would like to move to
16 strike that portion of his testimony that dealt with the
17 1976 and 1978 construction delays for the same reason in
18 my motion in limine.

19 JUDGE MATUSCHAK: I will defer the ruling on that
20 until I rule on the motion.

21 MR. DELANEY: I will at that time indicate the
22 portions of the witnesses' testimony that would be sub-
23 ject to the motion.

24 JUDGE MATUSCHAK: All right.

25 MR. DELANEY: Thank you, Your Honor.

JUDGE MATUSCHAK: OCA?

1 MR. WERSAN: Your Honor, with your permission, the
2 OCA would like to split the cross of Mr. Boyer. There were
3 a number of questions from last week deferred to Mr. Boyer
4 on Peach Bottom 1, which Ms. Weston would like to ask him.

5 JUDGE MATUSCHAK: Very well.

6 CROSS-EXAMINATION

7 BY MS. WESTON:

8 Q Good afternoon, Mr. Boyer. My name is Susan
9 Weston. I'm with the Office of the Consumer Advocate.

10 MS. WESTON: Your Honor, we would now like to
11 distribute a document that we would like to mark for identi-
12 fication as OCA Exhibit 53.

13 JUDGE MATUSCHAK: So marked.

14 (Whereupon, the document was marked
15 as OCA Exhibit No. 53 for identi-
16 fication.)

17 MS. WESTON: Thank you. This document is the answer
18 to OCA Interrogatory Set 15, Number 15.

19 BY MS. WESTON:

20 Q Do you have that document before you?

21 A Yes.

22 Q This is a document that consists of copies of
23 the agreement between PECO and the Atomic Energy Commission
24 regarding Peach Bottom 1; is that correct?

25 A Yes.

Q Would you turn please in that document to

1 Attachment 15-15(a) please?

2 A Yes.

3 Q Is that attachment a letter from PECO's President,
4 R.G. Rincliffe, to the AEC dated November 21, 1958?

5 A Yes.

6 Q On the first page about halfway down the page
7 is numbered paragraph number 1; do you see that?

8 A Yes.

9 Q I would like to read that to you. It reads,
10 PECO "and a group of more than thirty-five investor-owned
11 utility companies have made binding commitments to finance
12 the construction of a 40 net electrical MW gas-cooled,
13 graphite-moderated nuclear power plant pursuant to this
14 proposal." Is that a correct reading?

15 A Yes.

16 Q In the same document on the same page there is
17 a paragraph at the bottom, number 5; do you see that?

18 A Yes.

19 Q That reads, "General Dynamics also proposes to
20 perform the necessary research and development with a
21 ceiling price of \$1.5 million on a reimbursable cost basis
22 under a direct contract with AEC." Is that a correct
23 reading?

24 A Yes.

25 Q And am I correct that the meaning of that

1 paragraph is that the Atomic Energy Commission was to pay
2 that \$14.5 million to General Dynamics?

3 A Yes.

4 Q Would you now turn please to Attachment 15-15(b)?

5 A Yes.

6 Q And that document is also a letter from President
7 Rincliffe to Dr. Pittman of the AEC?

8 A Yes.

9 Q That's dated February 16, 1959?

10 A Yes.

11 Q Now, on page 2 of this document starting about
12 the middle of the page there is a section that is titled
13 "Summary of the Source and Purpose of Funds for Project;"
14 do you see that?

15 A Yes.

16 Q And on that chart if you go down the first column,
17 the second item reads "Construction," and then down below
18 that "Philadelphia Electric Company, HTRDA."

19 A Yes.

20 Q Now when it says HTRDA does that refer to the?
21 High Temperature Reactor Development Associates?

22 A Yes.

23 Q And in the section I just read to you before from
24 15-15(a), that first paragraph, there is a reference to
25 a group of more than 35 investor-owned utilities. Is HTRDA

1 that same group?

2 A Yes.

3 Q Is that a group that later expanded to have 52
4 members?

5 A Yes.

6 Q Now, on the chart on 15-15(b), page 2 where it
7 says "Construction" and then "HTRDA," there is a sum listed
8 of \$16.5 million.

9 A Yes.

10 Q Does that indicate that that group was to get
11 get that sum?

12 A Yes.

13 Q And then just below that there is "Estimated
14 costs of land, interest during construction and tie-in
15 with existing transmission lines." Does Philadelphia
16 Electric cover those costs; is that the indication in that
17 section?

18 A I believe so.

19 Q And then the next item is "Fabrication costs of
20 1st and 2nd cores required during the first 5 years of
21 operation, PE." Was that a cost that Philadelphia Electric
22 Company was to cover?

23 A Yes.

24 Q After Peach Bottom 1 did Philadelphia Electric
25 Company go on to build any other gas-cooled reactors?

1 sentence, which is the last sentence which begins, "Peach
2 Bottom Unit No. 1," and then it continues, "Peach Bottom
3 Unit No. 1 has fulfilled its purpose as a prototype unit,
4 has already been operated beyond the five-year period
5 originally contemplated under the Atomic Energy Commis-
6 sion's Demonstration Program, and no provisions have been
7 made for the fabrication of a nuclear core." Is that a
8 correct reading?

9 A "of a third nuclear core," at the bottom there.

10 Q A third, yes.

11 MS. WESTON: Your Honor, I have no further questions
12 on this Peach Bottom issue. I would now like to move
13 OCA Exhibits 53 and 54 into evidence.

14 MR. HALL: No objection, Your Honor.

15 JUDGE MATUSCHAK: We will receive Exhibits 53 and
16 54; they are admitted in to evidence.

17 (Whereupon, the documents marked
18 as OCA Exhibits Nos. 53 and 54
were received in evidence.)

19 MS. WESTON: Mr. Wersan has questions.

20 MR. WERSAN: Thank you, Your Honor.

21 CROSS-EXAMINATION

22 BY MR. WERSAN:

23 Q Good afternoon, Mr. Boyer. My name is David
24 Wersan. I'm with the Office of the Consumer Advocate.

25 I would like to ask you a few questions about the

1 water supply for Limerick which are still outstanding in
2 my mind after Mr. Delaney's cross and after reading this
3 testimony.

4 Now, you indicated that a number of approvals from
5 the Delaware River Basin Commission will end as of
6 December 31, 1985, and that you have refiled applications
7 for those same permits; is that correct?

8 A We have refiled -- we are refiling today two
9 applications. Others may be filed later in the year.

10 Q And you indicated that you didn't think the DRBC
11 would move on those applications until some time in Janu-
12 ary; is that correct?

13 A That's correct.

14 Q Would you assume with me that as of January 1,
15 1986 the Delaware River Basin Commission has not yet
16 acted on those applications, and further assume that water
17 in the Schuylkill River in 1986 is at the same flow level
18 or flow rate and temperature as it was in 1985. Will the
19 water supplies approved and available to PECO on January
20 1, 1985 under those conditions be sufficient --

21 JUDGE MATUSCHAK: Do you mean 1986?

22 BY MR. WERSAN:

23 Q '86, yes. On January 1, 1986 be sufficient to
24 allow Limerick 1 to operate at 100 percent of power
25 throughout the summer of 1986?

1 A I don't have the records in front of me for
2 the flows in January 1985, but I would expect that --
3 historically I know that in January and February there have
4 been adequate flows, and the temperature is certainly
5 below 59 degrees; so I do not expect any limitations.

6 Should a limitation arise I would request Executive
7 approval of the two applications which we are submitting
8 today. In the past the Executive Director can take
9 Executive action without waiting for a DRBC Commission
10 meeting, and I would expect that since they are renewal
11 applications that he would do so.

12 Q I understand that, Mr Boyer. Maybe I didn't state
13 my question clearly enough.

14 My question actually is addressed to the period in
15 1986 when normally -- or when as experienced in 1985, flows
16 and temperature restrictions were met. Would the supplies
17 as permitted and approved as of January 1, 1986 be
18 sufficient to allow full 100 percent power throughout that
19 summer period of 1986?

20 A No.

21 Q Am I correct that even with the addition of the
22 Point Pleasant Pumping Station, if water flows in the
23 Delaware River are at very low levels or say there are
24 drought conditions, then absent the completion of the
25 Merrill Creek Reservoir there may again be some limitations

1 on the output of Limerick 1 based on water supply?

2 A There could be because the present regulations
3 say that if the flow in the Delaware River at Trenton is
4 below 3,000 cubic feet per second we cannot take water out
5 at Point Pleasant unless we put it in from some other source
6 which source is planned to be Merrill Creek. Merrill Creek
7 is under construction and expected to be in operation by
8 the summer of 1968, so --

9 Q You flipped the dates. You said 1968.

10 A 1986 -- now, wait a minute. 1988. Pardon me;
11 1988, or basically two or three years from now. And so
12 we have the summer of 1987 which would be of concern.
13 Yes, 1987 would be of concern.

14 Q So in addition to being concerned about 1986
15 you are concerned about 1987 if there is low flow in the
16 Delaware even if Point Pleasant is completed.

17 You say Merrill Creek will be completed by the
18 summer of 1988?

19 A Yes.

20 Q Does that mean it will be full of water by that
21 date?

22 A Yes.

23 Q And am I correct that you have to pump the water
24 from the Delaware up to Merrill Creek?

25 A Yes. But if it was not available in '87 and

1 we had a limit I would seek some relief such as we have
2 sought from the Schuylkill in the present time period.

3 Q I understand that, and I would expect that. I'm
4 just trying to understand the relationship of all of these
5 projects to getting water for Limerick.

6 Would the time period which it takes to fill up
7 Merrill Creek be affected by the amount of flows in the
8 Delaware River itself?

9 A Yes.

10 Q Mr. Boyer, what degree of confidence do you have
11 that there will be sufficient water available to allow
12 Limerick to operate at 100 percent of power throughout
13 the summer of 1986?

14 A 95 percent.

15 Q And you indicated that if that 5 percent were
16 to occur you might schedule some post-commercial operation
17 outages in May or some time period in that low water in
18 1986?

19 A Yes.

20 Q How long an outage were you considering in that
21 statement?

22 A We are contemplating a six-weeks outage at the
23 present time.

24 Q Mr. Boyer, do you know if in developing its
25 production cost run of the energy savings from Limerick

1 Mr. Carroll's Production Cost Department scheduled a six-
2 week outage in 1986 for Limerick 1?

3 A I can't tell you whether it was scheduled prior
4 to commercial operation or after commercial operation, but
5 in effect -- I'd have to end my statement there. I can't
6 tell you.

7 Q Did you communicate to his department a schedule
8 for those outages -- or for that outage?

9 A It has been recent that we decided to try and
10 defer the outage to that time, so I really don't know.
11 Some of the Electric Production people have probably
12 communicated with him, but I haven't directly.

13 Q Are you familiar with what production cost runs
14 look like?

15 A Yes.

16 Q Then you would agree that we could probably look
17 at his production cost run and see whether or not a
18 reduced output was scheduled in 1986?

19 A I believe you could, yes.

20 Q And you said --

21 A Do you know what capacity factor he used in 1986?

22 Q If you want I can testify. I understand that
23 Mr. Carroll inputed a certain forced outage rate of 16
24 percent for Limerick to achieve with outages an average
25 over the lifetime of 65 percent. And I can be certainly

1 corrected on that if I'm wrong.

2 MR. HALL: I don't know. We can certainly check.

3 BY MR. WERSAN:

4 Q You indicated that that outage that we are dis-
5 cussing, the six-weeks outage, might have been initially
6 planned for pre-commercial, and now it might be post-
7 commercial. Would you agree with me that whether or not
8 it is pre-commercial or post-commercial would be relevant
9 to the energy costs, as you understand it, billed to rate-
10 payers for the 1986-87 time period?

11 A I don't know all the details of that, so I had
12 better not respond.

13 Q Let me ask you this: if you are familiar with
14 how construction costs are booked, is pre-commercial
15 generation from Limerick booked to the capital costs of
16 the project?

17 A Credited to the capital costs of the project.

18 Q So -- I'll leave it at that.

19 Now, you indicated earlier that part of your search
20 for water involved an arrangement with Metropolitan Edison
21 Company and their Titus Plant; is that correct?

22 A Yes.

23 Q And Met-Ed, in fact, did shut down under an
24 agreement with the company the Titus Plant for some period
25 of time in 1985?

1 A Yes.

2 Q Did Philadelphia Electric have to pay Metropolitan
3 Edison some money as a result of that shutdown?

4 A Yes.

5 Q And I take it the cost of that outage will also
6 be booked to the capital costs of Limerick?

7 A It would be factored in as a deduction on the
8 generation, I would suspect.

9 Q And Philadelphia Electric's own Cromby Station
10 was shut down also in order to obtain additional water for
11 Limerick; is that correct?

12 A Yes.

13 Q And would you agree with me that if Cromby had
14 been needed in that time period on an economic dispatch
15 basis and was not available, there would be additional
16 costs incurred, at least with respect to the energy
17 charges being billed to Philadelphia Electric's ratepayers?

18 A Yes.

19 Q Are you familiar with how those costs are being
20 reconciled in this case?

21 A No.

22 Q The company currently projects a commercial
23 operations date for February 15, 1986; is that correct?

24 A By February 15, yes.

25 Q How do you define commercial operations for the

1 Limerick Station?

2 A The work is the -- the test program has been
3 completed satisfactorily and the unit is available to be
4 dispatched by the system operator.

5 Q Is that a discretionary decision on the part of
6 the company?

7 A Basically it is a decision by the management of
8 the Electric Production Department, myself and the manage-
9 ment of the company, yes.

10 Q And how does the status of the Limerick Station
11 change once management declares it to be in commercial
12 operation?

13 A Well, basically it could be regulated or
14 directed in its output by the system operator. Being an
15 efficient nuclear plant, it would probably be run at
16 base load at 100 percent power on almost a continuous
17 basis.

18 Q Does commercial operation also signify the
19 end for accrual of AFUDC?

20 A Yes, it does that.

21 Q Does it change the status of the plant with the
22 NRC in any way?

23 A No.

24 Q How about with the PUC, that you are aware?

25 A I can't say.

1 Q How about with your contractors who are building
2 the plant or who have already put in time on the plant?

3 A Not to my knowledge.

4 Q Assume with me for a moment that PECO is unable
5 to obtain sufficient water for Limerick 1 to operate
6 throughout the summer of 1986, and I guess you have indi-
7 cated there is maybe a 5 percent chance of that. It would
8 therefore be possible that the unit could be declared in
9 commercial operation and then be shut down or forced to
10 operate at reduced output?

11 A Just as if a forced output affected a part of
12 the equipment to prevent it from operating at full
13 load, or something else; so it would be treated as a forced
14 outage.

15 Q Mr. Boyer, I would like to turn now to your
16 discussion of common plant at the Limerick Station, and
17 I'll try not to repeat any ground that has been covered.

18 Is it the company's position that common plant --
19 or 100 percent of common plant is currently planned to be
20 complete by February of 1986?

21 A I would say yes. I would have to verify that.
22 There might be a half of a percent or a percent or something.
23 I know we had a couple of percent left to do, and I'd have
24 to look and see what those particular items were; but
25 essentially, yes, all the common plant would be completed.

1 MR. WERSAN: Your Honor, at this time I would like
2 to mark for identification OCA Exhibit 55, which is an
3 excerpt from Philadelphia Electric, November 27, 1985, Bi-
4 monthly Report No. 10 to the Pennsylvania Public Utility
5 Commission..

6 JUDGE MATUSCHAK: So marked.

7 (Whereupon, the document was marked
8 as OCA Exhibit No. 55 for identi-
9 fication.)

9 BY MR. WERSAN:

10 Q Are you familiar with this document, Mr. Boyer?

11 A Yes.

12 Q And if you could look at the last page, it shows
13 the Limerick Unit 1 and common cost milestone summary; is
14 that correct?

15 A Yes.

16 Q And if we look at the left-hand column where it
17 has the dates, and we go down to January - February of 1986
18 we can then go across and see what expenditures are expected
19 at Limerick 1 and common in that time period; is that
20 correct?

21 A Yes.

22 Q And so after February 1986 under the company's
23 forecast no additional direct expenditures or overhead
24 expenditures are anticipated for either Unit 1 or common
25 under this summary?

1 A That is correct.

2 Q And so the basic cost to be incurred for common
3 facilities after February 1986 is \$330.4 million of AFUDC;
4 is that correct?

5 A That is correct.

6 Q And that is the same \$330.4 million of AFUDC you
7 referred to as an increase in capital costs on page 29 if
8 only 50 percent of common is included in rate base today?

9 A Right.

10 Q Okay. Is the Bradshaw Reservoir and facilities
11 considered part of common plant?

12 A No. Well, wait a minute. Yes. Yes.

13 Q So you would agree with me that that is one
14 portion of common that is not yet completed?

15 A That is right, and the Point Pleasant completion
16 as well.

17 Wait a minute. Let me just retract that.

18 (The witness and PECO personnel confer.)

19 I think it relates to the method of accounting. The
20 capital authorization for Limerick, the Point Pleasant
21 facility, has not been covered in that. It was covered
22 by a separate authorization. The Perkiomen Pumphouse and
23 the plant were all included in the capital authorization.
24 The Point Pleasant being in another distant area and not
25 being under the purview of the NRC, we put that under a

1 different account.

2 Q Let me see if I understand that. Bradshaw and
3 Perkiomen are included in common but Point Pleasant is not?

4 A No, Bradshaw --

5 MR. HALL: Could we have a minute. Apparently there
6 is some information that could be imparted to Mr. Boyer.

7 BY MR. WERSAN:

8 Q Let me do it this way then. The Staff asked an
9 interrogatory on this and Mr. Boyer's name is on it. Maybe
10 that will refresh his recollection of the company's position.

11 A Yes. This interrogatory says that the Bradshaw
12 Reservoir and pipeline are considered Limerick common plant
13 which is not yet completed; right.

14 Q That's fine.

15 A The accounting is another matter, but no matter
16 how it is accounted for it would be considered as common
17 plant.

18 Q If I could refer you to page 10 of your testimony
19 please, Mr. Boyer, at line 6 you state that the Limerick
20 project was developed and approved in concept by corporate
21 management in the 1968 construction budget; do you see that?

22 A Yes.

23 Q Do you recollect what the cost estimate for the
24 Limerick project was back in 1968?

25 A No, but somewhere on the order of -- no.

1 Q Does the figure of \$326 million sound familiar?

2 A There was a figure at one time based on Peach
3 Bottom's costs, and that sounds like the number.

4 The first definitive estimate would really have to
5 be taken after the construction permit was issued because
6 time went by with the effect of inflation, and the
7 appreciation of the total design requirements for the plant,
8 which had evolved from Peach Bottom through the construction
9 permit stage to the point at which the construction permit
10 was issued. I said the construction permit hearings did
11 not result in any changes in the plant design, but I
12 believe there were some changes from the original Peach
13 Bottom design to be incorporated in the Limerick design.

14 Q I understand that, but I guess the flip side is
15 that the company's decision to continue pressing ahead
16 with Limerick was based on its preliminary estimates and
17 its updated estimates until you got to that stage.

18 A Right; as well as subsequent estimates, right.

19 Q And on the bottom of page 11 and the top of page
20 12 -- I guess I'm starting a different topic -- you
21 mention reserve levels and discuss the Fulton and Summit
22 Stations, that these stations were cancelled, and you
23 relate it to load levels somewhat in your discussion there.

24 Am I correct that you have just indicated earlier
25 that both Fulton and Summit were cancelled by the general

1 contractor on that project, or at least at that instiga-
2 tion?

3 A Well, the general contractor said he would not
4 supply the equipment, which led to the cancellation
5 of the plant. If that had not occurred, we would probably
6 have cancelled the project because of the change in the
7 load growth estimates.

8 Q Now if I could refer you to page 17 of your
9 testimony, at line 44 you discuss --and you discussed with
10 Mr. Delaney earlier -- in your testimony at this point the
11 company's fuel load target dates and analysis of comple-
12 tion advancement; is that correct?

13 A Yes.

14 Q And at the point starting on line 44 on page 17
15 you were looking at a fuel load date of October 1981;
16 is that also correct?

17 A Yes.

18 Q And on page 18 you state at line 32, "Follow-
19 ing extensive analysis the revised forecast, i.e., 1984-86
20 fuel load dates, was adopted." I assume 1984-86 fuel load
21 means 1985-87 commercial operations?

22 A Correct.

23 A And you characterized this at line 27 as a two-
24 year postponement?

25 A Right.

1 Q Mr. Boyer, am I correct that in the past you
2 have testified before the Pennsylvania Public Utility
3 Commission on behalf of Philadelphia Electric Company in
4 certain of its rate cases?

5 A Yes.

6 Q Do you recollect testifying in Philadelphia
7 Electric's base rate case in 1977 docketed at R.I.D. 438?

8 A I believe so. I never did remember the numbers
9 though.

10 Q Okay.

11 MR. WERSAN: Your Honor, at this time I would like
12 to mark for identification as OCA Exhibit 56 a portion of
13 the direct testimony of Mr. Boyer in R.I.D. 438, and I would
14 note that it is actually excerpts from his testimony in
15 that case since it was a little long to copy the whole
16 thing. Certainly to the extent the company wishes to add
17 any pages to the testimony, I can't object. Well, I won't.

18 JUDGE MATUSCHAK: It is so marked.

19 (Whereupon, the document was marked
20 as OCA Exhibit No. 56 for identi-
21 fication.)

22 BY MR. WERSAN:

23 Q If you would like, Mr. Boyer, I have your complete
24 testimony here if you would like to look at that. Do you
25 want me to hand it to you?

A No, that's all right.

1 Q What I have here, Mr. Boyer, is the cover page
2 from your direct testimony and the first page where you
3 identify yourself. The second page is actually page 5 of
4 that testimony where you explain that you are sponsoring
5 Exhibit B-1.

6 A Yes.

7 Q And then I have attached the cover page of
8 Exhibit B-1 and page 26 of that testimony. And then I have
9 attached the supplemental testimony that was presented in
10 that case, identified as Statement 3A at that time.

11 A Yes.

12 Q If you would first turn to the first page of
13 Exhibit B-1 that I have attached -- actually it is the only
14 page, page 26, you there discuss current generating
15 capacity additions for Philadelphia Electric; do you see
16 that?

17 A Where?

18 Q At the bottom of page 26; it is the page that
19 follows your Exhibit B-1.

20 A Right.

21 Q And there you have discussed the Salem No. 2
22 unit and Limerick No. 1, and am I correct that you say,
23 "All three have been delayed from their original service
24 dates. Further delay in the installation of these units
25 would be uneconomical;" is that correct?

1 A Yes.

2 Q And then in your supplemental testimony which
3 follows, if I could refer you to page 5, you state in a
4 question and answer that, "The completion of the
5 generating units" -- and here I'm assuming you are refer-
6 ring to Limerick and Salem -- "on a timely schedule insures
7 the lowest possible construction costs for the unit because
8 the equipment can be purchased at a lower cost and there
9 would be less AFDC if the schedule is not delayed."

10 A Correct. And I also added, as I indicated on page
11 26, that even if the peak loads remained constant over the
12 next eight to ten year period, the savings in fuel costs
13 by operating the nuclear units would more than offset the
14 costs incurred by completing that construction.

15 Q Yes.

16 And if I could refer you to page 7 of your
17 supplemental testimony, on the top paragraph you state,
18 "If the Limerick construction schedule were delayed from
19 its planned installation dates of 1983 and 1985 the final
20 costs of the unit would be increased by approximately
21 \$140 million for each year that a unit is delayed." Is
22 that correct?

23 A That's correct, and that's based on AFUDC and
24 other factors in use at that time frame in 1977.

25 Q Correct. And in the next question and answer

1 you discuss the effect on revenue requirements if Limerick
2 No. 1 is delayed. And in the first paragraph you discuss
3 the benefits of advancing the service date.

4 A Right.

5 Q And in the second paragraph you state that, "If
6 Limerick #1 were delayed by one year the economic effects
7 would be just the opposite to that indicated in the answer
8 to Question #80," which is what you discussed in the
9 paragraph above.

10 A Right.

11 Q "In the first year there would be a net reduction
12 in revenue requirements due to the postponement of the
13 capital charges despite higher fuel costs. However, every
14 year thereafter there would be an increase in revenue
15 requirements due to the \$140 million net increase in the
16 capital costs of the unit."

17 And on page 8 you say, "Over the life of the plant
18 the levelized annual revenue requirements would be
19 approximately \$16 million per year higher;" is that
20 correct?

21 A Right.

22 Q And these costs you are discussing here are for
23 a one-year delay in Limerick Unit 1?

24 A Right.

25 Q And as you indicated earlier, the fuel load date

1 for Limerick 1 was delayed from 1982 to 1984; is that
2 correct?

3 A I believe so.

4 Q And I was referring to page 18, line 27.

5 A Right.

6 MR. HALL: Your Honor, as Mr. Wersan has noted, this
7 is a fairly substantial amount of material which has been
8 taken from broader documents. Mr. Wersan has not included
9 all of the material that was in that record on the subjects.
10 There was cross-examination and there were explanations.
11 The presentation has been selective, and the company would
12 reserve the right to review this material in greater depth
13 and at a later time either through Mr. Boyer or other
14 witnesses seek to provide for the record what it perceives
15 to be the entire record relative to this matter at R.I.D.
16 438.

17 JUDGE MATUSCHAK: I think the Consumer Advocate
18 indicated that he had no objection to that.

19 MR. WERSAN: That's fine. That is correct, Your
20 Honor.

21 At this time, Your Honor, I would like to mark for
22 identification as OCA Exhibit 57 a document which was
23 provided by the company in response to IR-OCA-2-21 in
24 the Limerick 2 investigation at Docket I-840381.

25 JUDGE MATUSCHAK: Very well.

1 (Whereupon, the document was marked
2 as OCA Exhibit No. 57 for identi-
fication.)

3 BY MR. WERSAN:

4 Q Mr. Boyer, am I correct that this document pre-
5 sents certain pages from a supplemental study of Limerick's
6 effect on PECO Revenue Requirements, presented to the PUC
7 Staff on 7-22-80 by yourself and a gentleman known as
8 Mr. Kasum?

9 A Right.

10 Q K-a-s-u-m. And am I correct that the first
11 sentence states, "Additional economic studies were made
12 to supplement the information provided to the PUC on May
13 28, 1980 in order to further demonstrate the advantages
14 of completing Limerick as soon as possible"?

15 A Yes.

16 Q And am I correct that you are looking at a
17 1985-1987 commercial operation date as of the date of this
18 study?

19 A Yes.

20 Q And if you could turn to the second page, which
21 at the top is page 4, you have a paragraph on the bottom
22 of that page discussing "Effect of Advancement of Limerick,"
23 and that states in reference to a curve which is on the
24 next page, "This curve indicates the annual savings due
25 to a one year advancement of Limerick nuclear units to

1 1984-86. These savings average over \$70 million per year
2 for the 10 years, 1985-94." Is that correct?

3 A Yes, that is at the bottom of the page.

4 Q Yes, that's what I meant to refer you to.

5 And when you are referring to 1984-86 in this
6 document you are referring to the commercial operation date;
7 is that correct?

8 A Yes.

9 Q I take it since you discussed the Delaware River
10 Basin Commission and PECO's efforts there that you are
11 familiar with that case, and in fact you presented
12 testimony before the Delaware River Basin Commission on
13 some of your applications; is that correct?

14 A Yes.

15 MR. WERSAN: Your Honor, at this time I would like
16 to mark for identification as OCA Exhibit 58 two documents
17 -- actually I guess they are called one document, which
18 is a cover letter dated April 24th, 1985 from Edward G.
19 Bauer, Jr., Vice-President and General Counsel of PECO,
20 to the Secretary of the Delaware River Basin Commission,
21 Susan Weisman. And Attachment 1-A to that as labeled
22 is a discussion of the application.

23 JUDGE MATUSCHAK: So marked.

24 (Whereupon, the document was marked
25 as OCA Exhibit No. 58 for identi-
fication.)

1 BY MR. WERSAN:

2 Q Are you familiar with this document, Mr Boyer?

3 A Yes.

4 Q Am I correct that you were the authorized
5 person who signed on the second page of the application?

6 A Yes.

7 Q And this application discusses some of the
8 water flow problems presented to Philadelphia Electric
9 with the operation of Limerick; is that correct?

10 A Yes.

11 Q I assume you presented this testimony in order
12 to get the Delaware River Basin Commission to grant your
13 application, and you were presenting the reasons why you
14 thought that was a good idea?

15 A Why they were justified, yes.

16 Q And if I could refer you to your statement, which
17 is the third document attached thereto, dated May 7th, 1985,
18 do you remember this statement?

19 A Yes.

20 Q As a matter of fact, if you will refer to the
21 third page of that, in the middle paragraph you have there
22 you state, "Delays in full power operation" -- and you
23 are referring to Limerick 1 -- "will increase the cost
24 of Unit 1 by \$34 million per month. In addition, the fuel
25 costs of PECO's customers will be increased by \$15 million

1 per month. Thus, the cost of delaying the ascension to
2 full power program is estimated to be \$49 million per month."
3 Is that correct?

4 A Correct.

5 MR. WERSAN: Your Honor, at this point I would like
6 to mark for identification as OCA Exhibit 59 an excerpt
7 from testimony by Mr. Boyer again before the DRBC, only
8 this time -- I'll ask Mr Boyer, but it is my understanding
9 that it was presented in October of 1985. I will ask him
10 to confirm that.

11 JUDGE MATUSCHAK: So marked.

12 (Whereupon, the document was marked
13 as OCA Exhibit No. 59 for identi-
14 fication.)

15 MR. WERSAN: Once again, Your Honor, I have only
16 copied out certain pages in this document, and I would not
17 object to the company entering the full document.

18 JUDGE MATUSCHAK: Very well.

19 BY MR. WERSAN:

20 Q Do you recollect this testimony, Mr. Boyer?

21 A This is the attachment to the application which
22 was for removal -- for our authorization to take water
23 from the Schuylkill River down to flows of 415 cfs at
24 Pottstown. This is the application which was approved on
25 October 2nd by Executive direction, and approved by the
Commission on October 30th, 1985. We submitted it sometime

1 in September, I would guess.

2 Q If I could refer you to the second page, am I
3 correct that in this part of your testimony you were
4 discussing alternatives to the granting of your applica-
5 tion, and one was Paragraph 56, no action?

6 A Right.

7 Q And you state in that paragraph at the last
8 sentence, "The cost of not operating Limerick for lack of
9 water during that period" -- referring to June to late in
10 1985 -- "is estimated to be \$44 million per month." And
11 you cite an affidavit of Mr. Kemper, Vice-President,
12 Engineering and Research, dated September 20, 1985; is
13 that correct?

14 A Right.

15 MR. WERSAN: Your Honor, I would like to mark for
16 identification OCA Exhibit Number 60, which again is an
17 affidavit of Mr. Boyer, only this time it was included as
18 part of a brief of Philadelphia Electric Company before
19 the Commonwealth Court of Pennsylvania in the litigation
20 arising from the Limerick investigation at Docket Number
21 I-80100341.

22 JUDGE MATUSCHAK: It may be so marked.

23 (Whereupon, the document was marked
24 as OCA Exhibit No. 60 for identi-
25 fication.)

MR. WERSAN: That affidavit was appended to that

1 brief as Appendix B.

2 BY MR. WERSAN:

3 Q Do you remember this affidavit, Mr. Boyer?

4 A Yes.

5 Q Am I correct that as part of this testimony
6 you were discussing the cost of a one-year deferral of
7 Unit 2?

8 A Yes.

9 Q And you quantified the cost of a one-year
10 deferral on page 8 of that affidavit; is that correct
11 -- or you summarize your quantification on page 8?

12 A Yes.

13 Q And am I correct that under the company's
14 analysis, as shown in your affidavit, at the time this
15 document was filed the cost of the one-year deferral of
16 Unit 2 was \$469 million?

17 A That's as stated in the summary, yes.

18 Q And of that the largest amount for \$291 million
19 was for AFUDC, \$84 million for escalation and \$82 million
20 for loss of efficiency?

21 A Yes.

22 MR. WERSAN: Your Honor, that's all the cross-
23 examination I have for Mr. Boyer.

24 At this time I would like to move into evidence
25 OCA Exhibits 56 through 60.

1 MR. HALL: Your Honor, the company does not object
2 except for the fact that it does reserve the right to
3 review these items to see that they are complete and fairly
4 present the company's position, and present additional
5 material if it believes it is necessary.

6 JUDGE MATUSCHAK: Staff Exhibits are admitted.

7 (Whereupon, the documents marked
8 as OCA Exhibits Nos. 56 through
9 60 were received in evidence.)

10 MR. WERSAN: Thank you, Mr. Boyer.
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1 JUDGE MATUSCHAK: GSA.

2 MR. ETTNER: Thank you.

3 CROSS-EXAMINATION

4 BY MR. ETTNER:

5 Q. Good afternoon, Mr. Boyer. I am Mike Ettner,
6 representing GSA.

7 I just wanted to clarify one item in your testimony.
8 Could I ask you to turn to page 3 of your pre-filed testi-
9 mony?

10 A. Yes.

11 Q. At the very bottom of that page, starting at
12 line 41, you have a sentence which indicates part of the
13 purpose of your testimony.

14 Directing your attention to the very final part of
15 that sentence, you indicate that in your testimony you in-
16 tend to explain the engineering and practical reasons why
17 such plant, meaning common plant, is used and useful. Do
18 you see that?

19 A. Yes.

20 Q. I wanted to focus on your use of the term "used
21 and useful." When you employ that term here in your testi-
22 mony, do you have in mind the same definition and the same
23 concept as is used by this Commission when it refers to the
24 "used and useful" concept?

25 A. I would say that is why that was used, because

1 of its reference to the Commission's practice on placing
2 equipment in rate base.

3 Q. Could you provide me now with a short defini-
4 tion of what you conceive to be "used and useful" as that
5 term is used?

6 A. My definition would be that the equipment that
7 is being discussed is being used directly in providing a
8 service to the customer as part of a facility, a generating
9 facility, or is necessary to the project.

10 As an alternate, it could be the economic advantage
11 to putting that piece of equipment in or that addition in
12 to a piece of equipment at that present time to avoid in-
13 creased costs in the future.

14 If we put a transformer on a pole, there is excess
15 capacity in that equipment. The transformer is considered
16 used and useful, but the transformer capacity is not up to
17 its ultimate limit; it would not be practical to do so be-
18 cause as a customer bought a few more appliances, you
19 would have to go out and change the transformer and, there-
20 fore, incur other expenses. So it is economical to put in
21 something that is a little larger than needed.

22 The same thing with a transmission line, a sub-
23 station, most any of our equipment.

24 Q. If the generating plant with which the common
25 plant is associated is itself not used and useful in the

1 sense of not putting out kws for use on the company's sys-
2 tem, would you then say that the common plant at that
3 point is not yet used and useful?

4 A. I don't appreciate the import of the first
5 part of your sentence, where you say "if the generating
6 plant is not putting anything out."

7 Q. The generating plant hasn't achieved commercial
8 operation and has not been introduced into the system.

9 A. If the generating plant, or generating unit --
10 are you referring to Limerick No. 1?

11 Q. Yes.

12 A. Yes. Then why don't you say Limerick No. 1; it
13 would be helpful to me. If Limerick No. 1 is not in
14 service, as it is not in yet, it is not in the rate base;
15 that's what this application is about. It is going to
16 approach commercial operation and we want to put it into
17 rate base.

18 There are facilities that are provided in connection
19 with a generating unit, the station, the appurtenances, the
20 offices, the buildings, the common plant, the water treat-
21 ment system, et cetera, that may not be up to its ultimate
22 capacity for one reason or another.

23 The water treatment system, if you have purer water
24 now, the river water is a higher quality than it will be at
25 some later time, you don't have to use the full capacity

j32

1 treatment system.

2 If you don't have a maintenance gang in in the
3 beginning, your sewage system isn't loaded up at the present
4 time. It may be till 1987 until the full maximum complement
5 of people come in that would require the need of a sewage
6 system. But I would expect the sewage treatment system and
7 the sanitary facilities to be included in the total plant.

8 Q Just to clarify this one final time. Are you
9 saying that the triggering point for -- the point at which
10 you would consider common plant to be used and useful, is
11 that linked to the generating plant, the Limerick plant,
12 with which it is associated?

13 A Yes. Right. When Limerick No. 1 goes into the
14 rate base, then the common plant associated with it ought
15 to be considered use and useful and go in with it.

16 Q Simultaneously?

17 A Simultaneously. That's why we feel that the
18 entire common plant, which is useful for the entire plant
19 and can afford economies in connection with future develop-
20 ments in Unit 2, is appropriate to put it in with Unit 1.

21 There are economies that are obtained to the rate-
22 payer by so doing, and there are tax benefits for putting
23 it in service now.

24 MR. ETTNER: Thank you, Mr. Boyer.

25 Thank you, Your Honor.

JUDGE MATUSCHAK: GEC.

MS. FERKIN: Thank you, Your Honor.

CROSS-EXAMINATION

BY MS. FERKIN:

Q. Good afternoon, Mr. Boyer.

A. How do you do?

Q. I would like to go back to a line of questioning that I believe you explored with Mr. Wersan regarding water supply.

Mr. Wersan at one point in his cross-examination asked you to make two assumptions. He asked you to assume that the applications you have filed for interim water supplies are not approved as of January 1, 1986.

He also asked you to assume that the flow and temperature situations in the Schuylkill River in 1986 were the same as they were in 1985.

I would like you to make those assumptions in reference to my questions.

A. Can you tell me what the flow was in the river in 1985, in January or February? I presume it's that month you're talking about.

Q. I'm not going to ask you about January and February. I'm going to ask you about the summer months.

A. You're talking about the whole year; okay.

Q. You said, in response to Mr. Wersan, that

1 historically in January and February, the flow in the
2 Schuylkill is adequate, and you would expect no limitation
3 on operation of Limerick 1.

4 I am wondering whether you would expect any limita-
5 tion on operation based on historical experience with
6 flows, for example, in May?

7 A. There could be.

8 Q. Would you make the same assessment with respect
9 to June through September?

10 A. May through September; yes.

11 Q. Have you quantified the extent of the restric-
12 tion on operation of Limerick 1 in the May to September
13 period?

14 A. That answer to the interrogatory which we looked
15 at quantifies it on the basis of an average year.

16 Q. As I understand that interrogatory -- I believe
17 we're talking about Staff Exhibit 11?

18 A. Yes.

19 Q. Am I correct that that interrogatory shows me
20 availability of water?

21 A. Yes.

22 Q. I guess what I'm getting at, Mr. Boyer, is
23 whether you have quantified availability of plant.

24 A. No. This is just looking at the water. If you're
25 saying when would a forced outage occur, that is not

1 included in here. Planned outages or forced outages are not
2 considered in this graph.

3 Q Let's look back at the graph for a moment.
4 Let's assume we're in the month of May. Let's assume that
5 the water supply looks just like it appears on the graph
6 in the month of May.

7 A. Right.

8 Q Have you quantified the capacity factor at which
9 Limerick I can operate in the month of May, assuming the
10 water supply looks just like it does on this graph?

11 A. If it looks just like it was on the graph, it
12 looks to me like that's about -- the water would be avail-
13 able for 30 percent of the month, so you would be able to
14 get approximately 30 percent capacity factor for the month.

15 However, this assumes no other sources available,
16 and that is not a realistic assumption in my basis.

17 Q But that is the assumption I wanted you to make
18 in terms of this question.

19 A. That's what this shows.

20 MS. FERKIN: Thank you, Mr. Boyer.

21 I have no further questions, Your Honor.

22 JUDGE MATUSCHAK: Is there further cross-
23 examination?

24 MR. WIDOFF: Yes.
25

CROSS-EXAMINATION

1
2 BY MR. WIDOFF:

3 Q Good afternoon, Mr. Boyer. I am Mark Widoff,
4 representing the University of Pennsylvania and the Utility
5 Users Committee. I have a very few questions to ask.

6 In your testimony, Mr. Boyer, you make reference, on
7 pages 14 and 15, to the first Limerick investigation at
8 Docket No. I-80100341; is that correct?

9 A Yes.

10 Q You were a witness in that proceeding; is that
11 also correct?

12 A Yes.

13 Q Would it also be correct to indicate that you
14 presented the company's view with respect to the likely
15 cost of completing Limerick 1 and 2?

16 A Yes.

17 MR. WIDOFF: Your Honor, I would like to have marked
18 a three-page document as UCC/UP Exhibit No. 3.

19 JUDGE MATUSCHAK: Very well.

20 (Whereupon, the document was marked
21 as UCC/UP Exhibit No. 3 for
22 identification.)

23 BY MR. WIDOFF:

24 Q I have excerpted two pages from your surrebuttal
25 testimony of August 14, 1981 in that proceeding, and I
would ask you, Mr. Boyer, if you recall presenting

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1 surrebuttal testimony as of that date?

2 A. Yes.

3 Q. Is it correct to state that on pages 2 and 3,
4 as reproduced in this exhibit, you provided your estimate
5 of construction costs, and further, that you stated on
6 page 3 that "The total project cost of Limerick continues to
7 be \$4.2 billion as I stated in my testimony in April"?

8 A. Yes.

9 MR. WIDOFF: Your Honor, at this point I would like
10 to have marked as UCC/UP Exhibit No. 4 a three-page
11 document.

12 JUDGE MATUSCHAK: Very well.

13 (Whereupon, the document was marked
14 as UCC/UP Exhibit No. 4 for
15 identification.)

16 BY MR. WIDOFF:

17 Q. Mr. Boyer, are you also familiar with this
18 testimony, which is labeled "Sur-Surrebuttal Testimony,"
19 dated October 7, 1981?

20 A. Generally, yes.

21 Q. Is it correct that on the pages which have been
22 excerpted from your testimony, you were asked about an
23 estimate by one of the witnesses in that proceeding who
24 had estimated that the cost of Limerick would be \$6.6
25 billion, and that you responded that, in your view, that
cost estimate was implausible?

1 A. Yes. Now, you would have to go back and look at
2 what his estimate was based on, because I say it was im-
3 plausible in that it assumes unrealistically high expendi-
4 tures for labor and materials during his assumed remaining
5 construction period.

6 So I think he was estimating an earlier completion
7 date than the plant actually came in on.

8 So you have to do more than just look at these two
9 pieces of paper.

10 As I recall, the man loading and expenditures for
11 material would have been impossible to accomplish in his
12 estimate. That's why we felt it was an implausible
13 estimate.

14 Q. But, in fact, the present estimate for the cost
15 of the project, as I understand it from this filing, is
16 \$7.2 billion; is that not correct?

17 A. Yes; possibly because of the PUC's stopping of
18 Limerick No. 2, which has changed the service date and the
19 increased cost of it. So if you go back to compare apples
20 to apples, you may find that -- you're picking two numbers
21 out, and just because they are somewhere in the vicinity of
22 each other, you're trying to draw a conclusion, which is
23 not an appropriate thing to do unless you look at the basis
24 for the numbers.

25 Q. What is the request for inclusion in rate base

1 in this proceeding for Limerick 1 and 100 percent of common
2 plant?

3 A. It is in the record. I don't know the exact
4 amount.

5 Q. Would it be correct to state that it is approxi-
6 mately \$4.2 billion?

7 A. For common plant, I think that's right; yes.

8 Q. Would you accept that?

9 A. Yes, for 100 percent of common.

10 MR. HALL: Mr. Widoff, I think we would want to
11 check that. I don't believe that is accurate.

12 MR. WIDOFF: That would be fine, Mr. Hall, if you
13 want to.

14 I have no further questions of the witness at this
15 time, Your Honor.

16 I would like to move in at this time UCC/UP Exhibits
17 Nos. 3 and 4, subject to any completion or elaboration that
18 the company may wish in light of the fact that these are
19 clearly excerpts from the testimony of Mr. Boyer. They do
20 not purport to be a complete presentation of his testimony.

21 MR. HALL: Your Honor, with that exception we have
22 no objection to the inclusion of the documents in the
23 record.

24 I would note that the correct figure for Limerick 1
25 and common is \$3.8 billion.

1 JUDGE MATUSCHAK: Exhibits 3 and 4 are admitted in-
2 to evidence subject to those conditions.

3 (Whereupon, the documents marked as
4 UCC/UP Exhibits Nos. 3 and 4 were
5 received in evidence.)

6 CROSS-EXAMINATION

7 BY MR. KLEPPINGER:

8 Q Good afternoon, Mr. Boyer. My name is David
9 Kleppinger, and I represent the Philadelphia Area Indus-
10 trial Energy Users Group.

11 I just have a few questions on page 8 of your testi-
12 mony where you discuss the company's initial decision to
13 construct the unit.

14 Beginning at line 37 you indicate that load and
15 capacity forecasts and your PJM reserve obligations, as
16 well as social and regulatory pressures in the late-'60s,
17 prompted the initiation of Limerick Generating Station.

18 Is it fair to say that the first step that the com-
19 pany took in the planning process for Limerick 1 was to
20 identify a need for additional capacity?

21 A. Yes.

22 Q. Now, your testimony continues then to indicate
23 that you had sufficient cycling and peaking capacity, so
24 that you determined the new facility should be base load
25 operation.

A. Correct.

1 Q Is it safe to say that that then was the second
2 step of the planning process; that after you decided you
3 needed additional capacity, you then went back and said:
4 do we need peaking, intermediate or base load, and you
5 decided on base load?

6 A You're doing good planning.

7 Q Then the third step in the process, I take it,
8 was to determine what type of base load capacity, be it
9 coal, nuclear or other fossil fuel?

10 A Right.

11 Q And the final step is to determine the site for
12 the actual facility.

13 A Yes.

14 Q And that was the thought process that PECO went
15 through at the initial planning stages for Limerick I; is
16 that correct?

17 A Yes.

18 Q Now, as your testimony continues, you go into a
19 discussion of the continued justification for the plant. I
20 would like to focus your attention on page 14 of your testi-
21 mony, at lines 26 through 30, where you indicate that PECO
22 conducted a number of analyses throughout the '70s and '80s,
23 all of which confirmed the continued need for and economic
24 superiority of the Limerick plant.

25 Now, your use of the term "need for" on line 28,

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does that relate to the company's perception that based on its load forecast, there was a continued need for the capacity planned at Limerick 1?

A. That is correct.

Q. And that when you refer to "economic superiority," you're referring back to the third step in your original planning process, which was the decision to go with nuclear as opposed to coal or another fuel source?

A. And the position of the plant, Limerick No. 1, what we're talking about, the expenditures remaining versus some alternative.

MR. KLEPPINGER: Thank you, Mr. Boyer.

That's all I have, Your Honor.

JUDGE MATUSCHAK: Is there any further cross-examination of this witness?

MR. WERSAN: Your Honor, if I may, I overlooked the moving into evidence of OCA Exhibit No. 55; if I may do that at this time. That was the excerpt from the Bi-Monthly Report No. 10.

MR. HALL: No objection, Your Honor.

JUDGE MATUSCHAK: OCA Exhibit No. 55 is admitted into evidence.

(Whereupon, the document marked as OCA Exhibit No. 55 was received in evidence.)

JUDGE MATUSCHAK: Is there any redirect?

1 MR. HALL: Your Honor, in light of the extent of
2 the cross-examination, I would appreciate a brief recess.

3 JUDGE MATUSCHAK: We'll take a short recess.

4 (Recess.)

5 JUDGE MATUSCHAK: On the record.

6 MR. HALL: If Your Honor please, I have one redirect
7 question of Mr. Boyer.

8 REDIRECT EXAMINATION

9 BY MR. HALL:

10 Q. Mr. Boyer, during your cross-examination, I be-
11 lieve by Mr. Wersan, you were asked the question of when
12 construction was completed at Limerick 1, and I believe
13 you answered October 1984.

14 Have you had the opportunity to consult with your
15 staff and to review this matter, and do you wish to revise
16 the answer which you previously gave?

17 A. Yes. The date that I stated, October 26, 1984,
18 was the date of our receipt of our fuel loading license.

19 There were a few minor construction items which were
20 not needed for fuel loading which would be needed for full
21 power operation, and, therefore, I would have to say for
22 commercial operation they would be needed, which were not
23 completed until March of 1985, some five months later.

24 So I would say March of '85 the plant was completed
25 and ready for commercial operation.

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1 MR. WERSAN: May I, Your Honor?

2 RECROSS-EXAMINATION

3 BY MR. WERSAN:

4 Q. Despite those few items that you had to continue
5 construction with, they were not of a nature to prevent
6 the Director of Nuclear Reactor Regulation from allowing
7 you to load fuel?

8 A. No. They were not required for fuel loading,
9 but they would have been required for commercial operation.

10 MR. WERSAN: Thank you, Your Honor.

11 MR. HALL: That's all I have, Your Honor.

12 JUDGE MATUSCHAK: Very well.

13 (Witness excused.)

14 JUDGE MATUSCHAK: Does that conclude the testimony
15 for today?

16 MR. HALL: Yes, Your Honor, it does.

17 JUDGE MATUSCHAK: Very well. We will adjourn now
18 until 10:00 tomorrow.

19 (Whereupon, at 3:55 p.m., the hearing was adjourned,
20 to be reconvened at 10:00 a.m. on Wednesday, December 18,
21 1985, in Harrisburg, Pennsylvania.)

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C E R T I F I C A T E

1
2 I hereby certify, as the stenographic reporter, that
3 the foregoing proceedings were reported stenographically
4 by me, and thereafter reduced to typewriting by me or under
5 my direction; and that this transcript is a true and accurate
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